SPRING 2012

## BULLETIN

## of THE

# MISSISSIPPI STATE UNIVERSITY

ONE-HUNDRED THIRTIETH ANNUAL

**BULLETIN 2012-2013** 

## ANNOUNCEMENTS FOR

SPRING 2012 - SPRING 2013

## STUDENT RESPONSIBILITY DISCLAIMER

Each student is responsible for understanding and completing all requirements established for his or her degree by the University, college and department. A student's advisor or counselor may not assume that responsibility. Any substitution, waiver, or exemption from established degree requirements may be accomplished only with the approval of the student's dean. Exceptions to University requirements, including the General Education requirements, will be authorized only with the approval of the student's dean and the Office of Academic Affairs.

This Bulletin presents information which, at the time of preparation for printing, most accurately described the courses, curricula, degrees, policies, procedures, regulations and requirements of the University. No contractual relationships, however, can be established between students and the University upon the information contained herein. The University reserves the right to delete, substitute for, change, or supplement any statement in this Bulletin without prior notice.

Mississippi State University does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, sexual orientation, group affiliation, or veteran status.

Cover design by University Relations

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The Board maintains offices at 3825 Ridgewood Road, Jackson, Mississippi.

For more information on Mississippi State University, visit the following Web sites.

- University site: www.msstate.edu
- School calendars: www.registrar.msstate.edu/Calendars/academiccal.html
- Undergraduate Bulletin (this document): www.catalog.msstate.edu
- Admissions: www.admissions.msstate.edu/
- Financial Aid: www.sfa.msstate.edu/
- Registrar's Office: www.registrar.msstate.edu

# THE UNIVERSITY

## **I. INTRODUCTION**

Mississippi State University is a comprehensive, doctoral degree granting, land-grant university. It forms part of a cohesive community with the growing town of Starkville, population 24,000. Located in the eastern part of north-central Mississippi, the university is 125 miles northeast of Jackson, 165 miles southeast of Memphis, and 150 miles west of Birmingham. It is served by U.S. Highway 82, state highways 12 and 25, and by commercial air service through Golden Triangle Regional Airport, 14 miles east of campus.

Mississippi State University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award baccalaureate, masters, specialist, and doctorate degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call (404) 679-4500 for questions about the accreditation of Mississippi State University.

Mississippi State University is comprised of the following academic units: the College of Agriculture and Life Sciences, including the school of Human Sciences; the College of Architecture, Art, and Design; the College of Arts and Sciences; the College of Business, including the Richard C. Adkerson School of Accountancy; the James Worth Bagley College of Engineering, including the Swalm School of Chemical Engineering; the College of Forest Resources; the College of Veterinary Medicine; the College of Education; the Graduate School; and the Division of Academic Outreach and Continuing Education. Four regional research and extension centers representing both the Mississippi Agricultural and Forestry Experiment Station (MAFES) and the Mississippi State University Extension Service are located in different parts of the state. MAFES conducts research at 16 off-campus sites throughout the state. The Mississippi State University Extension Service offers programs and services in all 82 counties of Mississippi. Supporting the academic and educational programs of the total university are the Mitchell Memorial Library and branch libraries.

Mississippi State University operates a degree-granting campus in Meridian, where both undergraduate and graduate programs are offered, and a program center at the Stennis Space Center. In cooperation with the U.S. Army Corps of Engineers Waterways Experiment Station, the Bagley College of Engineering offers the Master of Science degree in Vicksburg.

Several centers and institutes perform specialized teaching, research or service activities. Among these are the Center for Science, Mathematics and Technology; Center for Safety and Health; High Performance Computing Collaboratory; Mississippi State Chemical Lab; National Strategic Planning and Analysis Research Center (nSPARC); Research Curriculum Unit; Institute for Imaging and Analytical Technologies; Carl Small Town Center; Design Research and Informatics Lab (DRIL); Educational Design Institute; Jackson Community Design Center; Gulf Coast Community Design Studio; Biological and Physical Sciences Research Institute; Center for Computational Sciences; Cobb Institute of Archaeology; Institute for the Humanities; John C. Stennis Institute of Government and Community Development; Center for Family Enterprise Research; Mississippi State Entrepreneur Center; Center for Education and Financial Literacy; Center for Educational Partnerships; Early Childhood Institute; Mississippi Writing/Thinking Institute; Rehabilitation Research and Training Center on Blindness and Low Vision; T.K. Martin Center for Clean Energy Technology (ICET); Raspet Flight Research Laboratory; Forest and Wildlife Research Center; Franklin Furniture Institute; Center for Education and Training Technology; Geosystems Research Laboratory; Forest and Wildlife Research Center; Franklin Furniture Institute; Northern Gulf Institute (NGI); Social Science Research Center for Environmental Health Sciences, and Sustainable Energy Research Center (SERC).

The grounds of the University are comprised of about 4,200 acres, including farms, pastures, and woodlands. The net investment in buildings and grounds is approximately \$1 billion.

The university began as the Agricultural and Mechanical College of the State of Mississippi, one of the national land-grant colleges established after Congress passed the Morrill Act in 1862. It was created by the Mississippi Legislature on February 28, 1878, to fulfill the mission of offering training in "agriculture, horticulture and the mechanical arts... without excluding other scientific and classical studies, including military tactics." The College received its first students in the fall of 1880 in the presidency of General Stephen D. Lee. In 1887, Congress passed the Hatch Act, which provided for the establishment of the Agricultural Experiment Station in 1888. Two other pieces of federal legislation provided funds for extending the mission of the College: in 1914, the Smith-Lever Act called for "instruction in practical agriculture and home economics to persons not attendant or resident," thus creating the state-wide effort which led to Extension offices in every county in the State; and, in 1917, the Smith-Hughes Act provided for the training of teachers in vocational education.

By 1932, when the Legislature renamed the College as Mississippi State College, it consisted of the Agricultural Experiment Station (1887), the College of Engineering (1902), the College of Agriculture (1903), the School of Industrial Pedagogy (1909), the School of General Science (1911), the College of Business and Industry (1915), the Mississippi Agricultural Extension Service (1915), and the Division of Continuing Education (1919). Further, in 1926 the College had received its first accreditation by the Southern Association of Colleges and Schools. By 1958, when the Legislature again renamed the institution, as Mississippi State University, the Office of the Graduate School had been organized (1936), doctoral degree programs had begun (1951), the School of Forest Resources had been established (1954), and the College of Arts and Sciences had been created (1956). The College of Architecture admitted its first students in 1973. The College of Veterinary Medicine admitted its first class in 1977, and the School of Ac-countancy was established in 1979.

### Past Presidents of the College/University

1. General Stephen D. Lee (1880-1899)	10. Fred Tom Mitchell (1945-1953)
2. John Marshall Stone (1899-1900)	11. Benjamin F. Hilbun (1953-1960)
3. John Crumpton Hardy (1900-1912)	12. Dean W. Colvard (1960-1966)
4. George Robert Hightower (1912-1916)	13. William L. Giles (1966-1976)
5. William Hall Smith (1916-1920)	14. James D. McComas (1976-1985)
6. David Carlisle Hull (1920-1925)	15. Donald W. Zacharias (1985-1997)
7. Buz M. Walker (1925-1930)	16. Malcolm Portera (1998-2001)
8. Hugh Critz (1930-1934)	17. J. Charles Lee (2001-2006)
9. George Duke Humphrey (1934-1945)	18. Robert H. Foglesong (2006-2008)

### VISION AND MISSION STATEMENTS

### VISION

Mississippi State University will be a leading public research university that is globally aware and involved, accessible and responsive to the many constituencies it serves, and fully integrated with the intellectual, social, and economic development of the state, while delivering excellent programs of teaching, research, and service.

#### MISSION

Mississippi State University is a public, land-grant university whose mission is to provide access and opportunity to students from all sectors of the state's diverse population, as well as from other states and countries, and to offer excellent programs of teaching, research, and service.

#### MISSISSIPPI STATE UNIVERSITY

Enhancing its historic strengths in agriculture, natural resources, engineering, mathematics, and natural and physical sciences, Mississippi State offers a comprehensive range of undergraduate and graduate programs; these include architecture, the fine arts, business, education, the humanities, the social and behavioral sciences, and veterinary medicine.

The university embraces its role as a major contributor to the economic development of the state through targeted research and the transfer of ideas and technology to the public, supported by faculty and staff relationships with industry, community organizations, and government entities.

Building on its land-grant tradition, Mississippi State strategically extends its resources and expertise throughout the entire state for the benefit of Mississippi's citizens, offering access for working and place-bound adult learners through its Meridian Campus, Extension, and distance learning programs.

Mississippi State is committed to its tradition of instilling among its students and alumni ideals of diversity, citizenship, leadership, and service.

## **II. ADMISSION TO THE UNIVERSITY**

## A. ADMISSIONS

## DISCLAIMER

Until further notice, the admission information contained in this Bulletin most accurately describes the admissions policies, regulations, requirements and procedures of the University and the Board of Trustees of Institutions of Higher Learning. The University reserves the right to delete, substitute, change or supplement any statement in this Bulletin without prior notice.

## RECRUITING

Admissions counselors visit high schools and community/junior colleges to assist students in making a smooth transition to Mississippi State University by answering questions about admissions, financial aid, scholarships, on-campus housing, academic programs, fees and expenses, new student orientation, cooperative education, extracurricular activities, ROTC, and other areas of concern. Prospective students and their parents are encouraged to visit the campus, to meet students and professors, and to get an overall view of what the campus is like. To schedule a campus visit, go to www.admissions.msstate.edu.

All new students (freshmen and transfers) entering the University are encouraged to participate in the summer orientation program. The purpose of the program is to enable the student to become familiar with the University, its activities, and its academic programs. The student participates in small group activities, receives academic advisement, selects courses, and completes registration except for the payment of tuition and fees.

**Invitation to Parents**. At the time of student orientation, parents are invited and urged to attend a program designed to acquaint them with University policies, student activities, campus life, academic programs, and other interest areas. They also are given the opportunity to meet and talk with academic deans and department heads and with staff members in the Division of Student Affairs.

Prior to the beginning of each semester, there is an orientation program for those who are admitted to the University too late to participate in the summer programs. Students who for other reasons cannot attend orientation at an earlier date may attend these sessions.

For additional information, write to the Office of Admissions and Scholarships, P.O. Box 6334, Mississippi State, MS 39762, or telephone (662) 325-2224. Find the Office of Admissions and Scholarships on the Internet at admissions.msstate.edu.

## APPLICATIONS

For consideration for admission for the fall term, freshmen and transfer applications should be received by August 1. Applicants to the College of Architecture, PGA Golf Management, and the College of Veterinary Medicine have early application deadlines. Other departments may also have application deadlines. Contact the specific department for dates.

All applicants must submit a \$40 non-refundable application fee. The application for admission cannot be processed until this fee is received.

Mississippi State University may void enrollment in the following situations: if an original transcript is not received; if a student is not eligible for readmission to any college formerly attended; or if any document is fraudulent or altered.

Applicants may meet general admission requirements to the University and not meet the requirements for a specific department. Applicants should contact the academic department to which they are applying for additional requirements.

The Office of Admissions and Scholarships is responsible for administering admission policies. For admission information or to inquire further about university admission requirements, contact the Office of Admissions and Scholarships, Mississippi State University, P.O. Box 6334, Mississippi State, MS 39762. Telephone: (662) 325-2224. Fax: (662) 325-1678 (1MSU). E-mail: admit@msstate.edu. Students may apply online by visiting our Web site at www.admissions.msstate.edu. All applications may be submitted electronically.

## **1. Freshman Entrance Requirements**

### a. Regular Admission.

(1) Submit application for admission.

- (2) Submit a \$40 non-refundable application fee.
- (3) Must have graduated from an approved secondary school.
- (4) Request that official ACT or SAT scores be sent to Mississippi State University directly from the testing agency. MSU's ACT code is 2220 and the SAT code is 1480. (*The writing test of the ACT and SAT are not considered for admission or scholarship awarding purposes.*)
- (5) Submit a six-semester high school transcript to Mississippi State University, as well as an official transcript upon graduation from high school. If the applicant has attended another college, he/she should request those transcripts be sent to the Office of Admissions and Scholarships. Faxed transcripts will not be accepted.

(6) Must satisfactorily complete the following College Preparatory Curriculum (CPC) with an appropriate core grade-point average: Subject: Units:

Susjeen	Childs
English	4 - All must have substantial writing requirements
Mathematics	3 - Algebra I, Algebra II, and Geometry or a higher level mathematics (Algebra I taken in the 8th grade will be accepted for admission purposes provided the course content is the same as the high school course.)
Science	3 - Physical Science, Biology, Advanced Biology, Chemistry, Advanced Chemistry, Physics, Advanced Physics, Anatomy and Physiology, Botany, Marine Biology, or another science of comparable rigor. (Two units must be lab based.)
Social Science	3 - U.S. History 1 unit, World History 1 unit; Government 1/2 unit; and Economics 1/2 unit or Geography 1/2 unit.
Advanced Electives	<ul> <li>2 - Elect 2 units from Foreign Language, World Geography, 4th year laboratory-based Science, and 4th year Mathematics. One of the two required units must be a Foreign Language or World Geography.</li> <li>(Foreign Language taken in the 8th grade will be accepted for admission purposes, provided the course content is the same as the high school course.)</li> </ul>

## ADMISSION TO THE UNIVERSITY

Computer

1/2 - Computer as a productivity tool, not as a keyboarding device.

Full admission to Mississippi State will be granted to high school graduates who complete the CPC with one of the following:

 $\cdot$  A minimum 3.20 grade-point average (GPA) on the CPC.

· A minimum 2.50 GPA on the CPC and a composite score of 16 or higher on the ACT or a combined score of 760 or higher on the SAT.

· A minimum 2.0 GPA on the CPC and a composite score of 18 or higher on the ACT or a combined score of 860 or higher on the SAT.

• Standing in the top 50 percent of the class and a composite score of 16 or higher on the ACT or a combined score of 760 or higher on the SAT. • Satisfy the National Collegiate Athletic Association standards for student-athletes who are full qualifiers under Division I guidelines.

Applicants who fail to meet full admission standards as listed above may, as a result of review, be admitted to the fall or summer term, provided that application materials are received prior to the first summer session. The review shall involve a consideration of high school performance, ACT/ SAT scores, placement testing, and special interests and skills, as well as other non-academic factors.

Entering freshmen who have both a high school grade-point average of less than 2.5 on the college preparatory curriculum and a composite ACT score of less than 21 will be placed in the undecided major and will be advised by the University Academic Advising Center until 30 credit hours of core classes have been completed.

A student-athlete must meet the requirements of the Southeastern Conference and the National Collegiate Athletic Association (NCAA).

Mississippi State University neither awards credit nor accepts transfer-college-credit based solely on ACT, SAT, or other comparable tests commonly administered to high school students primarily for college admissions purposes. Documents and other proof that students have met the University entrance requirements are kept on file in the Office of Admissions and Scholarships, Room 100, Montgomery Hall.

## b. Admission with Deficiencies.

If the initial review indicates inadequate readiness in English, reading, or mathematics, applicants may be required to participate in counseling and testing, which will be held on campus prior to the beginning of the summer session. Applicants who successfully complete the counseling and testing program may be admitted to the University, with the requirement that they participate in the year-long Academic Support Program.

Applicants who fail to successfully complete the counseling and testing program may be admitted with the requirement that they enroll in the Summer Developmental Program. This is a 9-week intensive program that concentrates on those high school subject areas (writing, reading, and mathematics) essential to success in first-year college courses. Students who successfully complete this summer program will be allowed to continue in the fall, with mandatory participation in the Academic Support Program during their freshman year. Developmental courses taken during the Summer Developmental Program are remedial and neither count toward a degree nor are computed in a student's grade point average. Students who fail to successfully complete the Summer Developmental Program will be counseled to explore other post-secondary opportunities.

c. Home Schooled. Home School applicants are required to meet the same requirements as other freshman applicants. Official ACT/SAT scores and transcripts (or portfolios) are required.

**d. Early Admission**. A superior secondary-school student may be admitted to the freshman class as an EARLY ADMISSION if he or she (a) has earned a minimum of 15 acceptable credits, (b) has earned a standard composite ACT score of 25 or an SAT combined score of 1130, (c) ranks in the upper 25 percent of his or her high school class, and (d) is recommended for early admission in a letter from the high school principal.

e. Special Program for Academically Talented Students (SPATS). Academically talented students who (a) have finished at least their junior year in high school, as judged by their high school officials, (b) in the judgment of parents and high school administrators are mature enough to profit from college work, and (c) have a standard composite score of 25 on the American College Test, may apply for admission to a special program in which they may earn regular college credit.

A SPATS student is advised to take a maximum of six credit hours (two courses). Courses taken must not be the equivalent of those which the student will take in the senior year of high school. Students are expected to return to high school and finish a normal senior year. The courses may not be substituted for high school credits to meet college admission requirements. Credit is reserved until the student has graduated from high school. Information concerning the program and application forms may be obtained by writing to: Office of Admissions and Scholarships, P.O. Box 6334, Mississippi Sate, MS 39762. Telephone: (662) 325-2224. Email: admit@msstate.edu.

**f.** Admission by Examination. An applicant who has not graduated from high school may substitute the General Educational Development Test (high school level) for the requirement of high school graduation. The GED will substitute for the requirement of high school graduation only, and not for the other requirements for freshman admission. Therefore, applicants who took the GED must submit an acceptable ACT/SAT score. An interview is required, along with review of other information. Applicants who hold the GED and who cannot meet other requirements for freshman admission may enroll at Mississippi State as transfers after meeting the normal requirements for transfer admission from another regionally accredited institution.

g. Admission to the College of Veterinary Medicine. (See College of Veterinary Medicine section in Part II.)

## 2. Special Non-Degree Classification

An applicant who is twenty-one (21) years old and who does not meet the regular freshman admission requirements, may apply to the Office of Admissions and Scholarships for acceptance into the Special Non-Degree (SND) student category. Students in this category will be advised by and will schedule classes through the University Academic Advising Center. Applicants must demonstrate adequate preparation for the courses they plan to schedule. SND students may schedule a maximum of twelve (12) semester hours during a regular term and three (3) semester hours during a five-week summer term. To move from the SND status, students should satisfactorily complete twelve (12) semester hours with a C or better average in core courses that are applicable to a degree at MSU. Students wishing to gain reclassification to a traditional major should discuss this during their initial meeting with one of the professional advisors in the University Academic Advising Center. For students admitted to a degree program, a maximum of eighteen (18) semester hours of credit earned while in the SND classification may be counted toward a baccalaureate degree, pending approval by the dean of the college or school from which the degree is sought.

Degree-seeking adult applicants with previous college attendance must meet regular transfer student requirements and, therefore, may not apply for admission under the Special Non-Degree option.

Non-degree seeking adult applicants with previous college attendance who do not meet regular transfer requirements may be allowed to schedule courses for self improvement and/or job enhancement only. Applicants should file a letter of intent with the Director of Undergraduate Admissions, Office of Admissions and Scholarships, to enroll under this option.

## 3. Admission of Transfer Students

- 1. Submit application for admission.
- 2. Submit a \$40 non-refundable application fee.
- 3. Submit a separate official final transcript from each college or university attended; faxed transcripts will not be accepted. An applicant may not ignore previous college attendance and must list all colleges attended on the application for admission. An applicant who misrepresents information or fails to provide information about prior college attendance will be subject to disciplinary action, including dismissal from the University.
- 4. Submit an official high school transcript and ACT or SAT scores if they seek admission under Option 1.
- 5. Be in good standing at the last college or university attended.

### **Admission Option 1:**

- 1. Submit a high school transcript and ACT or SAT scores showing that the applicant qualified initially as a freshman enrollee (see Freshman Entrance Requirements), **and**
- 2. Earn an overall 2.0 GPA (as computed by MSU) on all courses attempted at a regionally accredited institution of higher learning. Admission Option 2:

Any applicant who does not meet freshman requirements may attend a regionally accredited institution of higher learning and complete the core courses listed below **and** earn an overall 2.0 GPA (as computed by MSU) on all hours attempted. **Official transcripts from each institution attended must be submitted; faxed transcripts will not be accepted.** 

The applicant must successfully complete the following 30 semester hours of college work at a regionally accredited college:

- 6 semester hours English Composition
- 3 semester hours College Algebra, Quantitative Reasoning, or higher level mathematics
- 6 semester hours Natural Science
- 9 semester hours Humanities and Fine Arts
- 6 semester hours Social or Behavioral Sciences

## Admission Option 3:

Any applicant who does not meet freshman requirements may attend a regionally accredited institution of higher learning and earn an A.A., B.S. or equivalent from the regionally accredited institution with a 2.0 GPA (as computed by Mississippi State University). Official transcripts from each institution attended must be submitted.

Although the transfer applicant may meet general admissions requirements to the University, he/she may not meet the requirements for a specific department. Applicants should contact the academic department for additional requirements.

Transfer work earned from a non-regionally-accredited institution is not acceptable at Mississippi State University and applicants from these institutions must meet the admission requirements as an entering freshman.

**Transfer Credits.** Credits transferred from regionally accredited institutions are reproduced on the permanent records of Mississippi State University. Credits earned at another institution while on disciplinary suspension or dismissal may never be transferred or posted to the Mississippi State University record. In the case of students receiving VA benefits, enrollment certificates submitted to the Veterans Administration will reflect proper credit for previous education and training. This is done as a convenience for the student in providing him or her with an accurate consolidated record of his or her entire college career. This action is evidence that the credits are considered valid. Validity, however, is not to be confused with acceptability or applicability.

The Office of Admissions and Scholarships will accept academic transfer hours from other regionally accredited institutions. Depending on the course of study, technical credit may or may not be accepted. Remedial and Vocational credit will not be accepted. To meet graduation requirements, a transfer student must have an overall C (2.00) average, calculated by the method currently in use at Mississippi State University, on all hours scheduled and rescheduled at all institutions attended, including Mississippi State University. Excess quality points earned at other institutions cannot be used to offset any deficiencies at Mississippi State. Acceptance of junior or community college work is limited to one-half the total requirements for graduation in a given curriculum. The last half of the total hours applied toward graduation must be earned in a senior college.

Applicability of transfer work depends upon the equivalence of transfer credits with the requirements of a particular curriculum. Applicability varies from curriculum to curriculum, not only for transfer students from other institutions but for students transferring from one school or curriculum to another within Mississippi State University. In either case, the upper limit of the number of applicable credits is the number of accepted credits. Applicability is determined by the dean of the college or school to which one is admitted.

Non-traditional credits awarded by another college or university will be evaluated in terms of current policy at Mississippi State University. Unless the basis for awarding the credit is readily identifiable, no credit will be allowed until such time as the student, through the awarding institution, can establish the credibility of the work. Credits for ACT, SAT, CLEP General, or other comparable tests will not be accepted as transfer credit. Experiential Learning is not accepted as academic credit at Mississippi State University.

#### 4. Admission of International Students

Undergraduate international students must submit the following documents in order to be considered for admission:

- 1. International application for admission
- 2. \$40 non-refundable application fee
- 3. Certified, translated copies of all transcripts, mark sheets and diplomas. Mississippi State University may void enrollment if an original transcript is not received; if a student is not eligible for readmission to any college formerly attended; or if any document is fraudulent or altered.
- 4. Official American College Test (ACT) or Scholastic Aptitude Test (SAT) scores.
- 5. The following documents to receive immigration documents:
  - a. Bank or employer letter documenting financial support
  - b. Required test scores (see below)

**English Language Proficiency Requirement** - International undergraduate students admitted to Mississippi State University must demonstrate English language proficiency to register for academic courses offered through the colleges. Any of the following scores are acceptable to demonstrate English language proficiency:

- International English Language Testing System (IELTS): minimum band score of 6.0.
- Test of English as a Foreign Language (TOEFL): minimum 525 for paper-based test; 197 for computer-based test, and 71 for Internet-based test.
- English portion of the ACT: minimum 19.
- Critical reading portion of the SAT: minimum 480.

Although applicants may meet general language requirements to the university, some departments have established higher English language proficiency requirements. For a complete listing, please visit the Web site at www.admissions.msstate.edu/international.

#### **Exemption from English Language Proficiency Requirement**

Completion of intensive English training or English composition courses at a U.S. college does not waive the English language proficiency requirement. Only students who are citizens of Australia, Antigua and Barbuda, the Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Canada, Cayman Islands, Dominica, England, Grenada, Guyana, Jamaica, Monteserrat. New Zealand, Northern Ireland, Republic of Ireland, St. Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos Islands, and Wales are automatically exempt from this requirement. Citizens of Botswana, Lesotho, South Africa, and Swaziland are only exempt if English is listed as the first language on the Senior Certificate.

## Admission with English Language Deficiency

International students who are admitted and wish to enroll in academic courses, but fail to demonstrate English language proficiency using one of the approved methods will be required to enroll in English as a second language (ESL) courses. Students who successfully complete the English as a Second Language program will be considered to have demonstrated English language proficiency and allowed to register in academic courses offered through the colleges.

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Freshman Admission Requirements - Diploma from secondary school or secondary leaving examination, Scholastic Aptitude Test (SAT) score of 860 or higher or American College Test (ACT) score of 18 or higher, and appropriate TOEFL score.

### Transfer Admission Requirements:

Option A: One year of successful study at a foreign university and appropriate TOEFL score.

Option B: Meet freshman admission requirements and maintain a quality point average of 2.00/4.00 or higher (as evaluated by Mississippi State University) on all college level work attempted.

Option C: Thirty (30) semester hours of transferable credit from a regionally accredited U.S. college, with a grade-point average of 2.00 or higher on a 4.0 scale, as evaluated by Mississippi State University, including all of the following credits:

6 semester hours English Composition

3 semester hours College Algebra, Quantitative Reasoning, or higher level mathematics

6 semester hours Natural Science

9 semester hours Humanities and Fine Arts

6 semester hours Social or Behavioral Sciences

NOTE: Students who meet Option C requirements do not need to submit English language proficiency test scores.

English as a Second Language Course - Courses in English as a Second Language (ESL) are considered developmental and are not transferable. They may not be used to satisfy any of the requirements for admission listed above. English courses taken at universities in non-English-speaking countries are considered to be ESL courses unless specific documentation is provided that literature, rather than language acquisition, was the primary focus of the course.

**Transfer Credit from Foreign Universities** - The Office of Admissions and Scholarships certifies appropriate transfer credit from foreign universities. These courses are recorded on the Mississippi State University permanent record with the grade of S, rather than with letter grades. However, these courses are treated as graded courses (rather than pass-fail courses) in satisfying degree requirements. The student's dean has the discretion to apply this transfer credit toward degree requirements or to reject any or all of it, just as with domestic students. Students may be asked to supply course descriptions, syllabi, tests, or other documentation to the dean or department to justify the applicability of a transferred course toward a particular degree requirement. No transfer credit will be awarded for English composition courses completed in colleges or universities outside the United States.

**Deadlines for Submission of Materials** - International students who are already inside the United States should submit all required materials for admission at least two months prior to the date of expected enrollment. Students who are outside the United States should apply at least four months in advance of enrollment. Undergraduate international application forms, required declaration of financial support forms, and additional information are available from the following address: Office of Admissions and Scholarships, P.O. Box 6334, Mississippi State, MS 39762 USA

## 5. Admission to Teacher Education

The College of Education is responsible for all teacher education at Mississippi State University. All students who expect to qualify to teach must be formally admitted to the teacher education program. For specific information, see "Requirements for Teacher Education" in the College of Education section of the catalog.

### 6. Graduate Admissions

Any person admitted to the Graduate School for any purpose must hold a bachelor's degree; normally the undergraduate degree must be awarded by an institution having regional accreditation. A prospective applicant who holds a bachelor's degree from an educational institution that does not have regional accreditation may request consideration from the Academic Dean of the College or School of interest. Such a request to the Academic Dean should be made prior to making application for admission.

Each department or program, under the leadership of the Graduate Coordinator, reviews applications and makes admissions decisions. These decisions may include specific undergraduate-level courses or other requirements as prerequisites to admission. Each applicant should consult the current Graduate School Bulletin for information regarding the admission process as well as the University and specific program requirements.

Graduate applicants are strongly encouraged to apply online and can access the application at http://www.grad.msstate.edu. Graduate applicants should consult the Graduate School Bulletin, http://www.grad.msstate.edu/pdf/bulletin.pdf, or contact the Office of the Graduate School at E-mail: grad@grad.msstate.edu, telephone: 662-325-7400, or write for information to this address: Office of the Graduate School, Mississippi State University, P.O. Box G, Mississippi State, MS 39762.

## **B. LEGAL RESIDENT STATUS**

Students are classified as in-state or out-of-state for the purpose of paying University fees. The Office of Admissions and Scholarships will make the initial classification at the time a student's application for admission is processed. The burden of proof for establishing residency resides with the applicant. If a student misrepresents his or her status, he or she shall be responsible for paying the fees he or she would have otherwise been required to pay and will be subject to disciplinary action or dismissal from school. The University Registrar is authorized to change a student's residence status upon receipt of evidence that the student is improperly classified.

The following Institutions of Higher Learning and Mississippi State University policies apply in determining the residential status of students for the purpose of enrolling and paying fees at a state-supported institution of higher learning:

## **Institutions of Higher Learning**

http://www.ihl.state.ms.us/board/downloads/policiesandbylaws.pdf Paragraphs 610 and 611.

## Mississippi State University

http://www.msstate.edu/dept/audit/3102.html Academic Operating Policy AOP 31.02 Legal Resident Status

**Petition for Change of Residency Classification.** A person who enters the State of Mississippi from another state and enters an educational institution is considered a non-resident. Any person who has after attaining the age of twenty-one (21) and has since their twenty-first birthday established residency and resided within the State of Mississippi for twelve (12) consecutive months may: (1) upon sworn affidavit and other representation, and (2) who can prove financial independence, petition for a change in residency classification for the purposes of fees and tuition assessment.

- Residency changes are not retroactive, and the following conditions apply:
- 1. The institution may make reasonable inquiry into the validity of the petitioner's claim.
- 2. A petition for change of residency must be received **prior to the last day** a student may register without penalty of the term for which the student is applying for residency.

Factors Regarding Residency. Although domicile and residency for educational purposes are largely matters of intention, this intention is determined objectively from the facts and circumstances surrounding a claim of in-state residency. Some of the factors relevant to determining residency include:

- Actual physical residence of habitation
- Length of time at actual physical residence Residence used for income tax, loan, banking and other purposes
- Voter registration
- Motor vehicle registration (Persons moving into the state on a permanent basis have 30 days to register vehicles.)
- Driver's license held (Persons moving into the state on a permanent basis have 60 days to acquire driver's licenses.)
- State to which personal income taxes or other taxes paid
- Status of income sources
- Location of bank, savings and other accounts

**Responsibility for Reporting Change**. It is the individual student's responsibility to report immediately to the Registrar any change which will affect his or her residence status under these regulations.

Institutions of Higher Learning (College Board) and University Policies Concerning Nonresident Tuition. In addition to state laws and regulations, the University has established certain IHL Board approved regulations concerning the payment of non-resident tuition. Mississippi State University (except the College of Veterinary Medicine) may waive a percentage of the non-resident tuition for the following groups of students:

- 1. Those who are currently awarded athletic scholarships.
- 2. Those who are currently awarded band scholarships.
- 3. Those who are currently awarded choral scholarships.
- 4. All graduate students holding assistantships. (Rules applicable to these awards may be found in the Graduate Studies Bulletin or in the Graduate Assistant Handbook. Both publications are available on the MSU Web: www.msstate.edu/dept/grad/publications.)
- 5. Children of Mississippi State University alumni. (Application deadline is April 1) (For this purpose, an alumnus or alumna is defined as one who has earned a minimum of 48 MSU undergraduate credit hours or 30 MSU graduate credit hours of course work or received a degree from Mississippi State University.) Graduate students must maintain a B (3.0) grade point average to continue eligibility for this award. STUDENT AFFAIRS OP 91.178: Policy on Out-of-State Tuition Waivers is available on the MSU Web: www.msstate.edu/dept/audit/mainindex.
- 6. Non-resident students who are certified participants in The Academic Common Market.

Academic Common Market. Academic Common Market non-resident tuition remission (exemptions) are available for specific academic programs for students from certain states. Application must be made first with the awarding state. The student must be a legal resident of that state and approved for a specific major at MSU. Both undergraduate and graduate students are eligible to apply. The waiver is 100 percent of the non-resident tuition remission and will remain at this level unless the student's field of study changes, or a student no longer has full-time status.

A qualified student must maintain full-time status, remain in academic good standing and comply with all the requirements of the degree program. If a student changes his/her major from the approved ACM certified major then they must inform the Office of the Provost of the change of status. The student will be responsible for the non-resident tuition for the remaining semesters at Mississippi State University. To be eligible for the non-resident tuition remission during the first semester of enrollment, applications and resident verification must be submitted to and approved by the Office of the Provost and Executive Vice President prior to the first day of class.

For more information about submission and deadlines, please contact that office at 662-325-3742. Students seeking information on the Academic Common Market waiver should contact the Academic Common Market, Southern Regional Education Board, 592 10th Street NW, Atlanta, GA 30318-5790 or access the Web site at http://www.sreb.org/page/1304/academic\_common\_market.html

## **D. THE COOPERATIVE EDUCATION PROGRAM**

The Cooperative Education Program is a special way of going to college. Increasing numbers of students in various fields are taking advantage of the opportunity the program offers for combining practical experience with formal schooling in a five-year program of alternating semesters of study and gainful work with a cooperating employer. For the qualified student, the program can provide an expanded college education and a direct avenue to a career.

The work under this program is in, or closely related to, the student's field of study. Upon completing three semesters of alternating work experience in the program and becoming academically eligible for graduation, a co-op student is designated a Cooperative Education Graduate. Permanent job offers to graduates of the Cooperative Education Program often provide substantially higher starting salaries and more responsible positions than for regular four-year graduates. The co-op student is not obligated for permanent employment with his or her employer, nor is the employer obligated to hire him or her upon graduation.

A high school graduate becomes eligible to begin a work assignment after satisfactorily completing one year at Mississippi State University; during this year he or she must establish at least a 2.50 average (on a 4.00 grading system). The student must be at least 18 years of age to begin the first work semester. Co-op credit hours may not be used to satisfy **University-wide degree requirements.** 

A junior-college or senior-college transfer student who has at least a 2.50 overall average (on a 4.00 grading system), is eligible for participation. A student interested in the program who plans to transfer to Mississippi State University should communicate with the Cooperative Education office for application materials.

Qualified students majoring within the following colleges and schools are eligible to participate:

Richard C. Adkerson School of Accountancy	College of Business and Industry
College of Agriculture and Life Sciences	College of Education
College of Architecture, Art, and Design	James Worth Bagley College of Engineering
College of Arts and Sciences	College of Forest Resources

The program requires a semester-to-semester rotation. Once a student has accepted employment with one of the cooperating organizations, he or she is expected to regularly rotate each semester from work—to school—to work, etc., for a minimum of three semesters. Approximate co-op work semester dates begin on January 1, May 15, and August 15.

Co-op students are required to pay a \$25 registration fee for applicable work semesters. Co-op students may optionally elect to pay part-time student activity fees and/or a Sanderson Center usage fee during scheduled work semesters. Part-time student activity fees cover use of student facilities, participation in intramural sports, admission to intercollegiate athletic events, the student newspaper (Reflector), student health services, and other benefits. Optional activity fees are calculated at the current hourly rate times three (3) hours. Assessment of optional activity fees may be requested by the student. Co-op students are not required to purchase a yearbook (Reveille) and the yearbook fee is not included in the activity fee for part-time students. Co-op students may purchase a yearbook, pending availability, from the Reveille office. (All fees are subject to change by action of the Board of Trustees of State Institutions of Higher Learning, State of Mississippi.)

Final approval of all students for the program, specifically with respect to the University, rests solely with the University.

For more information, contact the Cooperative Education Program, 335 McCain Bldg., Box 6046, Mississippi State, Mississippi 39762, call the office at (662) 325-3823, or visit the Co-op Web page at www.coop.msstate.edu.

## E. MONTGOMERY LEADERSHIP PROGRAM

The Montgomery Leadership Program was established in 2006 as part of the Office of Student Leadership and Community Engagement to provide a select group of students unparalleled access to activities and recognized leaders to help them develop leadership potential. Participants are chosen based on their recognized academic, leadership, and character traits. During their three-semester study of leadership, students have access to local and national leaders and are able to engage in their community in a variety of ways. Program activities encourage participants to grow physically, emotionally, and intellectually so that they can become leaders of character in a rapidly changing world. For interested students who have completed at least one year of college, additional information can be found at www.MLP.msstate.edu

## F. DAY ONE LEADERSHIP PROGRAM

As part of the Office of Student Leadership and Community Engagement, Day One is designed to help incoming freshmen make a meaningful transition from home to college life and to develop leadership potential.

Day One students learn together in a special Leadership Forum. Classes focus on practical, applied, "how-to" leadership skills, along with character education and an understanding of social and civic responsibilities through community engagement.

Day One students live together, learn together, and lead together. The students bond and make friends through service-learning teams and study groups among familiar faces from their residence hall. Additional information can be found at www.DAYONE.msstate.edu

## G. NATIONAL STUDENT EXCHANGE

The National Student Exchange program is a consortium of nearly 200 colleges and universities in the United States and extends beyond the borders of the United States to include some Canadian Provinces. Mississippi State University is a member of this program.

The NSE program provides the opportunity for the eligible student to attend a college or university in another state for up to one calendar year without having to pay for the high cost of out-of-state tuition. Students register, pay tuition and fees at Mississippi State University as they usually do; they do not pay tuition and fees at the host campus, but are responsible for room and board.

Mississippi State University students who participate in the National Student Exchange program remain as degree-seeking, registered students at Mississippi State University. Any financial aid that is normally available can be applied to the exchange obligations. Because NSE is an officially approved program of the university, all courses with their respective credit hours and earned grades will be recorded on the Mississippi State University transcript and will be calculated in the GPA.

For information, contact the NSE Coordinator in the Office of Academic Affairs, 608 Allen Hall or (662) 325-3742 or visit www.nse.org.

## H. INTERNATIONAL STUDY ABROAD PROGRAMS

The Office of Study Abroad (OSA) currently offers over 2,000 study abroad programs in over 50 countries. Undergraduate and graduate students can earn credit toward their degrees through study abroad programs. Study abroad can be designed to meet any academic major's requirements. Knowledge of languages is not required. Costs of the different programs vary depending on location and time. Financial aid, scholarships, and loans are available to interested students.

## Faculty-Led Study Abroad Programs

Many MSU faculty and staff from all colleges plan and implement their own study abroad programs and students receive MSU credit. These programs are held during summer, winter, and spring break, and are comprised of mostly MSU students. For some language programs, students study at other universities, but still receive MSU credit. Faculty-led programs change annually, and updated lists are provided about six months prior to each start date.

## Cooperative Center for Study Abroad (CCSA)

Courses offered through CCSA are designed by faculty members from several participating universities. Comprised of groups of students from all participating universities, these courses are taught in Australia, Belize, Canada, England, Ghana, Hong Kong, India, Ireland, Jamaica, Scotland, and South Africa. Students receive MSU credit.

## Semester Exchange Programs

Students who choose to study for a semester or academic year in another country can participate in a semester exchange program where the students register and pay tuition at MSU, but study at a partnering university. MSU currently has more than 15 student exchange programs that are open for students in various majors. MSU also is part of the Global Engineering Education Exchange designed specifically for engineering students. Students receive transfer credit for all exchange courses.

## **Provider Companies**

MSU has entered into agreements with several study abroad provider companies in order to offer a wide variety of short- and long-term study abroad experiences. Students receive transfer credit for all provider company programs.

For a complete listing of all study abroad opportunities or to make an advising appointment, contact the Office of Study Abroad, at studyabroad@ aoce.msstate.edu, (662) 325-8251, www.studyabroad.msstate.edu, or www.facebook.com/MSUStudyAbroad

### COLLEGE OF BUSINESS AND INDUSTRY

#### International Business Academic Internship

The International Internship is an agreement among Mississippi State University, the International Business Academic Programs student and a company in this area. The intern work experience builds skills in business application and provides cultural immersion while living abroad. A business resume', passport, and academic achievement are required to participate.

For details, see the Director of International Business, Box 9582, MSU, MS 39762. (662) 325-7005.

## III. DEGREES, GENERAL EDUCATION REQUIREMENTS, and ACADEMIC RECORDS, GRADUATION

## STUDENT RESPONSIBILITY DISCLAIMER

Each student is responsible for understanding and completing all requirements established for his or her degree by the University, college and department. A student's advisor or counselor may not assume that responsibility. Any substitution, waiver, or exemption from established degree requirements may be accomplished only with the approval of the student's dean. Exceptions to University requirements, including the General Education requirements, will be authorized only with the approval of the student's dean and the Office of Academic Affairs.

## A. DEGREES, DEGREE REQUIREMENTS, and SCHEDULING

1. Baccalaureate Degrees. MSU awards the following baccalaureate degrees: Bachelor of Arts (B.A.), Bachelor of Business Administration (B.B.A.), Bachelor of Fine Arts (B.F.A.), Bachelor of Science (B.S.), Bachelor of Landscape Architecture (B.L.A.), Bachelor of Music Education (B.M.E.), Bachelor of Architecture (B.ARC.), Bachelor of Accountancy (BACC), and Bachelor of Social Work (B.S.W.) Baccalaureate degrees are awarded in the following manner: Multiple programs awarded under the same degree within the same college, at the same time, are awarded as a single degree dual (multiple) major. For example, a student majoring in Sociology and Psychology awarded a Bachelor of Arts degree at the same time will be awarded a single degree (single diploma). The separate majors will be annotated on the official transcript. Degrees awarded by two or more colleges or at different times are considered separate degrees (separate diplomas). (Master's, Specialist, and Doctor's degrees are listed under Office of the Graduate School in this catalog, and in the Graduate Bulletin.)

2. University-Wide Requirements. In order to complete a baccalaureate degree, a student must (1) satisfactorily complete the degree curriculum requirements, (2) make an overall C average on all hours scheduled and rescheduled at all institutions attended, including Mississippi State University, (3) make a C average on all hours scheduled and rescheduled at Mississippi State University, (4) complete from Mississippi State University no less than 25% of his/her degree program in junior and senior subjects (courses numbered 3000 through 5000) approved by the dean of the college or school in which he or she is enrolled, (5) complete at least the last 25 percent of semester credit hours of course work taken to fulfill degree requirements for the 25 percent requirement must be approved in writing by the student's dean prior to taking course work at another institution.) Any course in the student's degree program that carries academic credit from Mississippi State University no less than 25 percent of semester credit hours of course work taken to fulfill these requirements. Participants in an approved exchange program must earn at the exchange institution and at Mississippi State University no less than 25 percent of semester credit hours in junior and senior subjects. (6) Not more than 25 percent of any curriculum may be earned by advanced standing examinations, College-Level Examination Program (CLEP), evaluated military service credits, tutorial, and extension courses. Evaluated military service credits are classified as extension work. (7) Not more than 20 percent of any curriculum may be earned through correspondence courses. Correspondence courses must be approved by the dean before being taken by students in residence. USAFI credits are classified as correspondence work. (8) No more than 12 hours of Directed Individual Study (DIS) may be used to complete degree requirements. The creation of DIS courses must be approved in advance by the department head.

**a. Board of Trustees Core Curriculum**. All students who enter Mississippi State University must meet the common core curriculum requirements approved by the Board of Trustees, Institutions of Higher Learning of the State of Mississippi, to qualify for any bachelor's degree. This core curriculum consists of:

English Composition	
College Algebra	
Laboratory Science	
Humanities and Fine Arts	
Social Sciences	
Total:	30 semester hours
(Note: These requirements are included in the General Education Curriculum which follows)	of semester nours

(Note: These requirements are included in the General Education Curriculum which follows.)

**b.** General Education Requirements. All students graduating after January 1, 1990, in order to receive any bachelor's degree from Mississippi State University, must earn a minimum of 36 semester hours of credit (or equivalency) in courses making up the General Education required curriculum, as follows: (Specific courses to satisfy the General Education Requirements will vary by academic major.)

Students may obtain a list from their advisor or Dean's office of approved courses SELECTED from the following to meet individual degree requirements.

English Composition Refer to General Education Requirements—Numbers and Course Titles for approved choices.	6 semester hours
Mathematics and Natural Sciences	15 semester hours
Mathematics: 6-9 semester hours. Consult an advisor in your major for approved choices.	
Natural Sciences: 6-9 semester hours. Consult an advisor in your major for approved choices.	
Humanities/Fine Art	9 semester hours
Six hours must be humanities and three hours must be fine art.	
Refer to General Education Requirements—Numbers and Course Titles for approved choices.	
Social/Behavioral Sciences	6 semester hours
Refer to General Education Requirements—Numbers and Course Titles for approved choices.	
Total	

## **General Education Requirements - Numbers and Course Titles**

NOTE: Students must check course descriptions of General Education classes for prerequisites and/or grade requirements. NOTE: General Education requirements apply to all students enrolling Fall 2005. Honors sections may be available in selected courses.

#### **English Composition - Freshman level (6 hours)**

EN 1103	English Composition I	EN 1163 Accelerated Composition I
EN 1113	English Composition II	EN 1173 Accelerated Composition II

Students with ACT English sub-scores of 28 or higher may enroll in EN 1173, Accelerated Composition II. Those students earning a C or higher in EN 1173 will also receive an "S" (credit) in EN 1103, Composition I. Those students who earn less than a C in EN 1173 must complete the EN 1103/1113 sequence.

Similarly, those students who have been admitted to the Shackouls Honors College and have an ACT-E sub-score of 32 or higher may enroll in EN 1113H, Honors Composition II. After earning a C or higher in 1113H, these students will receive an "S" (credit) in EN 1103, Composition I. Those students who earn less than a C in EN 1113H must complete the EN 1103/1113 sequence.

## Mathematics and Statistics (6-9 hours)

Students who place into a course higher than MA 1313 College Algebra on the mathematics Placement test may fulfill the University mathematics requirement with either MA 1713 Calculus I, MA 1613 Business Calculus, or MA 1463 Finite Mathematics. By itself, MA 1323 Trigonometry does not meet this requirement.

MA	1313	College Algebra	MA	1463	Finite Mathematics and Introduction to Calculus
MA	1323	Trigonometry (fulfills second mathematics only	MA	1613	Calculus for Business and Life Sciences I
		with credit for college algebra)	MA	1623	Calculus for Business and Life Sciences II
MA	1413	Structure of the Real Number System	MA	1713	Calculus I
		(Designed primarily for special and	MA	1723	Calculus II
		elementary education majors.)	MA	2733	Calculus III
MA	1423	Problem Solving with Real Numbers	MA	2743	Calculus IV
		(Designed primarily for special and	MA	2113	Introduction to Statistics
		elementary education majors.)	MA	3123	Introduction to Statistical Inference
MA	1433	Informal Geometry and Measurement	ST	2113	Introduction to Statistics
		(Designed primarily for special and	ST	3123	Introduction to Statistical Inference
		elementary education majors.)	BQA	2113	Business Statistical Methods I
MA	1453	Precalculus with Graphing Calculators			

#### Natural Sciences (6-9 hours)

#### Students must complete two lab-based science courses.

,	aucinto i	nust e	simplete two has based science courses.				
	AN 1	1344	Intro to Biological Anthropology*	GG	1121	Earth Sciences II (Lab)	
	ARC 2	2713	Passive Building Systems I	GG	1123	Survey of Earth Sciences II	
	BIO 1	1004	Anatomy and Physiology*	GNS	3103	Genetics I *	
	BIO 1	1023	Plant and Humans*	GR	1114	Elements of Physical Geography	
	BIO	1123	Animal Biology*	HS	2293	Individual and Family Nutrition	
	BIO 1	1134	Biology I*	PH	1013	Physical Science Survey	
	BIO 1	1144	Biology II*	PH	1011	Physical Science Lab I	
	BIO 2	2113	Plant Biology*	PH	1023	Physical Science Survey	
	BIO 3	3103	Genetics I*	PH	1021	Physical Science Lab II	
	BIO 3	3304	General Microbiology*	PH	1063	Descriptive Astronomy	
	CH 1	1043	Survey of Chemistry I	PH	1113	General Physics I	
	CH 1	1053	Survey of Chemistry II	PH	1123	General Physics II	
	CH 1	1051	Experimental Chemistry (Lab)	PH	1133	General Physics III	
	CH 1	1213	Chemistry I	PH	2213	Physics I	
	CH 1	1211	Investigations in Chemistry (Lab)	PH	2223	Physics II	
	CH 1	1223	Chemistry II	PH	2233	Physics III	
	CH 1	1221	Investigations in Chemistry II (Lab)	PO	3103	Genetics I*	
	EPP 2	2213	Introduction to Insects	PSS	1313	Plant Science*	
	FNH 2	2293	Individual and Family Nutrition	PSS	3301	Soils Laboratory	
	GG 1	1111	Earth Sciences I (Lab)	PSS	3303	Soils	
	GG 1	1113	Survey of Earth Sciences I	* indicates Life Sciences; remaining Natural Sciences are considered Physical Sciences			
			Humanities (	at least	6 hours		
	ARC 2	2313	History of Architecture I	HI	1213	Early Western World	
			History of Architecture II	HI	1223	Modern Western World	
	ARC 3		History of Architecture III	HI	1313	East Asian Civilizations to 1300	
	EN 2		Introduction to Literature	HI	1323	East Asian Civilizations since 1300	
	EN 2	2213	English Literature	HI	4683	Europe: The First World War to Hitler	
	EN 2	2223	English Literature	HON	1163	The Quest Begins	
	EN 2	2243	American Literature	HON	3183	Honors Seminar in the Humanities	
	EN 2	2253	American Literature	PHI	1103	Introduction to Philosophy	
	EN 2	2273	World Literature	PHI	1113	Introduction to Logic	
	EN 2	2283	World Literature	PHI	1123	Introduction to Ethics	
	FL* 1	1113	Elementary Foreign Language	PHI	3023	History of Western Philosophy: Part I	
	FL* 1	1123	Elementary Foreign Language	PHI	3033	History of Western Philosophy: Part II	
	FL* 2	133;21	43 Intermediate Foreign Language	PHI	3153	Aesthetics	
		10.00		DET	1100	The last of Ball to	

REL

REL

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Fine Arts (3 hours)

1103

3213

3223

- FL\* 2133;2143 Intermediate Foreign Language HI 1063 Early U.S. History
- Modern U.S. History HI 1073
- HI 1163 World History Before 1500
- HI 1173 World History Since 1500
- ARC 1013 Architectural Appreciation
- ART 1013 Art History I
- ART 1023 Art History II
- ART 1113 Art Appreciation

MU 1113 History and Appreciation of Music

Introduction to Religion

World Religions: Part I World Religions: Part II

\* French, German, Greek, Japanese, Latin, Russian, and Spanish

- MU 2213 History and Literature of Music I
- 2323 History and Literature of Music II MU
- PE 1323 History and Appreciation of Dance

#### MISSISSIPPI STATE UNIVERSITY

BCS	1013	Architectural Appreciation	PSS	2343	Floral Design
CO	1503	Introduction to Theater	TKI	2413	History and Appreciation of Artcraf
ID	3643	History of Interiors			

TA	1002	I and a anna Ammunai ation
LA	1803	Landscape Appreciation

## Social/Behavioral Sciences (6 hours)

Social Denavioral Sciences (0 Hours)					
AEC	2713	Introduction to Food and Resource Economics	GR	1123	Introduction to World Geography
AN	1103	Introduction to Anthropology	GR	2013	Cultural Geography
AN	1143	Introduction to Cultural Anthropology	HON	1173	From the West to the Greater World
AN	1543	Introduction to Archaeology	HS	1813	Indiv. and Family Development through Lifespan
CO	1223	Introduction to Communication Theory	PS	1113	American Government
CO	1403	Introduction to Mass Media	PS	1313	Introduction to International Relations
EC	1033	Economics of Social Issues	PS	1513	Comparative Government
EC	2113	Principles of Macroeconomics	PSY	1013	General Psychology
EC	2123	Principles of Microeconomics	PSY	3073	Psychology of Interpersonal Relations
EPY	2513	Human Growth and Development	SO	1003	Introduction to Sociology
EPY	3503	Prin. of Educational Psychology	SO	1103	Contemporary Social Problems
EPY	3543	Psychology of Adolescence	SO	1203	Marriage and Family
FO	4113	Forest Resource Economics			

3. General Education Curriculum Assessment. The General Education Committee (a subcommittee of University Committee on Courses and Curricula) utilizes the following courses to assess the General Education Curriculum student learning outcomes: EN 1103 English Composition I, EN 1113 English Composition II, MA 1313 College Algebra, ST 2113 Introduction to Statistics, MA 1713 Calculus I, BIO 1023 Plant and Humans, BIO 1134 Biology I, CH 1043 Survey of Chemistry, CH 1211 Investigations in Chemistry Lab, GR 1114 Elements of Physical Geography, HI 1063 Early U.S. History, HI 1073 Modern U.S. History, HI 1163 World History before 1500, EN 2203 Introduction to Literature, ART 1013 Art History I, ART 1113 Art Appreciation, MU 1113 History and Appreciation of Music, PS 1113 American Government, PSY 1013 General Psychology, SO 1003 Introduction to Sociology, and EC 2113 Principles of Macroeconomics.

4. Other Degree Requirements. College and school announcements specify additional requirements, including professional communication skills (oral, written, and computer), for the bachelor's degree in the various departments and programs.

5. Second Baccalaureate Degree Requirements. Students should be advised that when completing a second degree, it will be simpler and easier to complete it concurrently with the first degree. A second degree completed after the awarding of the first degree will require additional hours, probably many more than completing the two degrees concurrently.

If you seek a second degree after the completing of the first degree, requirements for the second degree must be certified by the appropriate dean as having met and must include General Education requirements and 30 hours in courses numbered 3000 or above, in residence beyond requirements for the first. Students and advisors should check with the Registrar's Office before making a decision about a second degree.

6. Advisement and Registration. Every student in the University is provided with an academic advisor. A student who has selected a specific major will find the names of the major advisor for that major listed under the name of the department or the major subject in the appropriate college or school section of this catalog. A student who is uncertain of his or her choice of major may register as Undeclared. In addition, advisors are assigned in the appropriate colleges for students wishing to pursue degrees in Business Administration, General Liberal Arts, General Science and Interdisciplinary Studies.

Before registering for any semester, each student is responsible for consulting his or her advisor to work out and secure approval for a specific schedule of courses. With the signed schedule, the student then enters his/her schedule in the computer by using the myState System, resolves conflicts, and the student is officially enrolled in each class on the perfected schedule.

A period for schedule planning and registration for the following semester is provided near the end of each regular term; registration for the summer school terms may also be accomplished in the spring registration period. Prospective new students may be advised and registered during Summer Orientation. Late registration is conducted immediately prior to the beginning of classes.

A student who for any reason has been unable to register during these scheduled registration periods may still do so up to the last day for registration and adding courses as listed in the Academic Calendar on the Web but may find the choices of courses and sections limited.

7. Readmission. Undergraduate students who have previously attended Mississippi State University and who wish to re-enter must apply for readmission online or in the Registrar's Office and contact his/her advisor to obtain the registration access code. Former students who have attended another college for at least one quarter or semester must be eligible to re-enter that institution, if they desire to return to Mississippi State University. Students who have attended another institution are required to provide the Registrar's Office official transcripts from all other institutions attended prior to receiving a registration permit. Registration access codes may be issued to former MSU students whose MSU and cumulative GPA's are 2.0 or higher.

All readmission students must meet the academic standing guidelines outlined in section 3-Academic Standing. If their GPA is less than the required average, they may be readmitted only on the recommendation of their dean and with the approval of the provost.

Students readmitted with an MSU or cumulative average less than 2.0 will be readmitted on academic probation.

8. Student Course Load. The normal load for an undergraduate student in a regular semester is 15-19 credit hours. Courseload limits at Mississippi State University are based on Grade Point Averages (GPA). These limits are based on MSU cumulative averages as noted below.

a. Students on academic probation are limited to an enrollment of 14 credit hours (including ensemble and academic support/developmental classes.) b. Students between 2.0 and 2.99 are limited to 19 hours excluding ensemble classes. (Any student without a cumulative GPA such as a freshman or a transfer student will be limited to 19 hours.)

c. Students between a 3.0 and 4.0 GPA may elect to take up to 24 semester hours. Students in this category must secure permission of their advisor and academic department head to schedule more than 19 semester hours.

d. A student in a five week summer session may take one course in addition to the normal load (two courses), provided his or her dean approves, and provided his or her MSU cumulative average is between 3.0 and 4.0.

e. Exceptions to the above courseloads require the approval of the advisor, department head, dean and Associate Provost.

Independent study or extension courses will be included in determining the maximum number of hours a student may take on campus, if registration therein overlaps any period of regular enrollment at the University. Such credits earned by either independent study or extension, in excess of the loads specified above must be approved by the student's dean; these hours will count in certifying a student's full time or part time enrollment status for financial aid or other purposes.

For purposes of reporting a student as full-time to the Board of Trustees, Veterans Administration, Social Security or other similar agencies, an undergraduate student must be enrolled in at least twelve (12) semester hours and a graduate student must be enrolled in at least nine (9) or more semester hours at the time the report or certification is submitted. This applies to fall and spring semesters only.

(1) A student's enrollment status is classified according to the following chart:

#### DEGREES, CORE REQUIREMENTS, ACADEMIC RECORDS, GRADUATION

	<b>Regular Fall-Spring Semesters</b>		Summer School ter	m
Full-time	<i>Undergraduate</i> 12 + sem. hrs.	<i>Graduate</i> 9 + sem. hrs.	<i>Undergraduate</i> 6 + sem. hrs.	<i>Graduate</i> 6 + sem. hrs.
Half-time	6 to 11 sem. hrs.	5 to 8 sem. hrs.	3 to 5 sem. hrs.	3 to 5 sem. hrs.
Less than Half-time	less than 6 sem. hrs.	less than 5 sem.hrs.	less than 3 sem.hrs.	less than 3 sem.hrs.
"Regular" Load	15-19 sem. hrs.	12-15 sem. hrs.	6 sem. hrs.	6 sem. hrs.

(2) Concurrent enrollment in independent study, off-campus centers and other institutions will be considered as part of a student's load, and must be approved by his or her dean before it may apply toward meeting degree requirements. All MSU course hours will count in certifying a student's full time or part time enrollment status for financial aid or other purposes.

**9.** College/School/Campus Changes. A student changing from one college, school or campus to another must complete all arrangements for the transfer prior to beginning the new course of study. Before making the change, the student must initiate a change form in the college or school in which the student is currently, or was last, enrolled. Transfer to a new college, school or campus is subject to approval by the new dean.

**10. Schedule Changes - Fall and Spring Semesters.** A student has through the fifth class day into the semester to drop a course and through the sixth class day to add a course without being assessed a fee or academic penalty. From the fifth class day through the 30th class day, a student who elects to drop a course must receive the approval of his/her advisor, will be assigned a "W" on his/her academic record, and be assessed a fee. After the 30th class day, a student cannot drop courses except in documented cases of serious illness, extreme hardship, or failure of the instructor to provide significant assessment of his/her performance. A request to drop a course after the 30th class period must be approved by the student's advisor and academic dean. A student receiving permission to drop will receive a "W" on his/her academic record and be assessed a fee after the last day to drop a course.

Summer Terms. A student has through the first class day into a 5-week summer term and through the second class day into a 10-week summer term to drop a course without being assessed a fee or an academic penalty. A student may not add a course after the second class day into a 5-week summer session or after the third class day into a 10-week summer session. After the first class day through the 14th class day in a 5-week summer term and the second class day through the 28th class day in a 10-week summer term, a student who elects to drop a course must receive the approval of his/her advisor, will be assigned a "W" on his/her academic record, and be assessed a fee. After the 14th class day into a 5-week summer term and after the 28th class day into a 10-week summer term, a student cases of serious illness, extreme hardship, or failure of the instructor to provide significant assessment of his/her performance. A request to drop a course during this period must be approved by the student's advisor and academic dean. A student receiving permission to drop will receive a "W" on his/her academic record and be assessed a fee.

Shortened Format Classes (Intercessions). A student has through the first class day to drop a course and through the second class day to add a course without being assessed a fee or an academic penalty. Note: A student may NOT drop his/her last or only remaining class in a semester or part of term. A student who wishes to drop the last class and add a different class or section must complete an add/drop slip. The Registrar's Office must process this change. To drop a course after the first day through the fifth class day of a term with 10-15 class days, a student must receive approval from his advisor, will be assigned a "W" on the academic record, and will be assessed a fee. For a term with 16-24 class days, students may drop through the ninth day but must receive approval from his advisor and will be assigned a "W" on the academic record and be assessed a fee. After this period, a student cannot drop a course except in documented cases of serious illness, extreme hardship, or failure of the instructor to provide significant assessment of his/her performance. A request to drop a course after this period must be approved by the student's advisor and academic dean. A student receiving permission to drop will receive a "W" on his/her academic record and be assessed a fee after the last day to drop a course.

**Undergraduate/Graduate Policy.** Regardless of these and/or other University policies, a student's dean may remove a course (or courses) from a student's schedule at any time during a period of enrollment in case of special circumstances such as accident, illness or scheduling errors. Requests for such changes should be directed to the student's dean. A student will not be permitted to drop a course after the 30th day of classes because of a heavy course load, a change of major, or the likelihood of poor grades. All requests must be documented in writing.

**11. Auditing**. During registration and the first 10 days of class in the semester, students are not permitted to enter classes as auditors unless authorized by the Dean of the College or School and by the Registrar, upon recommendation of the instructor concerned. A student may not change from credit to audit or audit to credit status after the tenth day of class. A course being audited counts as part of the regular load on the same basis as if taken for credit. Auditors are not required to take tests and/or examinations or to prepare other written assignments. Otherwise, conformity to regular classroom decorum is the same as that required for all students. At the time the request for audit is approved, the professor will inform the auditor of attendance expectations.

**12. Pass-Fail Option**. An undergraduate student who has successfully passed fifteen (15) semester hours may elect, with the approval of his or her academic dean, to schedule courses under the pass-fail option. This program is open to undergraduate students only and is limited to a maximum of four (4) courses, no more than two (2) of which may have the same course symbol.

A student may register under the pass-fail option for only one course per semester and must meet the prerequisites for the course or have permission of the instructor teaching it. A change from pass-fail enrollment to enrollment for a regular grade, or vice-versa, must be made by the deadline date for adding courses published in the University calendar.

Courses taken to satisfy General Education requirements may not be scheduled under the pass-fail option, nor may courses that are specified by course title in the curriculum in which a student is currently enrolled. In the event that a student changes majors, credit for any courses passed and required in the new major may be allowed with the approval of the student's dean. The instructor shall be informed which students are enrolled in his or her course under the pass-fail option, and he or she shall report a regular grade at the time progress grades are submitted and either S for satisfactory or U for unsatisfactory at the end of a term or semester. A grade of A, B, or C will be considered as satisfactory and a grade of I (incomplete) will be allowed. Other than a grade of I, only a grade of S, U, or W will be recorded on a student's permanent record.

The number of hours passed will be applied toward the hours required for graduation; however, neither a passing nor a failing grade will be considered in the computation of the grade point average.

13. Assessment. Students may be required to undergo testing for the purpose of assessing institutional effectiveness.

14. ROTC Course Credit Toward Academic Degrees. All ROTC courses are bona fide University courses. The total number of ROTC hours allowed as elective credit toward a specific degree varies. Most schools and colleges at the University accept six (6) or more hours of ROTC courses offered toward degrees conferred. A student should contact the appropriate college, school, or department to determine allowable ROTC course credit toward a particular degree.

15. Military Credit. Mississippi State University offers credit for training and experience in the Armed Services for currently enrolled undergraduate students.

Army, Navy, and Marine veterans, active servicemembers, National Guard and Reservists wishing to receive military credit must have an official transcript sent to the University Registrar's Office, Registration & Records, P. O. Box 5268, Mississippi State, MS 39762. The student's dean will determine applicable credit toward a degree.

All current and former active duty, guard, and reserve Army members can order an official transcript through the Army American Council on Education Registry Transcript Service (AARTS) online system at the following link: https://aartstranscript.army.mil Official Transcripts should be mailed to: University Registrar's Office, P.O. Box 5268, Mississippi State, MS 39762.

All current and former active duty, guard, and reserve Navy and Marine members can order an official transcript through the Sailor Marine American Council on Education Registry Transcript (SMART) online system at the following link: https://smart.navy.mil Official Transcripts should be mailed to: University Registrar's Office, P.O. Box 5268, Mississippi State, MS 39762.

All current and former active duty, guard, and reserve Air Force members can order an official transcript through the Community College of Air Force (CCAF) online system at: http://www.au.af.mil/au/ccaf/transcripts.asp CCAF transcripts are mailed directly to the Office of Admissions, P.O. Box 6305, Mississippi State, MS 39762.

## **B. ACADEMIC RECORDS**

## 1. Confidentiality and Disposal of Student Records

The University recognizes that the maintenance of student information and educational records is necessary and vital to assist the student's education and development and to provide opportunities for University research and policy formulation. The University recognizes its obligation to exercise discretion in recording and disseminating information about students to insure that their rights of privacy are maintained.

The University will furnish annual notification to students of their right to inspect and review their educational records/ the right to request amendment of educational records considered by them to be inaccurate or misleading or that violate privacy or other rights; and of their right to a hearing should the University decline to amend such records. The University utilizes The Guide for Retention and Disposal of Records as published by American Association of Collegiate Registrars and Admissions Officers as the policy for disposal of student records.

The following guidelines have been developed to insure the privacy rights of students. For the purposes of this policy statement a student is defined as an individual who has been admitted and has been in attendance in a component unit of the University. Classification as a student in one component unit of the University (e.g., an undergraduate program) does not infer that the person has been accorded the rights outlined below in other component units (i.e., graduate school, professional schools, branch campus).

## 2. Student Access to Records

Students have the right to be provided a list of the type of educational records maintained by the University which are directly related to the student; the right to inspect and review the contents of these records; the right to obtain copies of these records; the right to a response from the University to reasonable requests for explanation and interpretation of these records; the right to an opportunity for a hearing to challenge the content of these records; and if any material or document in the educational record of a student includes information on more than one student, the right to inspect and review only the part of such material or document as relates to the student.

Students do not have access to: financial records of their parents; confidential letters and statements of recommendation which were placed in the educational record prior to January 1, 1975, provided such letters or statements were solicited or designated as confidential and are not used for purposes other than those for which they were specifically intended; confidential recommendations, if the student signed a waiver of the right of access, respecting admission, application for employment, and the receipt of an honor or honorary recognition.

Students do not have access to: instructional, supervisory, and administrative personnel records which are not accessible or revealed to any other individual except a substitute; Campus Security records which are maintained apart from educational records, which are used solely for law enforcement purposes, and which are not disclosed to individuals other than law enforcement officials of the same jurisdiction; employment records except when such employment requires that the person be a student; and the Alumni Office records.

Students do not have access to physical or mental health records created by a physician, psychiatrist, psychologist or other recognized professional acting in his or her capacity or to records created in connection with the treatment of the student under these conditions which are not disclosed to anyone other than individuals providing treatment. These records may be reviewed by a physician or appropriate professional of the student's choice.

## 3. Procedures for Access

Students should contact the appropriate office to inspect and review their records. An office may require that a University official be present when a student inspects and reviews his educational records. Any questions concerning a student's access to records should be directed to the Registrar.

### 4. Release of Directory Information

Directory information may be released by the University without the student's written consent. Directory information is defined in Academic Operating Policy and Procedure 12.13 Academic Record.

A student may deny the release of directory information by requesting that the information not be released. The student who is in attendance must notify the University by selecting the Directory Information items to be made private via the MyState portal. To deny the release of participation in recognized activities the student must notify the Provost and the Academic Dean in writing. To deny the release of athletic information the student must notify the Director of Athletics in writing. To deny the release of directory information a student must give the above notification prior to registration. A former student, one who is not in attendance, must contact the appropriate offices above to deny the release of directory information.

Student Directory Information will be made available to private businesses, religious organizations, and other non-university organizations in the following manner: (1) the Campus Directory for the current school year is available for purchase in the MSU Bookstore. While the Campus Directory is believed to be accurate (some students may have requested their names not be listed), the University is not responsible for inaccuracies in the data; (2) a list or computer labels will not be available to any non-university group; (3) appeals will be handled by a subcommittee composed of the Registrar, the Director of Admissions, and the Dean of Office of the Graduate School.

### 5. Release of Educational Records

The University will release a student's educational record(s) upon the student's written request. The student must:

1. Specify the records to be disclosed.

- 2. Include the purpose or purposes of the disclosure.
- 3. State the party or parties and the address to whom the information is to be disclosed.

The student shall, upon request, receive a copy of the record that is to be disclosed. It is University policy to furnish single copies of a student's record at no charge except for the standard transcript fee, if applicable.

The University may release students' educational records to the following without prior written consent:

 University officials who have a legitimate educational interest in the records. University officials are defined as teachers, administrative personnel and other employees except personnel of the security or law enforcement unit of Mississippi State University who in the performance of their normal duties require access to student records. If University officials are required in the performance of their duties to review the educational records of a student, this will be considered to be a legitimate educational interest.

- 2. Officials of another school in which the student intends to enroll upon request of the transfer school.
- 3. Government representatives of the Comptroller general of the United States, the Secretary of Education, the U.S. Commissioner of Education, the Director of the National Institute of Education, the Assistant Secretary for Education, State educational authorities, and State officials to whom such information is specifically required to be reported or disclosed by State law adopted prior to November 19, 1974.
- 4. Appropriate authorities in connection with financial aid with the understanding that only the necessary records will be released.
- Organizations conducting studies for, or on behalf of, the University or its agencies for the purpose of developing, validating, or administering
  predictive tests, administering student aid programs, and improving instruction and student life provided that the studies will not permit the
  personal identification of students and their parents by individuals other than representatives of the organization and provided that the personally identifiable information furnished will be destroyed when no longer needed for the purposes for which the study was conducted.
   Accrediting organizations to carry out their accrediting functions.
- 7. Parents of a dependent student as defined in section 152 of the Internal Revenue code of 1986. University officials may release educational records to parents on the basis of written certification from the parent that the student is a dependent as defined under the Code.
- 8. Comply with a judicial order or lawfully issued subpoena with the understanding that the student will be notified in advance if possible.
- 9. Appropriate parties to protect the health and safety of the student or other individuals in emergencies with the understanding that only information essential to the emergency situation will be released, that information will only be released to a party who would be in a position to deal with the emergency, and that the student will be notified insofar as possible of the information released, the purpose for the release, and to whom the information was released.

No personal information on a student will be released without a statement from the University to the party receiving the information that no third party is to have access to such information without the written consent of the student.

This policy is adopted pursuant to the Family Educational Rights and Privacy Act of 1974, as amended (20U.S.C. #8 1232g), and is not intended to impose any restrictions or grant any rights not specifically required by this Act.

## 6. Disciplinary Suspension and Expulsion

The following information will be recorded on a student's academic record:

1. Permanent Expulsion - a "W" grade will be recorded on the permanent record for each course on the student's schedule at the time of expulsion. "Permanent Expulsion" and the effective date will also be placed on the permanent record. This will remain on the permanent record indefinitely or until an appeal is held by the Dean of Students and the expulsion is approved for removal. In a case of appeal and approval by the Dean of Students to remove the expulsion, the words "Permanent Expulsion" will be replaced by the word "Withdrew."

2. Disciplinary Suspension - a "W" grade will be recorded on the permanent record for each course on the student's schedule at the time of suspension. "Disciplinary Suspension" and the effective date will also be recorded on the permanent record. Students may petition the Dean of Students to have "Disciplinary Suspension" removed from the permanent record. If the Dean of Students approves the request, the words "Disciplinary Suspension" will be replaced by the word "Withdrew."

3. Credits earned at another institution while on disciplinary suspension or dismissal may never be transferred or posted to the Mississippi State University record.

## C. CREDITS, GRADES, and STANDING

All credits earned at Mississippi State University are in semester hours. In most curricula, taking an average load of 16-18 hours for a regular semester will enable a student to make normal progress toward graduation.

Year or quarter hours transferred from another institution are converted into semester hours for purposes of uniformity in determining graduation requirements.

Transfer credits are accepted only from institutions accredited by or in candidate status with a regional accrediting body, such as the Southern Association of Colleges and Schools.

Not more than 25 percent of any curriculum may be earned by advanced standing examinations, College-Level Examination Program (CLEP), evaluated military service credits, tutorial, extension courses, and advanced placement exams (a maximum of 20% of the total degree hours can be correspondence courses). Evaluated military service credits are classified as extension work. Correspondence courses must be approved by the dean before being taken by students in residence. USAFI credits are classified as correspondence work.

## 1. Credit by Examination

a. Advanced Placement Examinations. Students entering Mississippi State University for the first time are allowed credit on the advanced placement examination administered by the College Entrance Examination Board. Grades of Satisfactory (S) appear on the transcript for courses in which advanced placement credit is earned. These courses do not affect grade-point averages. Applicability of such credit to a specific degree is to be determined by the appropriate dean. The following table provides the details on how credit is presently assigned in the various subject areas by the deans.

AP EXAMINATION	SCORE	HOURS CREDIT	RELATED COURSE
1. ART HISTORY	4 or 5	3	ART 1013
2. BIOLOGICAL SCIENCE	4	3	BIO 1123
	5	6	BIO 1123 and BIO 1023
3. CHEMISTRY	3	3	CH 1213
	4 or 5	6	CH 1213 and CH 1223
4. COMPUTER SCIENCE			
A Exam	4 or 5	3	CSE 1233
AB Exam	3	3	CSE 1233
	4 or 5	3	CSE 1233
5. ECONOMICS			
Macroeconomics	4 or 5	3	EC 2113
Microeconomics	4 or 5	3	EC 2123
6. ENGLISH			
Language & Comp.	3	3	EN 1103
Language & Comp.	4 or 5	6	EN 1103 and 1113
Literature & Comp.	3	3	EN 1103
Literature & Comp.	4 or 5	6	EN 1103 and 1113

7. FRENCH					
Language Level 3	3	9	FLF 1113,1123, 2133		
Language Level 3	4 or 5	12	FLF 1113,1123, 2133, 2143		
Literature Level 3	3	9	FLF 1113,1123, 2133		
Literature Level 3	4 or 5	12	FLF 1113,1123, 2133, 2143		
8. GERMAN					
Language Level 3	3	9	FLG 1113,1123, 2133		
Language Level 3	4 or 5	12	FLG 1113,1123, 2133, 2143		
9. GOVERNMENT and POL	ITICS				
Comparative	4 or 5	3	PS 1513		
United States	4 or 5	3	PS 1113		
10. HISTORY					
American	3	3	HI 1063		
	4 or 5	6	HI 1063 and HI 1073		
European	3	3	HI 1213		
	4 or 5	6	HI 1213 and HI 1223		
11. LATIN					
Vergil	3	9	FLL 1113,1123, 2133		
Vergil	4 or 5	12	FLL 1113,1123, 2133, 2143		
Catullus-Horace	3	9	FLL 1113,1123, 2133		
Catullus-Horace	4 or 5	12	FLL 1113,1123, 2133, 2143		
12. MATHEMATICS					
AB Exam	3,4 or 5	3	MA 1713		
BC Exam	3	3	MA 1713		
	4 or 5	6	MA 1713 and MA 1723		
Statistics	4 or 5	3	ST 2113		
13. PHYSICS (no lab credit)					
B Exam	3 or 4	3	PH 1113		
	5	6	PH 1113 and PH 1123 or PH 2213		
CI Exam	3	3	PH 1113		
	4 or 5	3	PH 1113 or 2213		
CII Exam	4 or 5	3	PH 2223		
14. PSYCHOLOGY	4 or 5	3	PSY 1013		
15. SPANISH					
Language Level 3	3	9	FLS 1113,1123, 2133		
Language Level 3	4 or 5	12	FLS 1113,1123, 2133, 2143		
Literature Level 3	3	9	FLS 1113,1123, 2133		
Literature Level 3	4 or 5	12	FLS 1113,1123, 2133, 2143		

As more high schools develop Advanced Placement courses, Mississippi State University will consider their inclusion in this listing for credit.

**b.** Advanced Standing Examinations. Applications for advanced standing examinations must be submitted to the Provost and Vice President for Academic Affairs; application forms are available in that office and must be filled out in quintuplicate. Contact the Office of Academic Affairs for information on deadlines, etc. The applicant must be a regularly enrolled student in residence on the campus, when he or she files the application and takes the examination.

Advanced standing examinations must be taken within two weeks from the date of approval by the Provost and Vice President for Academic Affairs and the grade card (signed by the instructor who graded the examination, the head of the department, and the student's dean), fee slip, a copy of the examination questions, and the examination paper must likewise be filed in the office of the Provost and Vice President for Academic Affairs within the same two-week period; otherwise, the student's application becomes null and void.

After an application is approved, the instructor whose name appears on the application form, and the student, will be notified. It is the responsibility of the student to make arrangements with the instructor as to the time and place of the examination. The student must appear for the examination on the date agreed upon.

Grades of C or better are passing grades and will be recorded on the student's permanent record. No student is permitted to take more than one advanced standing examination during any semester or summer term, and only 15 hours of credit so earned will count toward graduation.

Credits earned through an advanced standing examination in any course considered prerequisite for an advanced course will be applied toward graduation hours and the grade-point average only if the examination is passed **before** the advanced class has been completed.

c. College-Level Examination Program (CLEP). A total of not more than 25 percent of any curriculum may be arned by advanced placement exams, advanced standing examinations, College-Level Examination Program (CLEP), evaluated military service credits, correspondence, tutorial, extension, and USAFI courses. Evaluated military service credits are classified as extension work, and USAFI credits are classified as correspondence work. Mississippi State University serves as an open testing center for both the General and Subject Examinations. Academic credit on the Subject Examinations is awarded to students who are enrolled at the University and who make a scaled score of 50 or above (see exceptions below). Credit is neither awarded nor accepted for transfer credit for the General Examinations. Credit is considered the same as extension credit and is subject to the same limitations. The applicability of credit toward degree requirements is determined by the dean and/or department head concerned. At present, the only courses for which credit may be obtained through the CLEP Program are these:

MKT	3013	013 Principles of Marketing ACC 2013		2013	Principles of Financial Accounting
EC	2113	Principles of Macroeconomics	BIS	1012	Business Computer Systems
EC	2123	Principles of Microeconomics	FLF	1113	French I
HI	1213	Early Western World	FLF	1123	French II
HI	1223	Modern Western World	FLF	2133	French III (requires score of 59)
HI	1063	Early U.S. History	FLF	2143	French IV (requires score of 59)
HI	1073	Modern U.S. History	FLG	1113	German I
MA	1313	College Algebra	FLG	1123	German II
MA	1453	Precalculus	FLG	2133	German III (requires score of 60)

MA	1713, 1	1723 Calculus I, II	FLG	2143	German IV (requires score of 60)
EPY	2513	Human Growth and Development	FLS	1113	Spanish I
EPY	3503	Principles of Educational Psychology	FLS	1123	Spanish II
CH	1213	Chemistry I	FLS	2133	Spanish III (requires score of 63)
CH	1223	Chemistry II	FLS	2143	Spanish IV (requires score of 63)
DC	1110				1 1 7

PS 1113 American Government

SO 1003 Introduction to Sociology

For further information about CLEP and a form for application to take the tests, please write to: Computer Based Testing, P.O. Box 9747, Mississippi State, MS 39762, or call (662) 325-6610.

**d.** The International Baccalaureate. The International Baccalaureate program is a comprehensive and rigorous two-year curriculum, leading to examinations, for students between sixteen and nineteen years of age. To accommodate differences among cultures regarding academic standards, it is a deliberate compromise between the specialization required in some national systems and the breadth preferred in others. The general objectives of the IB are to provide students with a balanced education; to facilitate geographic and cultural mobility; and to promote international understanding through a shared academic experience. The student who satisfies its demands demonstrates a strong commitment to learning, both in terms of the mastery of subject content and in the development of the skills and discipline necessary for success in a competitive world.

The IB curriculum consists of six subject groups:

Language A	(best language) including the study of selections from World Literature
Language B	(second language) or another Language A
Individuals and Societies	History, Geography, Economics, Philosophy, Psychology, Social Anthropology, Business and Organization
Experimental Sciences	Biology, Chemistry, General Chemistry, Applied Chemistry, Physics, Environmental Systems, Design Technology, Physical and Chemical Systems
Mathematics	Mathematics, Mathematical Methods, Mathematical Studies, Advanced Mathematics
Electives	Art/Design, Music, Latin, Classical Greek, Computing Studies, History and Culture of the Islamic World, Advanced
	Mathematics, a second subject from the humanities or the sciences, a third modern language, a school-based syllabus approved by the IB

All IB Diplomas candidates are required to offer one subject from each of the groups. At least three and not more than four of the six subjects are taken at the Higher level, the others at the Subsidiary level. Each examined subject is graded on a scale of 1 (minimum) to 7 (maximum). The award of the Diploma requires a minimum total of 24 points and the satisfactory completion of three additional requirements: the Extended Essay of some 4000 words, which provides the first experience of the independent research paper; a course entitled Theory of Knowledge (ToK), which explores the relationships among the various disciplines and ensures that students engage in critical reflection and analysis of the knowledge acquired within and beyond the classroom; the compulsory participation in Creativity, Action, and Service (CAS) extracurricular and community-service activities. Bonus points may be awarded for the exceptional essay or performance in Theory of Knowledge.

Mississippi State University recognizes the IB Program. Credit will be considered for the higher level subject examinations with scores of 5, 6 or 7 pending approval of the various colleges, schools and major departments of the university

A final official IB transcript will be sent by the International Baccalaureate North America (IBNA) regional office following the grade awarding and upon the request of the student. The document will indicate the level of the subjects, the grade awarded in each, the total point score and the completion of the additional Diploma requirements. Results are available in late July for May session candidates.

## 2. Grades and Quality Points

The class work of the student will be rated according to the following pattern of values:

		Quality Points
Grade		Per Credit Hour
А	Excellent	4
В	Good	3
С	Satisfactory	2
D	Poor	1
F	Failure	0
Ι	Incomplete	0
S	Satisfactory	_
U	Unsatisfactory	
W	Withdrawn Without Penal	ty —
*S	Retakes	_
*R	Repeats	
AU	Audits	

The quality-point average shall be determined on the basis of semester hours scheduled and rescheduled in which grades of A, B, C, D, and F are recorded. However, a student may not earn credits or quality points for a course or its equivalent in which he/she has already earned a grade of A or B.

**Incomplete Policy**. A grade of I (incomplete) may be submitted in lieu of a final grade when the student, because of illness, death in his or her immediate family, or similar circumstances beyond his or her control, is unable to complete the course requirements or to take final examinations. A grade of I will not be submitted for reasons other than previously described. Except for circumstances noted above, an I grade will not be given to extend the semester so that a student may complete a required assignment(s).

Undergraduate students who receive an I grade must complete all work within thirty (30) calendar days from the date of the student's next enrollment. A student who receives an I grade may make up only that part of course work not completed because of an emergency. If a grade of I is not resolved into a passing grade within the allotted time, the grade becomes an F. Once a grade of I has been converted to an F because of the student's failure to complete the necessary coursework or a lapse of the allowable time, no additional grade change will be allowed except under extreme circumstance(s) as recommended by the deans and approved by the Vice President of Academic Affairs.

If an undergraduate student has not enrolled in the university within a year of receiving a grade of I, the I will be converted to a permanent grade of WI and the student will not have the opportunity to change that grade.

Graduate students who receive a grade of I must complete all work no later than the last day of class of the next semester (excluding summer) whether the student is enrolled or not. Failure of graduate students to remove an I grade during the specified time will result in an automatic grade of "F." Once a grade of I has been converted to an F because of the student's failure to complete the necessary coursework or a lapse of the allowable time, no additional grade change will be allowed except under extreme circumstance(s) as recommended by the deans and approved by the Vice President of Academic Affairs. I grades are not permitted for thesis and dissertation credits.

#### 3. Academic Standing

a. **Undergraduate**. The University prescribes minimum standards of scholarship for determining whether a student is to be continued or discontinued. This determination is made at the end of the fall and spring semesters, at the end of the summer session, or any part of a semester in which the student has been enrolled. While the academic standing of a student is determined by the MSU Cumulative Grade Point Average (GPA), students must earn a 2.0 GPA on both the MSU and overall cumulative GPA's to earn a degree.

1. Students with a semester GPA of less than 2.0 who have at least 24 hours of GPA coursework at Mississippi State University AND who fail to meet the following MSU Cumulative GPA requirements will be suspended.

Classification	Earned Hours	MSU Cumulative GPA
Seniors	90 or more semester hours	2.0
Juniors	60-89 semester hours	2.0
Sophomores	30-59 semester hours	1.8
Freshmen	29 or fewer semester hours	1.6*

2. This policy is effective Fall Semester 2004 for all first-time entering students (i.e. students who have not established a Mississippi State University GPA prior to Fall 2004) and to all students who enroll thereafter. By Fall Semester 2008, this will apply to all students at Mississippi State University regardless of the semester they enrolled.

3. Up to Fall Semester 2008, all students with a GPA established at Mississippi State University prior to fall 2004 will be placed on suspension with the following GPA cutoffs: Seniors 1.9, Juniors 1.7, Sophomores 1.3, and Freshmen 1.0.

4. No student will be suspended for failing to achieve the required grade point average without first having had at least one semester of probationary notice (not necessarily the immediately preceding semester).

5. Students whose cumulative MSU GPA is less than 2.00 at the end of any term will enter the next term on academic probation and will remain on probation until the GPA reaches 2.00 or higher. The course load for students on academic probation is restricted to a total of 14 credit hours; a student on academic probation who enrolls concurrently in excess of this limit in correspondence courses or at another institution will not receive credit at Mississippi State University for such courses. (AOP 12.15 applies)

After being notified of probationary status, a student must schedule an appointment with his/her academic advisor or with the departmental probationary advisor (if the department has a probationary advisor) to devise a plan to improve their academic performance.

6. Academic suspension shall be for at least one regular (fall or spring) semester. For students suspended at the end of a spring semester, the suspension precludes enrollment in any summer school session as well as the following fall semester. The student will be readmitted on academic probation following the expiration of the first suspension. A student who attends another university during a suspension from MSU must maintain a 2.0 GPA (calculated by MSU standards) on any transfer work. Students who fail to meet these criteria may be readmitted only on the recommendation of their dean and with the approval of the Provost. A student may continue in school during the second term of summer session, irrespective of his or her record during the first term.

7. A student who has already received an academic suspension who fails to earn a current GPA of 2.0 or higher, and who has less than the required MSU Cumulative GPA, will be placed on academic dismissal. A student who receives an academic dismissal will not be automatically or routinely readmitted. In addition, readmission will not normally be considered until the student has been absent from the University for one calendar year. The Vice President for Academic Affairs may approve the readmission of an academically dismissed student only upon the recommendation of the student's academic dean based on a written petition by the student. Application for readmission should be filed with the student's Department Head no later than fifteen days prior to the first day of classes.

8. Appeal for a waiver of suspension or dismissal, because of unusual circumstances, should be made through the student's academic dean to the Vice President for Academic Affairs. No additional appeal beyond the Vice President for Academic Affairs is possible.

\* A level of 1.5 was applied for the Fall 2004, Spring 2005 and Summer 2005 semesters.

**b.** Veterans' Academic Status. Students receiving U.S. Department of Veterans Affairs educational benefits will be governed by APO 12.21 in addition to those above.

1. A student's continued entitlement to the Department of Veterans Affairs educational benefits is determined as follows: If a student's cumulative average falls below the acceptable level as specified in AOP 12.16 (See Above), he/she will be placed on "first probation to receive VA benefits." If during the first probation semester, a student does not improve his or her cumulative GPA, VA benefits will be suspended at the end of the semester. If a student's cumulative GPA improves but an acceptable level is still not achieved, a "second probation to receive VA benefits" semester will be allowed. If the standards of progress are not achieved at the end of the second probation semester, VA benefits will be suspended. Students may not receive further benefits until approved by the VA.

2. Based on VA rules and regulations, students receiving VA educational benefits will receive benefits only for courses that apply toward a degree program. NOTE: Any change in student status, such as drops/adds, major changes or withdrawals from the University, must be reported to the Veterans Administration Supervisor.

**c.** Academic Amnesty. Students who have not been enrolled in any post-secondary institution for five years may apply for admission or readmission under the academic amnesty policy through their academic dean's offices. Academic Amnesty may be applied to a student's record only once. Students admitted under this policy must complete current curriculum requirements in residence to earn a degree. (AOP 12.19 applies.)

**d. Academic Fresh Start.** Students who have not been enrolled in any post-secondary institution at any time for at least 24 consecutive months may petition for admission or readmission through their academic dean's offices under the academic fresh-start policy. All college credits earned prior to being granted academic fresh start will be eliminated from the computation of the student's grade point average and may never be used toward graduation at Mississippi State University. (AOP 12.17 applies.)

e. Academic Forgiveness (Course Retake) Policy. Effective Fall semester 2007, for courses taken during or after fall semester 2003, an undergraduate student will be permitted to retake up to two courses, not to exceed eight hours, in which he or she made a B, C, D or F. The original grade will remain on the transcript but will be noted by \*S and will not count toward the GPA. This policy will be applied only to courses taken at Mississippi State University. For specific regulations and instructions on this policy, students should contact the Registrar's Office or refer to Academic Operating Policy 12.20.

## **D. CLASS ATTENDANCE**

Upon registration the student accepts the responsibility of attending all classes and doing any work the instructor may prescribe. When absence from class is essential, it is the responsibility of the student to make arrangements satisfactory to the instructor with regard to work missed. These arrangements should be made prior to the absence when possible.

Instructors shall record and report the absences of all students at any time using the myBanner Internet system. The same procedure will be followed by the instructor when at any time, in the opinion of the instructor, the student is not making satisfactory progress. All absences and last dates of attendance (where applicable) will become a part of the student's file in the Registrar's Office. Instructors may report absences to the Division of Student Affairs at any time they feel it appropriate to do so and are expected to report students with continued, consecutive absences.

### **E. WITHDRAWAL**

Any student leaving the University prior to the end of the period of enrollment, except for temporary absences, should initiate withdrawal procedures at his/her Academic Dean's office. By completing this procedure, the student may prevent future difficulties in obtaining transcripts, or in reentering the University, and will avoid having F's automatically recorded for all courses taken during the semester.

A student who withdraws after the 10th day of classes will receive a grade of W for each course scheduled. No withdrawals will be allowed during the last two weeks before the beginning of final examinations for the fall and spring semesters, and during the last week prior to the beginning of examinations for each five week/ten week summer term.

The withdrawal of any student shall not be effective on a date prior to the last day of class attendance.

In highly unusual circumstances resulting from extreme hardship, a student may petition to withdraw retroactively from a semester within one calendar year. The request for withdrawal will be considered only when accompanied by appropriate documentation of the situation (e.g. medical emergency or administrative error) which was related to the student's recorded academic performance for the semester in question. Such requests must be approved by the student's advisor, department head, dean, and the Provost. For cases other than administrative error in which final grades were recorded, the students's instructors should be consulted before a final decision is rendered and should be notified after the decision is made. In no case will more than one semester's work be retroactively withdrawn during a student's matriculation at Mississippi State University.

## F. CLASSIFICATION OF STUDENTS

Students are classified according to the total hours earned:

Freshman	29 or fewer semester hours
Sophomore	30-59 semester hours
Junior	60-89 semester hours
Senior	90 or more semester hours

## G. RECOGNITION OF ACADEMIC ACHIEVEMENT

Recognition for outstanding academic achievement is accorded to full-time students each regular semester (does not apply to students in College of Veterinary Medicine). For these purposes, a student must complete at least twelve (12) semester hours of course work toward graduation, with no incomplete grades nor grades lower than C. The levels of recognition are as follows:

**President's Scholars**. Students who achieve a 3.80 average or above.

Dean's Scholars. Students who achieve a 3.5 to a 3.79 average.

## **H. GRADUATION and COMMENCEMENT**

**1. Commencement**. Candidates should submit formal application for degrees during registration for the period of enrollment in which they expect to complete their degree requirements, but not later than the last day to apply, as published in the Academic Calendar. Candidates will not be allowed to participate in the commencement ceremony until requirements have been met for a degree. Payment of debts to the University is a requirement for the granting of degrees and awarding of diplomas. All University holds must be cleared before a student can graduate.

**2. Graduation with Honors.** Students completing the requirements for baccalaureate degrees with exceptional scholastic averages and with a minimum of one-half the total hours required for their degrees at Mississippi State University may be graduated with honors. The levels of recognition will be recorded on the students' diplomas and permanent records.

In determining eligibility for recognition, the grade point average will be figured on the basis of all hours attempted. If a student's last period of enrollment raises his or her average to the level required for honors, or to a higher level of honors, this notation will be made on the diploma and transcript. The hours may include, not only residence credit, but also correspondence and extension credit to the extent permitted by the University regulations for graduation.

Transfer students must achieve the specified grade point average in two senses: (1) on all hours attempted at all institutions attended and (2) on all hours attempted at Mississippi State University. The level of attainment will be determined by either the overall average or the Mississippi State University average, whichever is lower. The grade-point values currently in use at Mississippi State University will be used to calculate the quality-point average on all transfer credits.

The levels of recognition and the grade point averages required for each are as follows: Summa Cum Laude—3.80, Magna Cum Laude—3.60, and Cum Laude—3.40.

## **IV. STUDENT HOUSING**

Mississippi State University is committed to providing its students with a comprehensive educational experience. The University has determined that for most four-year students, living on-campus, as compared to off-campus living, has numerous educational and social benefits. In recognition of the value of the living-learning experience associated with on-campus living, Mississippi State University requires first-year students to live in on-campus residence halls. First-year and new transfer students must first apply and be admitted to the university. Once admitted, students will be able to submit housing and roommate preferences for the Fall 2012 / Spring 2013 academic year. A nonrefundable \$60 reservation fee must be submitted to the Department of Housing and Residence Life. A nine-month housing contract must be signed once an assignment is offered in order to avoid cancellation of the assignment and/or loss of priority.

**Roommate Selection**: Students wishing to request one another as roommates should do so via the online roommate selection section of the housing preferences menu. Students wishing to request to room together AFTER submitting housing preferences can return to this menu option anytime before April 1 for first-year students and before June 1 for transfer students to submit or change their roommate preference. Mutual requests received before the April 1 for first-year and June 1 for transfer deadline dates will receive priority consideration.

**Transfer and Currently Enrolled Off-campus Students**: Assignments of transfer students and currently enrolled off-campus students will not be made until after the assignments of returning residence hall students and new freshman students have been completed (at the end of the spring semester and into the summer as space is available). Freshman students who submit their housing preferences prior to April 1, 2012 will receive their assignment in the month of May 2012. Priority is given to those preferences submitted by April 1, 2012.

**Contracts**: MSU students cannot cancel their housing contract and room assignment after July 15, 2012 for Fall 2012. The residence hall contract is for both semesters (nine months). The student is legally bound to the terms and conditions of this document as long as the student is enrolled at MSU. For additional information regarding cancellation of contracts for students that are no longer enrolled, please contact the Department of Housing and Residence Life. The residence halls open several days before the first day of classes. Detailed information regarding opening day will be available on the housing web site in early summer.

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**Private Rooms**: Requests for private rooms will only be considered if space is available. First priority will be given to double occupancy assignments. The rate for a private assignment will be higher than for a double room. Contact the Department of Housing and Residence Life for availability and rates.

**Disability and Medical Needs:** Students requesting specific accommodations based on a disability must first register with MSU's Office of Student Support Services. The Housing Assignments Office will work with Student Support Services to try to accommodate the student's needs based on their recommendations and space availability. Students requesting specific accommodations based on a non-disability medical need must submit the appropriate documentation for review and consideration. More information is available on the housing web site. Accommodation requests based on medical or disability needs must be received prior to April 1 in order to receive priority consideration.

**Room Change Requests**: All room changes must be approved by the residence director or the Assignments Office. A student who makes an unauthorized change will be charged a penalty and required to move back to the assigned space. The assigned occupants are financially responsible for all property in the room, including doors and windows. Individual requests for reassignments will not be considered until after the first week of classes for the Fall 2012 term and all assignments are complete. Depending on space availability, a wait list option for re-assignments may be offered during the summer prior to opening day. Please contact the Department of Housing and Residence Life for more information regarding wait lists for the Fall 2012 term.

University Reassignments and Right of Entry: The University reserves the right to inspect rooms and to move any student to another assignment for reasons of space management or for the maintenance of order. At the beginning of each school term, students without roommates may choose one of three options: 1) move together voluntarily with another student who is without a roommate, 2) be reassigned with another student who is without a roommate, or 3) if private rooms are an option, pay the private room rate. Whatever the option chosen, the student must coordinate his/her actions with his/her residence director.

Please contact the Department of Housing and Residence Life for more information: Box 9502, Mississippi State, MS 39762; Phone: (662) 325-3555; FAX: (662) 325-HOME (4663); email: housing@saffairs.msstate.edu; Web site: www.housing.msstate.edu. The Web site is the best source for submitting an application, exploring specifics about facilities, policies, and options for students, especially those with families.

## **V. SERVICES**

## A. LIBRARIES

## http://library.msstate.edu

The Mississippi State University Library System is composed of the Main Library (Mitchell Memorial Library) and its library branches which include Architecture, the College of Veterinary Medicine, the Jackson Center Library and the Meridian Campus.

The University Libraries include a collection of over 2,000,000 volumes and over 80,000 journal/serial titles, including print and electronic formats. The Libraries regularly receive many of the publications of leading universities and scholarly societies. The Library is a selective Government Document Depository and United Nations Depository. The Libraries provide a full complement of full text journals as well as scholarly journals in electronic format and accessible remotely from offices and dorms on campus as well as at home and from a distance off campus. Through the Libraries web page, patrons have access to a wide variety of databases and full text journals.

The resources of the Special Collections Department include materials of research value on the local, state, regional and national levels. Among the valuable documentation in the Archives of the University are papers of the university's presidents and other officers, college, division and departmental records, faculty papers, records of committees and university related organizations. The Manuscripts Division includes many significant collections, especially in the areas of journalism, civil rights, agricultural, and political history. Among the most important are the Turner Catledge Papers, Hodding and Betty Werlein Carter Papers, Mississippi Republican Party Papers, and the Delta and Pine Land Papers. The Mississippiana Collection contains significant works about Mississippi and by Mississippi authors and a large rare book collection. The Congressional and Political Research Center houses the papers of Senator John C. Stennis, Congressmen G.V. "Sonny" Montgomery, David Bowen, Charles Griffin, Mike Espy, Chip Pickering and the Ulysses S. Grant Presidential Collection.

The Templeton Music Collection, a unique collection of ragtime, blues, show tunes and war song sheet music is highly recognized and used by musicians, scholars and researchers throughout the region and nation. Digitized portions of this collection are available on the web. A ragtime/ jazz festival is held each March.

The Library provides over one hundred computers for students in the Computer Commons Lab and Reference Department. Students who want to use the sound capabilities of the Internet may plug their own headphones into headphone jacks on the PC's and Macs. The lab also offers two laser printers and a color laser printer. The Library's Computer Commons Lab is open until 1:45 a.m., Sunday through Thursday and until 7:45 p.m. on Friday and until 5:45 p.m. on Saturday.

The Instructional Media Center (IMC) provides an environment for educational technology activities and a learning center to utilize techniques related to digital multimedia. The staff provides assistance in identifying, digitizing, and organizing content materials including resources from the Libraries' collections for use in web page design or presentation. IMC houses computers with CD-ROM players, computers with flatbed scanners that can be used for scanning documents, pictures, photos, etc., typewriters, TV/VCR stations for students to listen to music as required for various courses. Two of these stations also have record players. Music composition stations consist of electronic keyboards attached to Mac computers. The IMC also provides small listening areas with TVs and VCRs for groups to view videos for classes. The Libraries provide a full range of individual reference services including one-on-one consultations and online Chat. Three rooms with individual computer stations are available for class and group instruction and workshops. There is also a large auditorium and a presentation room for class and student use.

The Libraries, a charter member of the Southern Library Network (LYRASIS), hold memberships in the American Library Association, Association of College and Research Libraries, the Networked Digital Library of Theses and Dissertations (NDLTD), EDUCAUSE, EPSCOR/ESIG libraries, CNI and CLR, and was a founding member of SPARC. The Libraries are one of five supporting regional libraries within the National Agricultural Library Aquaculture Library Network, established to link the research and extension activities of the Regional Research Centers with the Network. The Main Library plays a major role in Mississippi's statewide consortium MAGNOLIA (Mississippi Alliance for Gaining New Opportunities through Library Information).

## **B. BOOKS and SUPPLIES**

The MSU Bookstore is operated on behalf of the University by **Barnes & Noble**. The store's primary function is to provide students, faculty and staff with textbooks, general reading and reference books, related supplies, and MSU clothing and gifts. It also has parking available for community and visitor use.

Barnes & Noble at MSU is a 30,000 sq. ft. academic superstore located in the Cullis Wade Depot. The first floor features MSU clothing and gifts, a large selection of general reading books, and a full service Barnes and Noble Café that proudly serves Starbucks coffee and Cheesecake Factory desserts. The second floor stocks all course-required textbooks, trade and Reference books, and a complete stock of school supplies. The bookstore also

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carries computer hardware and accessories and software packages are available at substantial educational discounts. The bookstore also offers a vast array of eco-friendly merchandise that includes socks, notebooks, filler paper, and totes among others.

Students can visit the bookstore web site at ShopMissState.com to purchase textbooks and imprinted merchandise for delivery or take advantage of our convenient in-store pickup. The bookstore also offers cash back for textbooks all year long.

The bookstore is open Monday through Friday from 7:30 a.m. to 8 p.m., Saturday 10 a.m. to 8 p.m., and Sunday 12 p.m. to 6 p.m. The bookstore extends its hours of operation concurrent with campus activities such as home football games. Please call (662) 325-1576 or visit ShopMissState.com for more information.

## C. UNIVERSITY DINING SERVICES

The campus dining is an important aspect of the college experience. Studies show that students who eat a well-balanced meal have a better chance of succeeding in the classroom. In addition to this, campus dining provides great social centers and convenience at a great value. MSU Dining Services has a variety of campus dining facilities which provide the student with a wide range of menu choices, atmospheres, and prices. The campus community may choose from a variety of locales on campus. These include the newly renovated Marketplace at Perry, the Pegasus Dining Room in the Wise Center, the State Fountain Bakery, Burger King, Einstein's Brother Bagels and the Union Food Court. The Food Court is comprised of Toss It Up, Mississippi Steak, Sushi Bar, Zoca Southwestern Grill, Panda Express, Starbucks, P.O.D. and Chick-fil-A.

MSU's historic Perry Dining Hall is located in the heart of campus and offers a varied menu, from omelets and pancakes to hearty southern-style fare. For lunch, students will find hot food lines serving home-style meals, a salad bar, a deli bar, and a pizza bar. Char-grilled entrees, a pasta line, and a veggie line are featured daily. Satisfy that craving for something sweet with MSU ice cream or baked pies, cakes, or cobblers. Throughout the entire day students may feast on an "all you care to eat" buffet. Templeton's is now open next to the baseball stadium with a menu similar to Perry. McArthur Cafe Express is located in McArthur Hall and serves delicious plate lunches, grab n' go items, and snacks and bottled beverages. Village Pizza, located in Griffis Hall, is open late and serves fresh pizza, smoothies, and grab n' go.

We look forward to serving you and please feel free to contact us via telephone at 662-325-0923 with any questions you may have about MSU Dining Services, or visit our web site, www.msstatedining.com. Please contact 325-7120 for information on meal plans.

## D. JOHN C. LONGEST STUDENT HEALTH CENTER

The Longest Student Health Center is designed to provide comprehensive, accessible, high-quality and cost effective healthcare to students during college years. The Center is open during regular school sessions to all Mississippi State University students who are assessed the student health fee.

It is recommended that all students use the Longest Student Health Center as their preferred provider of care while at Mississippi State. The Center is staffed with well-qualified family practice physicians and registered nurses to provide primary medical care for students. Ancillary services include pharmacy, laboratory, x-ray, and physical therapy. Other services offered include nutrition counseling and health education. The health fee covers the physician's professional charge for an unlimited number of clinic visits. Ancillary services are provided on a fee-for-service basis. Ambulance service is available through Oktibbeha County Hospital. Those who need more specialized care than the Center can provide will be referred to the appropriate resource.

Clinic hours: 8 a.m. to 5 p.m., Monday-Wednesday and Friday; 9 a.m. to 5 p.m. on Thursday. The Center is closed on Saturday and Sunday and during regularly scheduled student holidays.

Health records are to be sent directly to the Longest Student Health Center, where they are kept confidential. Health records are not a part of the school records and will be kept indefinitely for future reference.

The Student Health Center does accept insurance assignments from health insurance companies recognizing the Center as an authorized provider of health care. A Student Accident and Sickness Insurance Plan has been developed specifically for Mississippi State University students and is intended as a supplement to the care provided by the Student Health Center. Sponsored by the Student Association, it is a voluntary plan for students and their dependents. International students are required by the University to subscribe to this policy unless they provide proof of equal coverage.

Information on student health services and student health insurance is available by writing to Director, John C. Longest Student Health Center, P.O. Box 6338, Mississippi State, MS 39762; telephoning (662) 325-5895; or emailing health@saffairs.msstate.edu. Visit www.health.msstate.edu.

## **E. INTERNATIONAL SERVICES**

International Services, a unit of the Office of Admissions and Scholarships, is charged with the responsibility of international undergraduate recruitment. This includes marketing MSU to prospective undergraduates worldwide, developing effective and efficient admissions policies and practices and coordinating scholarship opportunities for qualified candidates.

This unit is also mandated to serve both undergraduate and graduate students, professors, research scholars, short term scholars and specialists holding F and J visa status. This service is primarily implemented through USCIS and Department of State regulatory advising, benefit issuance, and document processing. The unit works closely with a wide variety of other university administrative and academic offices to best serve the international community in such matters as semi-annual immigration orientation sessions, Fulbright summer Preacademic programs, and yearly international tax workshops.

Lastly, the International Services unit assists the academic departments in formulating international student and faculty exchanges through articulation agreements, arranging logistics, hosting visitors, coordinating academic and administrative units, facilitating meetings, etc. with the overall goal of campus internationalization. International Services is located in Montgomery Hall.

For information visit www.admissions.msstate.edu/international/services/ or call (662) 325-2224. Email international@msstate.edu.

## F. STUDENT COUNSELING SERVICES

Student Counseling Services offers a variety of clinical and outreach services free to all full-time and part time students Monday through Friday from 8:00 A.M. to 5:00 P.M. Appointments may be made in person or by calling 662-325-2091.

Student Counseling Services staff is composed of well versed professionals with extensive training in clinical psychology and counseling who are experienced in facilitating personal growth and development. Staff members respect the ability of each individual to make actualizing choices. They offer services in career, personal, couples, family, and group counseling. Student Counseling Services also offer psycho-educational outreach programs to groups, clubs, organizations, departments, and classes on a variety of topics. Consultation services and student concerns are available to faculty, staff, and family members. For more information please visit our web site at http://www.health.msstate.edu/scs/

## Sexual Assault Services

Sexual Assault Services is a service to the university community. It is comprised of two components: a crisis response team and outreach/ programming and education. The Sexual Assault Response Team (SART) handles sexual assault cases, crisis intervention, assessment, direct support, and provides consultation, referral for the victim and the accused. SART is available to help anyone who reports a violation of the sexual assault policy. The team includes a coordinator and designated individuals from the University Police Department, the Longest Student Health Center, Residence Life Association, the Dean of Students office, and Student Counseling Services. For information or to report a sexual assault case, students and members of

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the university community may contact the SART Coordinator at Student Counseling Services at (662) 325-2091.

Sexual Assault Services coordinate prevention education, outreach programming, and prevention education for the campus. For more information or to request programming call Sexual Assault Services at (662)325-9101 or visit our web site at http://www.health.msstate.edu/sas/

## G. ASSESSMENT & TESTING SERVICES

## www.ats.msstate.edu/testing

The Office of Assessment and Testing Services, located at 180 Magruder Street, serves as the University's testing center for national standardized computer-based and paper/pencil tests such as ACT, CLEP, GMAT, GRE, Praxis, LSAT, MCAT, MAT, and TOEFL. Registration information can be obtained from test program web sites listed on our web site at www.ats.msstate.edu/testing. Please email testing@saffairs.msstate.edu, or call (662) 325-6610 for more information.

## H. THE LEARNING CENTER

http://www.tlc.msstate.edu

The major purpose of The Learning Center (TLC) is to help Mississippi State University students improve their academic performance. TLC offers both credit courses and non-credit services to graduate and undergraduate students. For more information, contact the TLC office at (662) 325-2957 or come to 267 Allen Hall.

Credit Classes. The primary focus of the credit classes of The Learning Center is to assist in retention of students by strengthening their reading and study efficiency. LSK 1023 College Reading and Study Skills emphasizes development of time management, vocabulary, note taking, test preparation and other study skills. TLC offers a speed reading course, LSK 2013, as well as a one-hour study skills course, LSK 1011. In addition, the center offers LSK 1001 Freshman Seminar, a one hour course designed to orient incoming freshmen and transfer students to the university.

Non-credit Laboratory Services. TLC offers tutoring in major subject areas. Assistance is available in all areas of English, mathematics and statistics, chemistry, physics, and preparation for professional examinations. These services are free to all MSU students. In addition, The Learning Center provides equipment for checkout, photocopying, and instructional resource materials for a nominal fee. The Learning Center houses a general computer lab available to students and faculty.

## I. THE CAREER CENTER

#### www.career.msstate.edu

The MSU Career Center, through quality programs, events and services, empowers individuals to develop skills that will enhance professional preparation oriented toward careers. The Career Center also serves as a catalyst between employers, students and alumni by offering on-campus interviewing and networking opportunities as well as relevant work experiences prior to graduation. Assistance is provided that compliments the career decision/preparation process in the form of personality and interest inventories, career counseling, resume writing, resume critiques and mock interviewing. In addition, special events are hosted by the Career Center that provide students and alumni with enhancements related to the job search process. Major events held on a regular basis each semester include a variety of Career Fairs, Graduate and Professional School Fair, Education Interview Day and Cooperative Education Interview Days. Special emphasis workshops including dining etiquette, dressing for success, evaluating job offer, etc., are held regularly.

Types of employment available for job seekers through the Career Center include:

- · Full-time employment for graduating seniors and alumni
- · Cooperative Education (see section on Cooperative Education Program)
- Internship and Professional Practice Internships
- · Summer Employment
- Part-time employment during school semesters

Details on all events, programs and services of the Career Center may be found at http://www.career.msstate.edu or by contacting Director, Career Center, PO Box P, Mississippi State, MS 39762.

## J. THE HOLMES CULTURAL DIVERSITY CENTER

The Holmes Cultural Diversity Center primarily serves minority and international students, including African American, Native American, Asian American, Hispanic, and students from 74 countries. By providing a forum for all cultures, traditions and backgrounds, the Center strives to equip students with the ability to cope with current and future challenges, opportunities and alternate global points of view. It is, however, committed to providing programs and services sensitive to all students' needs. The Center serves as a resource for faculty and staff. The Holmes Cultural Diversity Center supports the missions of the Division of Student Affairs and the University. For information or services, visit the Center in the Colvard Student Union, Suite 220, or at http://www.hcdc.msstate.edu or call (662) 325-2033.

## K. INFORMATION TECHNOLOGY SERVICES

## 117 Allen Hall. (662) 325-9311. www.its.msstate.edu.

The mission of Information Technology Services (ITS) is "to enable learning, service and research through an advanced information technology environment." In fulfillment of this mission, ITS makes available a broad array of information technology resources and services to the students, faculty, and staff of MSU.

User Services operates the Help Desk, which serves as the primary point of contact for the campus community when requesting services or reporting problems to ITS. Additionally, User Services provides Web development and support services and offers training sessions and short courses to MSU departments. User Services also provides personal computer support to departments and their employees and it operates the Campus Card Office which produces the MSU ID card and administers MoneyMate, the university's declining-balance spending account system.

Information Technology Infrastructure (ITI) is responsible for the planning, deployment, support, and operation of the University's information technology infrastructure. This infrastructure is comprised of the Campus Card system, the voice network, and the wired and wireless data network (including over 201 buildings at the Starkville campus and connections to the commodity Internet, Internet2, National Lambda Rail, and other research networks), as well as central and departmental server resources. Further, ITI supports the technology infrastructure in over 95 campus classrooms, open computer labs in the Academic Computer Laboratory, Griffis Hall, and Mitchell Memorial Library, and departmental computer labs across campus. All residence hall rooms are equipped with high-speed wired and wireless data network connections, and the wireless network is available campus-wide.

Enterprise Information Systems (EIS) is responsible for development, maintenance, and support of a broad suite of software systems that are utilized throughout the university. Systems range from departmental applications to the comprehensive, integrated Enterprise Resource Planning system (Banner) for financial, human resources, student, financial aid, and advancement administration. In addition, EIS supports the myState portal, the myCourses course management system, and the Banner Document Management system. Primary database platforms include Oracle and Microsoft SQL Server. General responsibilities include software design and development, software testing, system implementation, database administration and ongoing maintenance and support.

## L. STUDENT SUPPORT SERVICES

The department of Student Support Services (SSS) is a federally-funded program through the U.S. Department of Education. It is a TRIO program designed to assist eligible low income college students, first generation college students, and college students with disabilities to succeed in completing their college education. A limited number of students can be served under the federal grant program. The primary mission of SSS is to enhance educational opportunities for eligible students to improve their academic and social skills, increase their retention toward graduation and as appropriate, facilitate their entrance into graduate and/or professional schools. For information or services, visit Student Support Services in Montgomery Hall, call (662) 325-3335, or visit www.sss.msstate.edu.

## M. DISABILITY SUPPORT SERVICES

Students who need academic accommodations based on a disability should visit the Office of Student Support Services, 01 Montgomery Hall, call (662) 325-3335, or visit the web site at www.sss.msstate.edu. Student Support Services' staff reviews the documentation, assesses the needs of students with disabilities, and makes requests to the faculty and the University based on those needs. The department serves as a resource and clearing house for dissemination of information related to disabilities and compliance with section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act (ADA). Students who are denied accommodations and/or services should seek assistance from Disability Support Services regarding the appeal process.

## **VI. STUDENT and CAMPUS LIFE**

## A. COLVARD STUDENT UNION

#### www.union.msstate.edu

The Colvard Student Union, named for former President Dean W. Colvard, serves as the center of the Mississippi State University community life. The Campus Activities Board (CAB) and Music Maker Productions, student programming groups advised by the Union staff, annually plan and present a variety of programs, including the Halloween carnival, Miss Maroon and White pageant, global lecture speaker, and Old Main Music Festival.

The Colvard Student Union, which originally opened in 1964, has recently reopened after having undergone a major renovation and expansion. The Union has eight large meeting rooms, four conference/board rooms, a ballroom, a small auditorium/theater, and an art gallery. Also located in the Union are a food court, coffee house, hair stylist, copy/shipping service, and convenience store. The Holmes Cultural Diversity Center is located in the Colvard Student Union, as are administrative offices for the Colvard Student Union staff, CAB, Music Makers, Student Association, Interfraternity Council (IFC), National Pan-Hellenic Council (NPHC) undergraduate council, Panhellenic Council. Shared office space and a limited number of lockers are available for registered student organizations in the Center for Student Involvement.

Rooms in the Union, as well as Bettersworth Auditorium in Lee Hall, the Amphitheatre, and other campus facilities may be reserved by contacting Event Services.

## **B. THE STUDENT ASSOCIATION**

The Student Association exists to serve all Mississippi State University students. The five officers, who are elected during the spring semester, are the leaders of the SA. These officers include the president, vice president, secretary, treasurer, and attorney general. They not only work to ensure that established policies and programs are successfully continued, but also initiate improvements in MSU's student government.

The president and the SA cabinet comprise the executive branch of the Mississippi State Student Association. These cabinet members are selected to work with their student committees to implement programs and services which will benefit the entire student body.

The vice president heads the legislative branch and presides over the SA Senate. There are 50 senators elected to represent the various colleges and schools, as well as areas of student residence.

The judicial branch of the SA includes members appointed by the SA President and approved by the SA Senate. The Judicial Board assists the Dean of Students office in cases involving violations of the Student Code of Conduct.

All students are automatically members of the SA when they enroll at MSU. Students who want to learn more about the SA and become involved should visit the SA office located in the Center for Student Involvement in the Colvard Student Union, call (662) 325-3917, or visit the Web site at www.sa.msstate.edu.

## C. STUDENT PUBLICATION

The *Reflector*, the campus newspaper, appears twice weekly during the regular term. Edited and managed by students, it provides a wide range of news, features, and commentary of interest to the campus community. Its editorial offices are in the Meyer Student Media Center.

## **D. STUDENT ORGANIZATIONS**

Mississippi State University has more than 300 registered organizations, grouped as follows: Departmental/Academic, Fraternities, Sororities, Honoraries, International/Ethnic, Fine/Performing Arts, Political, Recreation/Hobby, Religious, Residence Life, Service, and Publications.

Organizations which represent the interests of a large segment of or the entire campus include: The Student Association (SA), the Residence Hall Association (RHA), the Inter-Fraternity Council (IFC), the National Pan-Hellenic Council (NPHC) Undergraduate Council, the Black Student Alliance (BSA), the Panhellenic Council (PH), the Campus Activities Board (CAB), Music Makers Productions, and The *Reflector* (newspaper). The name and phone number of the advisor of each organization on campus are listed on the MSU Web site.

## **E. SOCIAL SORORITIES and FRATERNITIES**

Nineteen national social fraternities have established chapters at the University; 12 have chapter houses on the campus, and one resides off campus. Self-governance of the fraternities is provided by the Interfraternity Council, composed of the president and one delegate from each of the national fraternities. The national fraternities at Mississippi State University are: Alpha Gamma Rho, Alpha Phi Alpha, Alpha Tau Omega, Delta Chi, FarmHouse, Iota Phi Theta, Kappa Alpha Order, Kappa Sigma, Lambda Chi Alpha, Omega Psi Phi, Phi Beta Sigma, Phi Delta Theta, Phi Gamma Delta, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Lambda Beta, Sigma Nu, and Sigma Phi Epsilon.

Twelve national women's social sororities have established chapters at Mississippi State University; six have built chapter houses on the campus. Panhellenic Council is the self-governing body for sororities and is composed of two delegates from each sorority. State's sororities include: Alpha Kappa Alpha, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Sigma Theta, Delta Xi Phi, Kappa Delta, Phi Mu, Pi Beta Phi, Sigma Gamma Rho, Zeta Phi Beta, and Zeta Tau Alpha.

Included among the 31 Greek organizations at MSU are eight historically African-American chapters: Alpha Kappa Alpha, Delta Sigma Theta, Sigma Gamma Rho, and Zeta Phi Beta sororities, and Alpha Phi Alpha, Iota Phi Theta, Omega Psi Phi, and Phi Beta Sigma fraternities. These organizations belong nationally to the National Pan-Hellenic Council (NPHC), and they are represented on campus by the NPHC Undergraduate Council, their self-governance body.

## F. MUSICAL ORGANIZATIONS

All MSU students, regardless of academic major, are enthusiastically invited to participate in one or more of the musical ensembles offered through the University Band and Choir programs and the Department of Music. These ensembles offer diverse performance opportunities both on and offcampus. Membership is available through audition. Scholarships and tuition waivers are available in the band and choir programs based on talent and experiences as demonstrated through audition.

Founded in 1902, the Maroon Band Program is one of the oldest and best-known bands in the Southeast. The Famous Maroon Band is at the center of game-day spirit, is one of the most visible groups on campus, and serves as musical ambassador for the university. The band appears at all home football games and travels to championship and bowl games. Interested members of the Maroon Band audition for placement in two Basketball Pep Bands to continue supporting the Bulldogs in the basketball season.

The Wind Ensemble, Symphonic, Community, and Concert Bands offer opportunities for students of all ability levels to pursue the study of the instruments through the performance of advanced ensemble literature, with the Wind Ensemble serving as the premiere instrumental concert ensemble. The Jazz Bands are offered for those with an interest in jazz, and numerous chamber ensembles for winds and percussion are offered through the Music Education Department.

The Chamber Singers are the premiere, touring ensemble on the MSU campus. Comprised of students from various disciplines, each member is committed to singing choral music at the highest level. A significant amount of previous experience in vocal and choral music is usually expected for membership. Repertoire is chosen from a cappella and accompanied choral traditions, and the group tours either nationally or internationally every year.

The Concert Choir is the largest vocal ensemble on the MSU campus. The Choir is open to any MSU student with prior choral experience who enjoys participating and singing in a choral ensemble. Repertoire consists of music from all genres of choral music. The ensemble performs at least two concerts on campus each year and with the Famous Maroon Band during the annual patriotic halftime show.

All musical ensembles are offered for academic credit and do not constitute an overload fee.

Contact information: Band - (662) 325-2713 Choir - (662) 325-7801

## G. RELIGION

Since Mississippi State University is a non-sectarian institution, it seeks to provide a climate of freedom in which the private and corporate religious life of the students can be expressed. Students and others within the campus community are free to worship or not to worship, in accord with their convictions and beliefs.

The Chapel of Memories, with its George D. Perry Carillon Tower, in the center of the campus, is open to individual students for meditation and prayer throughout the day and evening. It may also be reserved through the Event Services Office for weddings, funerals, initiations, and group religious activities. Student religious groups are registered through the Center for Student Involvement in the Colvard Student Union to provide the co-curricular involvement of students in programs of study, worship, fellowship and service. Four of these groups, the Baptist, Methodist, Catholic, and Church of Christ, have off-campus facilities. In those cases where a minister or faculty advisor is not provided by the preferred group, every effort will be made to put the student in touch with someone of his or her faith in the area.

The University Common Ministry, composed of ministers engaged in campus ministry at the University, has been serving the needs of students since December 20, 1978. In addition, more than 30 active student religious groups are registered with the Center for Student Involvement.

In addition to the practice of religion within the student religious groups, an opportunity to learn about religions of the world is provided through credit courses in the Department of Philosophy and Religion, as well as non-credit courses offered through the church-related groups.

## H. RECREATIONAL SPORTS

The Department of Recreational Sports conducts a comprehensive program of leisure services. The program consists of men's, women's, and co-recreational sports; fitness programs and activities; tennis and racquetball court reservations, equipment check-out services; informal recreation programming; outdoor adventures; sport club opportunities; and special events.

The Joe Frank Sanderson Center opened in 1998 and offers a wide range of recreational opportunities for Mississippi State students, faculty, and staff. The state-of-the-art facility includes six basketball/volleyball courts; six racquetball courts; a fitness room complete with weight and cardiovascular work-out equipment; jogging track; and an indoor swimming pool. The department also operates the RecPlex, a sports field complex with playing areas for softball, flag football, and soccer.

The Intramural Sports program offers competition for men and women in a variety of activities including badminton, basketball, flag football, racquetball, soccer, softball, tennis, table tennis, and volleyball. For more information, go to http://www.recsports@msstate.edu

#### I. INTERCOLLEGIATE ATHLETICS

Mississippi State University is a member of the Southeastern Conference, which includes in its membership 12 of the leading universities of the South. Regulations regarding participation in athletics are subject to the action of the National Collegiate Athletic Association and the Southeastern Conference. Intercollegiate sports for men include football, basketball, baseball, track, tennis and golf. Intercollegiate sports for women include basketball, volleyball, tennis, golf, cross-country, track, soccer and softball. Overall supervision of intercollegiate athletics is provided by Director of Athletics.

## VII. TUITION and REQUIRED FEES FOR 2012-2013 and MANAGING YOUR MSU ACCOUNT

#### http://www.controller.msstate.edu/accountservices

#### Tuition and Required Fees (T&RF)

With the exception of the College of Veterinary Medicine and Meridian campuses, stated hereafter, the following fees apply to students enrolled at Mississispipi State University. Tuition and required fees are assessed on a per credit hour basis at the prevailing rates as determined by The Institution of Higher Learning, the governing board of the University. These rates are applicable at the time of publication and are subject to change without notice.

	Fall Semester (maximum)	Spring Semester (maximum)	Annual Total (maximum)
Tuition & Required Fees (T&RF) - Full Time			
A. Resident T&RF	\$3,132.00	\$3,132.00	\$6,264.00
B. Non Resident Tuition: <sup>2</sup>	\$4,782.00	\$4,782.00	\$9,564.00

Tuition and Required Fees (T&RF) - Part-time (hourly rate, rounded) (1-11 hours)<sup>1</sup>

A. Resident	\$261.00 per hour
B. Non-resident Tuition <sup>2</sup>	\$399.00 per hour

<sup>1</sup>Per credit hour rates are strictly applied to enrollment in all parts of the summer term (no maximum applied).

<sup>2</sup>Those students that reside outside the state of Mississippi (Non-resident) are charged both Resident T&RF and Non-Resident Tuition each semester of enrollment.

- A student will be considered full-time for T&RF purposes when registered for 12 or more undergraduate hours.
- Part-time students registered for 1 to 11 undergraduate hours will be charged at the per-credit-hour rate.
- 12 or more hours of enrollment will be assessed at the maximum per term rate (applicable to fall and spring).
- T&RF assessments for course enrollment with the Division of Academic Outreach and Continuing Education (AOCE) are in addition to all other campus's T&RF charges.
- The same T&RF rates apply to those courses that are taken as an audit.

## **T&RF** relative to Student Activities

All students, by payment of T&RF, are eligible for use of facilities, participation in intramural sports, admission to intercollegiate athletic events, student health services and other miscellaneous activities. However, an additional fee may be required for football admission or some activities because of less than full-time, academic enrollment. These required fees are applicable regardless of the method of course instruction (i.e., traditional, online, distance, etc.)

## **Course Participation Fees**

Fees in addition to T&RF are associated with some courses which require the use of special equipment, facilities or materials. These fees, which vary by course, will be collected as part of registration.

Schedule Change Fees - Please see www.registrar.msstate.edu/Calendars/academiccal.html.

## Managing Your MSU Account

#### **1. Account Information**

A financial record for each student is maintained and presented to the student via the myState portal. The information is considered confidential; however, the records of students will be available for examination by authorized representatives of the Government. Current T&RF should be paid by the established monthly due date. Partial payments of an account balance are permitted during the semester/term; however, monthly service fees will apply (See "Payment Due Dates and Service Fees".) Students are responsible for payment of all T&RF charges unless they either cancel their schedule or withdraw from school by the first day of class. See refund schedule at http://www.registrar.msstate.edu/Policies/RefundSchedule.pdf. Failure to take appropriate withdrawal action may result in significant payment obligations.

According to established University policy, student accounts must be current (i.e., not on an Account Services/Financial hold) in order to continue enrollment at MSU. To avoid unnecessary delays in your continued enrollment, please review your account to insure all previously billed charges have been paid.

If you have questions about this policy, please feel free to contact Account Services:

- By e-mail cashiers@controller.msstate.edu
- By phone 662-325-2071
- In person Account Services located in Garner Hall

### **Billing, Payment Due Dates, and Service Fees**

- Electronic billing statements are available to students on or about the 15th of each month via the University's secure myState portal. Students will receive a monthly email notification that their account has been billed. These statements contain a monthly summary of charges and credits to the student's account.

- Regular monthly payment due dates are the 9th of each month.
- The student's account will be assessed a monthly 1.5% service fee on any billed charges outstanding beyond the payment due date.
- Service charges, as well as an "Account Services Hold", may be avoided by paying the full account balance each month by the due date.

## **Unpaid Balances From Prior Semesters**

- Any outstanding and past due amounts owed to the University must be paid in full before a student may register for additional courses or make schedule changes.

All payments received on student accounts will be applied to charges in the same order in which the charges were incurred.

- A student who has a hold on his/her record because of an overdue account may not receive a transcript or a diploma until the account has been paid to current status.

- Per federal financial aid regulations, prior aid year outstanding charges cannot be paid with current aid year financial aid.

## **Overdue Account Restrictions**

- The administrative authorities of the University may withhold the transcripts and diplomas, degree certification, letters of good standing, and other certification of enrollment and deny readmission of any student who has an over-due financial obligation to the University.

- The student's records may be cleared and a diploma or transcript released when the indebtedness is paid in full.

- If a financial hold is released based upon a financial agreement and the terms and conditions of that agreement are not met, we reserve the right to void the current term class schedule without notice and without promise of reinstatement of the same class schedule.

## **Attorney and Collection Fees**

- Student accounts remaining unpaid by the end of the term may be turned over to an external agency for collection.
- The prevailing collection rate may be added to the amount owed by the student.

- If an attorney's services are needed, the student shall be responsible for payment of the attorney's fees plus all court and other collection costs incurred.

## 2. PAYMENTS

Acceptable Forms of Payment: Cash (payments, accepted only in Account Services located in Garner Hall or Meridian Business Office), personal or corporate checks; money orders; cashier checks; credit cards; wire transfer; or local, state, University or federal financial aid (e.g., grants, loans, scholarships, waivers, VA or military assistance, etc.). Please provide the MSU ID number with all payments. If sending a payment via US Postal Service, please mail payment at least five (5) business days prior to due date.

## **Check Payments**

The University will accept checks in payment of amounts due the University. The University reserves the right to defer payment on the balance of any check tendered in excess of the amount due the University until the check has had time to clear for payment through banking channels.

Checks offered to the University that are not honored by the bank on which it is drawn are considered non-payment and will result in the voiding of course schedule(s) and assessment of appropriate fees. The maximum penalty allowed by law will be charged for any check returned by your bank for any reason. The University expects that each debt created by a returned check will be promptly and fully corrected. Failure to respond to a notice concerning a returned check may result in legal action, the denial of readmission, and the withholding of records. The University reserves the right to refuse acceptance of checks presented by students who have had previously returned checks. In such cases payment must be made by cash, money order, certified bank check, or credit card.

## QuikPay Service: Electronic Credit Card| Debit Card| E-check payments and Account Authorized Payers

- The QuikPAY® service (myState portal, Banner, Personal Info, Make an Online Payment) allows students to make payments using a credit card or electronic check (e-check). Acceptable credit/debit cards are American Express, Discover & MasterCard \*

\* Note: your card account will be assessed a 2.7% convenience fee in addition to the payment amount.

- Students may also authorize a payer(s) (usually a parent) to access their account information and make payments to their account. Students must initiate this process by logging into the MSU myState portal at www.msstate.edu and proceed to "Make An Online Payment", then link to the QuikPAY® site by choosing "Authorize Payers" and following the easy instructions to create, modify, or delete an authorized payer. Once established, the authorized payer can access the account by going to https://quikpayasp.com/msstate/studentaccounts/authorized.do and initially re-setting his/her password and then proceeding to make payment or review the student's account detail or statements.

## Wire Transfer - Please contact Account Services at (662) 325-2072 for wiring instructions.

## **Financial Aid or Scholarship Payments**

Students who receive a scholarship or need-based financial aid from the University are expected to use their financial aid or scholarship award to complete payment T&RF as well as other enrollment related charges assessed for the same term/semester that the financial aid award is issued. Per federal financial aid regulations, prior aid year outstanding charges cannot be paid with current aid year financial aid. The remaining balance of scholarship and financial aid funds are available to be used for other educational expenses within the same term/semester only after T&RF have been paid. Prior aid year credits cannot be applied to current aid year charges and thus should be refunded in the same term/semester they are received.

## **Employee Tuition Remission**

For information regarding this program, please see Human Resources policy - HRM #60-225.

## Senior Citizen Tuition Waivers

Legal residents of the State of Mississippi age 60 or older (senior citizens) may enroll tuition-free in a maximum of two (2) on-campus courses per semester (or combined summer term) at the Starkville or Meridian campuses or the Division of Academic Outreach and Continuing Education (AOCE). Refer to the Student Affairs policy – OP 91.179 for more information.

## All Other University Sponsored Waivers - refer to Student Financial Aid, Section VIII

## **3. REFUNDS**

Refunds of credit balances resulting from financial aid, registration withdrawals/drops or other reimbursements may be requested as follows:

- Direct Deposit: Utilizing the BULL-e-BUCK\$ electronic account management program via the myState portal.
- In person: Account Services located in Garner Hall
- U.S. Postal Mail: Contact Account Services by phone at 662-325-2071 to request refund or make the request by email at cashiers@control-ler.msstate.edu.

Credit balances resulting from overpayments by check or e-check will be available 14 calendar days after posting to the student's account. Credit

balances resulting from overpayments by credit card will be refunded to the credit card account on which the original payment was made.

### Web Instructions to Access Your Account:

From the MSU main Web page, select myState; secure user access using your personal NetID and password; click on the Banner tab and enjoy the following services:

- 1. Change your billing address and/or E-mail address.
- 2. View your current or prior billing statement.
- 3. View your account detail history.
- 4. Make a payment by credit card or e-check.
- 5. Authorize another user to help manage or make payment to your account.
- 6. Access a remittance stub to make payment via U.S. mail
- 7. View your pending financial aid or scholarships
- 8. Use the BULL-e-BUCK\$ program to direct deposit your refund or make a transfer to your MoneyMate account.

### **Helpful Phone Numbers:**

Account Services	(662) 325-2071
Sponsored Student Office	(662) 325-8017
Internal Collections	(662) 325-6619

## **VIII. STUDENT FINANCIAL AID**

## **General Information**

Many Mississippi State University students receive various types of financial aid to help pay the costs associated with attending college. The following information is provided to inform students and their families of the estimated costs of attending MSU, the types of financial aid available to help pay these costs, some of the general aid eligibility requirements, and the aid application procedures. The information contained in this section is accurate as this document went to print. Please visit our Web site at www.sfa.msstate.edu for further information and updates.

#### I. Student Expenses - The Cost of Attending MSU - 2012-2013

The following list of basic university expenses covers those for a full-time, undergraduate student living in a residence hall on campus for a nine month academic year. Note: These costs are average costs.

Tuition and Fees	\$6,264.00 \$1,200.00	
Books and Supplies Room and Board	\$1,200.00	
Personal And Transportation	\$4,808.00	
Total (Mississippi Resident)	\$20,434.00	
Non-Resident Total	\$29,998.00	(Additional fees - \$9,564)

#### **II. Sources of Financial Aid**

Federal Sources of Financial Aid Programs are "need based" or "non need based" as determined by the federally mandated needs analysis formula. A. Federal Sources of Financial Aid

- 1. Pell Grants A federal student aid program designed to provide a foundation of gift aid to students who demonstrate financial need. All undergraduate students enrolled for their first undergraduate degree are eligible to apply for Pell Grants. Pell Grants awards for the 2011-2012 year ranged from \$555 to a maximum of \$5,550. Depending on Congressional allocations, Pell Grant amounts may change each year.
- 4. Federal Work-Study A program of part-time employment for students who demonstrate financial need. Eligible students may work up to 16 hours per week during regular school sessions.
- 5. Stafford (subsidized and unsubsidized) Student Loans Long-term loans provided by the U.S. Department of Education for students who need assistance in meeting educational expenses. Subsidized loans are based upon financial need. Unsubsidized loans are not based upon financial need.
- 6. Federal Perkins Student Loans A program of long-term, low-interest loans to students who demonstrate financial need to meet college expenses. No interest accrues, nor does payment begin, until nine months after the borrower ceases to be at least a half-time student.
- 7. Supplemental Educational Opportunity Grants A federally sponsored program to provide gift aid for undergraduate students with exceptional financial need. Funds are limited. Apply early each year.
- 8. Parent Loan for Undergraduate Students (PLUS) PLUS Loans are credit based loans for the parents of dependent students. Parents may borrow on behalf of their eligible dependent student. PLUS Loans are non-need based in that parents are eligible to be certified by the school if other funds have not covered the student's cost of attendance.
- 9. Leveraging Educational Assistance Partnership Program (LEAP) A federal and state sponsored program to provide gift aid for undergraduate students with exceptional financial need. Funds are limited. Apply early each year.

## **B.** Institutional Sources of Financial Aid

- 1. Mississippi State Promise Mississippi State University now offers the Mississippi State Promise program that provides institutional financial assistance for entering freshmen and community college transfer students from Mississippi who are from families with low incomes. Please refer to the Student Financial Aid Web site at www.sfa.msstate.edu for details.
- Undergraduate Tuition Remission Policy for Children of Faculty and Staff The partial tuition remission policy applies to all single dependent children of full time faculty and staff. See tuition remission policy for any restrictions that may apply.
- 3. Emergency Short-Term Loans The University has available for students a means of borrowing small sums of money to meet emergency expenses during the academic year. Such loans are repayable during the same semester in which the loan is made. Application is made to the Dept. of Student Financial Aid.

## C. Institutional Sources of Scholarships

- Freshman Academic Excellence Scholarships Mississippi State University has a variety of academic scholarships for National Merit and National Achievement finalists and semi-finalists, valedictorians, salutatorians, and overall academic excellence. In addition to earned outstanding honors and awards, these scholarships require an above average ACT/SAT score, a competitive high school GPA, and excellent leadership and service activities. Scholarship amounts are competitive and awarded on a funds available basis. Students must maintain a 3.0 overall GPA to renew academic scholarships.
- 2. Out-of-State Scholarships and Waivers

a. Child of Alumni Waiver - This scholarship waives 50 percent of the non-resident tuition for sons and daughters of alumni. The minimum qualification for alum status is 48 semester hours of work completed at MSU. Students must maintain a 3.0 overall GPA to continue the Alumni Waiver.

b. Non-resident Freshman Scholarship – Non-resident freshmen who have a competitive ACT/SAT score, above average high school GPA, and have completed the online scholarship resume, and who are admitted by December 1, may be eligible for a scholarship ranging from 50% to 100% of the non-resident portion of tuition.

c. Community College Transfer Non-resident Scholarship - This is a scholarship for the non-resident portion of tuition for community college transfer students with 48 transferable community college hours, a 3.0 or higher cumulative grade point average, and who are admitted and have completed the online scholarship resume by June 1.

- 4. Departmental Scholarships Colleges and Departments within the University offer scholarships designed to assist students majoring in a specific discipline. Most are competitively awarded and renewable. Students who have a chosen major are encouraged to contact the department in their major areas of study regarding scholarship opportunities.
- Sumners Scholarships are available to permanent residents of Attala, Carroll, Choctaw, Montgomery and Webster counties in Mississippi. A Sumners Scholarship application is available online at www.admissions.msstate.edu and must be submitted by September 15.

## 6. A portion of student tuition and fee charges is used for scholarships, tuition waivers and other operating costs.

## D. State and Other Sources of Financial Aid

- Army/Air Force ROTC Four-Year Scholarships Scholarships available to students interested in commissions as officers in either the Army or the Air Force. Scholarships are based on ACT scores and high school grades, not financial need. Visit the following Web pages for further information. Army ROTC: http://armyrotc.msstate.edu. Air Force: www.msstate.edu/dept/afrotc.
- 2. The state of Mississippi provides several student aid programs for students who are residents of the state of Mississippi. These include, but are not limited to: Mississippi Resident Tuition Assistance Grant (MTAG), Mississippi Eminent Scholars Grant (MESG), William Winter Teacher Scholar (WWTS), Critical Needs Teacher Program (CNTP), Higher Education Legislative Plan (HELP) and Summer Developmental Program Grant (SDPG).
- Information about these and other aid programs is available from the Mississippi Office of Student Financial Aid, 3825 Ridgewood Road, Jackson, MS 39211. Web: http://www.mississippi.edu/riseupms/index.php, Jackson-area phone 601-432-6647; toll free 1-800-327-2980.

## III. To Apply for Financial Aid at MSU

- The following forms MUST be completed by the student each year:
- A. Federal Student Aid (Federal Pell Grant, Federal SEOG, LEAP, TEACH, Federal Work Study, Federal Perkins Loan, Federal Stafford Subsidized and Unsubsidized Student Loans and the Federal PLUS Loan). Applicants must complete the Free Application for Federal Student Aid (FAFSA) each year. The FAFSA can be submitted over the web at www.FAFSA.ed.gov and should be submitted as soon as possible after January 1st each year for the coming school year. Any required verification or tax documents should be delivered to the Department of Student Financial Aid at MSU by March 1. Late applicants will be considered on a funds available basis. Mississippi State University's Federal School Code Number is 002423.
- B. State Student Aid Applications for student aid programs offered by the state of Mississippi should be submitted or updated as soon as possible after January 1 each year for the coming school year. Information and online applications are available at http://www.mississippi.edu/riseupms/index.php.
- C. Academic and/or Regional Scholarships Submit an Application for Admission and General Scholarships and an online resume. Please refer to www.admissions.msstate.edu for additional information and applicable priority dates.
- D. Sumners Scholarships Students should submit the Sumners Scholarship application to MSU via the Web at www.admissions.msstate.edu by the September 15 priority deadline.

## **IV. Scholarship and Financial Aid Policies**

## A. Scholarship Criteria:

- 1. All academic scholarships are made in accordance with guidelines established by the MSU Scholarship Committee.
- 2. Students currently enrolled at MSU are evaluated primarily on the basis of a submitted online scholarship resume and overall grade-point averages.
- 3. Transfer students are evaluated on the basis of a submitted on-line scholarship resume, cumulative grade point average, transferable community college hours and admission by the June 1 priority date.
- 4. Entering freshmen are evaluated on the basis of their ACT/SAT composite score, overall high school grade point average, high school class standing, leadership attributes and admission and scholarship resume by the December 1 priority date.
- 5. Students from Attala, Carroll, Choctaw, Montgomery and Webster counties in Mississippi may be eligible to apply for the Sumners Scholarship. Permanent residency in one of these five counties for 12 continuous months prior to the award period is the primary basis of eligibility. Recipients of the Sumners Scholarship must maintain Satisfactory Academic Progress (Section C). Application must be submitted each year by September 15.
- 6. All students have the right to appeal their Scholarship status. Exceptions may be made in cases of mitigating circumstances such as: Death in the immediate family, personal injury, illness, etc, as determined by the Office of Admissions and Scholarships and the University Scholarship Appeals Committee.

Students may appeal by writing: University Scholarship Appeals Committee, Office of Admissions and Scholarships, P.O. Box 6334, Mississippi State, MS 39762.

All appeals must be in writing and include the student's name, MSU ID, telephone number and all the facts and documentation upon which the appeal is based. The University Scholarship Appeals Committee has authority over all appeals and its decisions are final.

## **B.** Federal and State Programs of Financial Aid

- 1. All Federal student-aid funds are awarded on the basis of criteria established by the United States Congress and the Department of Education, as required by Title IV of the Higher Education Act of 1965, as amended.
- 2. Priority in the awarding of some need-based aid is given to students with the greatest financial need first, within the availability of funds. Funds that are limited are awarded until depleted. Applicants are encouraged to apply early each year.
- 3. The family of a student is expected to make a maximum effort to assist the student with college expenses. Financial assistance from the University and other sources should be viewed only as supplementary to the efforts of the family. In determining the extent of a student's financial need, the University will take into account the financial support which may be expected from income, assets, and other resources of the parents and of the students as required by Federal Regulations.

- 4. Students themselves are also expected to use all available resources for their college expenses. This includes savings accounts, trust funds, etc.
- 5. The total amount of financial assistance offered by the University and other sources must not exceed the amount of the student's cost of attendance as specified in federal regulations. If need-based financial aid is awarded, the total need-based award and educational resources cannot exceed the amount of financial need as determined by the federal need formula. The student is responsible for notifying the Department of Student Financial Aid at Mississippi State University upon learning that additional educational resources/benefits (scholarships, tuition waivers, etc.) have been awarded or received.
- 6. Because the amount of financial assistance awarded usually reflects the financial situation of the student's family, the University does not make a public announcement of the amount of financial aid awarded.
- 7. The University will clearly state the total yearly cost of attendance. (See costs listed under "Students Expenses" or visit our Web site at www. sfa.msstate.edu.)
- 8. All financial assistance is awarded on an annual basis and no award implies automatic renewal from year to year. A new FAFSA and MTAG/ MESG application must be submitted each year. Other applications may also be required. Always check with the granting agency to determine application procedures and deadline dates.

### C. Satisfactory Academic Progress for Purposes of Student Financial Aid

Purpose: To define reasonable standards for measuring academic progress in order for students to remain eligible for financial aid under Title IV.

**Policy:** Mississippi State University, as required by federal law, defines and enforces minimum standards for Satisfactory Academic Progress. Students receiving federal financial aid and Sumners funds must conform to these minimum standards of Satisfactory Academic Progress. Students receiving federal financial assistance and Sumners funds must enroll in courses leading to, and earning credit toward, a degree. These satisfactory academic progress standards will include an evaluation of each student's progress in terms of quality and quantity of progress toward the degree. Students who are not successfully completing appropriate courses will not be considered to be making satisfactory academic progress and will not be eligible for further federal financial aid. These satisfactory academic progress standards supersede any award letter that the student might have received. This policy applies to all Title IV federal Financial Aid programs at Mississippi State University and the Sumners Scholarship Program

For details regarding this satisfactory academic progress policy, including the appeals process, and other consumer information, visit our Web site at www.sfa.msstate.edu.

#### D. Withdrawal from School

Treatment of Student Aid Funds when a Student Withdraws from School:

Students who choose to withdraw from the University prior to the end of an enrollment period (semester) should follow the University's guidelines for withdrawing from school. An Official Withdrawal Form must be completed and submitted to the proper office before a student can be considered officially withdrawn. Information concerning the details of withdrawal procedures can be found in the MSU Bulletin or by contacting the Registrar.

Federal student aid recipients who begin attending classes during a semester and who cease attending or performing academic activities prior to the end of the semester, and never complete an Official Withdrawal Form are considered by the federal government to have unofficially withdrawn. If University records indicate that a student did begin attending classes but subsequently unofficially withdraw, the University will consider the Unofficial Withdrawal date to be the midpoint of the semester (unless documentation exists of an earlier or later date of academic activity by the student).

When a federal student aid recipient withdraws, officially or unofficially, after attending at least the first class day, the University will return, and the student aid recipient will be required to repay, a prorated portion of funds received based upon a federally required calculation.

If University records show a federal student aid recipient never attended a class and/or never performed an academically related activity for a semester or term, then the recipient never established eligibility for any aid funds that may have been disbursed for that semester or term. In addition, any student aid recipient who drops all classes prior to the first day of class or whose schedule is voided for a semester or term, did not establish eligibility for any aid funds that may have disbursed for that semester or term, and must repay the entire amount of aid disbursed for that semester or term.

If a student did not receive any federal student aid but did receive other types of aid funds, and subsequently officially withdraws, refunds and repayments will be based upon the University's refund schedule.

For more information regarding return and repayment of Title IV (federal) funds, see the Return of Title IV Funds section of "withdrawal from school" on the Web site at www.sfa.msstate.edu under Policies/Consumer Right to Know.

\*\*Note: The information contained in this section is accurate as of the date of publication but is subject to change, without notice, in order to comply with federal, state, or university requirements. Updates are posted on the MSU Web site.

## IX. SCHOLARSHIPS, MEMORIALS, and LOANS

## UNIVERSITY SCHOLARSHIPS AND MEMORIALS

Mississippi State University is committed to the recognition of outstanding students whose academic credentials confirm their potential for success as university students. Outstanding students may be eligible for various scholarships and honors.

Numerous privately funded scholarships support the University Scholarship Program to recognize continued academic success. Information regarding eligibility criteria and the online resume may be obtained from the Office of Admissions and Scholarships at www.admissions.msstate.edu/ scholarships or (662) 325-3076. In addition to general university scholarships, most colleges and departments also have numerous scholarships available to qualified students. Colleges and departments can provide detailed information.

## COORDINATOR of DISTINGUISHED EXTERNAL SCHOLARSHIPS

The Dean of the Shackouls Honors College identifies and assists well-qualified undergraduate students who would be strong candidates for national and international awards such as the Rhodes Scholarship, the Goldwater Scholarship, the Marshall Scholarship, and the Truman Scholarship. Prospective applicants are encouraged to investigate the Web sites of the major scholarship programs. For information on the opportunities, con-

tact:

Shackouls Honors College P.O. Box EH Mississippi State, MS 39762

e-mail: shc@honors.msstate.edu Web: http://www.honors.msstate.edu (662) 325-2522

## GRADUATE ASSISTANTSHIPS

Graduate Assistantships are intended to recruit quality students to graduate study at MSU and to enhance the graduate learning experience. An assistantship is a financial award to a graduate student for part-time work in teaching, research, or administration while pursuing an advanced degree. Graduate research, teaching, and service assistantships are available on an annual or nine-month basis. A graduate assistant's work schedule is a maximum of 20 hours per week. The minimum stipend rate is \$600.00 per month.

#### Types of Assistantships

**Graduate Research Assistantship (GRA)** — Graduate Research Assistants perform duties in support of University research, which may or may not relate to the students' thesis/dissertation. Many University academic, research, and administrative offices employ GRAs. This opportunity provides an excellent means for students to learn new techniques and methods as well as expand their knowledge by association with research-oriented responsibilities, whether employed within the student's academic discipline or in another department. Duties and stipends vary from program to program and are dependent upon the nature of assigned duties.

**Graduate Service Assistantship (GSA)** — These Assistants aid faculty and staff members with administrative functions, and GSA appointments are available in many academic and non-academic units. Duties vary, depending on administrative needs of the unit making the award, and stipends vary according to the nature of assigned duties.

**Graduate Teaching Assistantship (GTA)** — Graduate Teaching Assistants work under the direct supervision of graduate faculty members and are assigned duties related directly to instruction, such as assisting in the preparation of lectures, leading discussion sections, conducting laboratory exercises, grading papers, and keeping class records. Advanced graduate students who have completed 18 graduate credit hours in his or her teaching discipline may be given primary responsibility for teaching an undergraduate course, including student assessment and assignment of final grades. GTAs may not be assigned primary responsibilities for teaching and student assessment in courses approved for graduate credit. All graduate students planning to serve as Graduate Teaching Assistants must participate in the Graduate Teaching Assistant Certification Program prior to beginning the first teaching assignment at MSU and must satisfy all program/evaluation requirements necessary to obtain the level of certification (GTA1, GTA2, GTA3) corresponding to the duties/responsibilities of the teaching assistantship appointment. Please refer to Graduate Teaching Assistantship Certification in the Bulletin of the Graduate School for detailed requirements.

#### **Appointment Process**

To be eligible for an assistantship a student must be admitted to a specific degree program with "regular" or "contingent" status. A student with "contingent" status must within the first award enrollment period satisfy "regular" admission requirements, and an assistantship award will be terminated if these requirements are not met. "Unclassified" graduate students or graduate students with "provisional" admission status to a degree program are ineligible to hold an assistantship. If English is not the native language of an international graduate student, the English Language Requirements for International Students apply. These requirements are found in the International Students Admission section of the Bulletin of the Graduate School.

Application for an assistantship must be submitted to the college, department, school, or support unit. The department/unit may provide its own application form or use the Application for Graduate Assistantship on the Graduate School Web site (http://www.grad.msstate.edu/forms/pdf/assistantship\_app.PDF. The department/unit establishes application deadlines and review procedures.

#### **Award Benefits**

All Graduate Assistants receive a tuition exemption of approximately 71% of the assessed tuition and required fees. Graduate Assistants who are not Mississippi residents receive 100% exemption of non-resident tuition as well. The University provides a health insurance subsidy for Graduate Assistants who purchase the University-sponsored health insurance plan through the MSU Longest Student Health Center. The total subsidy is \$400 per academic year; \$200 in both the fall semester and spring/summer semesters. For more information about the University-sponsored health insurance plan, visit http://www.health.msstate.edu/healthcenter/insurance\_student.php.

#### **Responsibilities for Maintaining the Graduate Assistantship**

**Fall and Spring Semesters** — Graduate assistants must be full-time students, registered in 9-13 graduate credit hours. The required full-time status must be maintained through the entire semester. Therefore, no course may be dropped if the resulting course load would be fewer than the required 9 graduate credit hours, nor may any course in the 9-hour load consist of or be converted to audit status. The 9-credit hour course load may not be composed of undergraduate courses unless the course is a program prerequisite. In such case, the minimum graduate load required will be 6 credit hours and only one undergraduate course will be permitted as part of the 9-credit hour load (per Graduate Council, March 2001). Some international students are required by the University to take ESL 5323 and/or ESL 5313. Both are considered prerequisites, and a graduate student may enroll in one of the courses and 6 credit hours of degree-program courses while holding an assistantship. ESL 5323 and ESL 5313 may not be taken concurrently.

**Full- and Half-Summer Awards** — Full-summer awards require enrollment in at least 6 graduate credit hours with a maximum allowed of 13 credit hours. Any combination of Maymester, first 5-week, second 5-week, or 10-week terms may be used for the 13-credit hour maximum; however, enrollment in either 5-week term must be at least 3 graduate credit hours with a maximum allowed of 7 credit hours. Additionally, a student holding a half-summer graduate assistantship must be registered for courses scheduled during the term of the assistantship.

#### Academic Achievement

To retain an assistantship, a student must demonstrate satisfactory progress in the academic program. Failure to do so may result in termination of the assistantship. Unsatisfactory progress may be defined as the failure to maintain a B average in graduate courses attempted after being admitted to a specific program; a grade of U, D, or F in any course; more than six credit hours of C grades; failure of the comprehensive/preliminary examination; an unsatisfactory evaluation of a thesis or dissertation; failure of a research defense; or any other failure of a required component of one's program of study. Any, or a combination of these, may constitute the basis for the termination of a student's graduate study in a degree program. Individual programs have the right to establish their own criteria; however, the preceding definition must be the minimum standard for continuing in graduate programs and holding graduate assistantships. In the case of dismissal, a student's assistantship is terminated.

## X. CONDUCT AND DISCIPLINE

## A. Student Conduct

Two objectives of higher education are to develop self-reliance and to form desirable and acceptable habits of conduct among students.

Instead of designing numerous regulations to cover in detail matters of student conduct, Mississippi State University recognizes students as adults who are expected to obey the law, rules and regulations of the University, to take personal responsibility for their conduct, to respect the rights of others, and to have regard for the preservation of State and University property as well as the private property of others. Mississippi State University will not police the personal lives of students on or off campus or invade their privacy by spying or intrusive searches; however, students whose conduct threatens to cause disorder, public disturbances, danger to themselves and others, or property damage will be disciplined.

A listing of acts of misconduct which are unacceptable and may require disciplinary action is provided online at http://www.msstate.edu/web/security.html/ together with a detailed explanation of disciplinary processes for students in the University. Those apprehended and proven guilty of violating the law or rules and regulations of the University may receive a maximum penalty of expulsion from the University.

## **B. MSU Honor Code**

Academic dishonesty is a corrosive force in the academic life of a university. It jeopardizes the quality of education and depreciates the genuine achievements of others. It is, without reservation, a responsibility of all members of the Mississippi State University community to actively deter it. All students who are admitted to MSU agree to abide by the Honor Code which states, "As a Mississippi State University student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."

Those individuals who are reported for MSU Honor code violations will be subject to the procedures and sanctions as found at: www.students. msstate.edu/honorcode.

## C. Behavioral Intervention Team (BIT)

The BIT is made up of university representatives who work to connect the dots of problematic actions involving students that may be known to the various faculty, staff and administrators. Departments represented on the BIT include (but are not limited to): Dean of Students Office, Office of the Provost, Faculty, Housing and Residence Life, Student Health Services, Student Counseling Services, Disability Support Services, and the MSU Police Department. The goal of the BIT is to successfully engage, support, and minimize the concerns associated with students in distress. Accomplishing these goals requires a coordinated institutional response that includes all members of the MSU community.

## **D.** Maroon Alert System

Mississippi State University encourages all students, faculty and staff to sign up for the Maroon Alert System. In case of a campus emergency, administration will activate the Maroon Alert system and begin to communicate with the university community using appropriate media including:

The Web page at www.maroonalert.msstate.edu (yellow banner on the home page)

Groupwise Instant messaging for students and employees

Text messaging on participating cell phones

E-mail using the students or employees official e-mail address

Campus radio station WMSV 91.1-FM

Mobile loudspeaker announcements by campus speakers system and police vehicles

The HOT LINE 325-5555 (activated only during emergency)

## XI. ASSOCIATED AGENCIES

## THE MISSISSIPPI STATE UNIVERSITY ALUMNI ASSOCIATION INC.

The Mississippi State University Alumni Association was founded June 17, 1885. The mission of the Alumni Association is to foster lifelong support for the university's mission through programs, activities, and events for its alumni, future alumni, and friends who are forever maroon and white.

The alumni of Mississippi State University have their permanent headquarters in the Hunter Henry Center on the campus. Housed there are over 100,000 address records of alumni and friends of Mississippi State University. In addition, the center is used frequently by faculty, students and alumni for meetings, conferences and other events.

Some of the services rendered by the association annually in the promotion of the university are: maintaining and updating biographic and demographic information of all alumni; mailing over 350,000 pieces of mail, including the *Alumnus* magazine; planning and organizing numerous alumni meetings and special events; supporting various fundraising programs for the university through the MSU Foundation's Annual Giving program and the Bulldog Club; providing support for alumni chapter scholarship programs; supporting the university's appropriation requests from the Mississippi Legislature; assisting in the recruitment of prospective students to Mississippi State University; sponsoring the Alumni Delegates, student leaders preparing to be alumni leaders; partnering with the university's Career Center to assist students and alumni with employment opportunities; supporting excellence in teaching, research, and service through the annual Faculty Recognition Program; and assisting in the annual Staff Appreciation Day.

Currently, the Association has 92 chartered local alumni chapters, including 64 in Mississippi, 28 in states throughout the nation, and one in South Korea. In addition to a 53-member national board of directors and two standing committees, most chapters and societies have officers, committees, and boards of directors. This totals more than 2,500 volunteer workers on all levels and provides for wide participation of former students and friends in the promotion of their alma mater each year.

For more information, visit the association's web site at www.alumni.msstate.edu.

## THE MISSISSIPPI STATE UNIVERSITY FOUNDATION, INC.

Since 1962, the Mississippi State University Foundation, Inc., has served as a nonprofit corporation offering a comprehensive program of giving opportunities for alumni and friends of Mississippi State University. The foundation's purpose is fourfold:

• to provide the university a way to recruit and draw on the expertise of a network of dedicated volunteers who can assist in soliciting gifts from alumni and friends;

• to provide a mechanism to keep private gifts clearly separate from public funds and to provide flexibility in the use of private funds;

• to assist the university in the investment of endowed funds (the foundation has greater flexibility than the public university to seek the most favorable return on investments); and

• to ensure that funds designated for a particular purpose are used in the manner intended by the donors, and to ensure that funds unrestricted by the donors as to their use are appropriately distributed.

Since its incorporation, alumni and friends have invested \$1 billion in the university through the Foundation. In the past seven years, over \$440 million has been contributed. Also during the same period, the endowment has grown from \$254 million to over \$357 million.

## **XII. EQUAL OPPORTUNITY STATEMENT**

Mississippi State University formally reiterates and reaffirms its commitment to the principles of equal opportunity, affirmative action and diversity. Discrimination based upon race, color, religion, sex, national origin, age, disability, genetic information, or veteran's status is a violation of federal and state law and MSU policy and will not be tolerated. Discrimination based upon sexual orientation or group affiliation is a violation of MSU policy and will not be tolerated. This nondiscrimination policy applies to all programs administered by the University. However, this policy should not be construed to infringe upon the free exchange of ideas essential to the academic environment.

To the extent allowed by law, all employment decisions, including those affecting hiring, promotion, demotion, or transfer; recruitment; advertisement of vacancies; layoff and termination; compensation and benefits; or selection for training will be made consistent with the policy articulated above.

Responsibility for communicating, interpreting, and monitoring the University's equal opportunity policy has been assigned to the Office of Diversity and Equity Programs. The office is located on campus in 106 McArthur Hall. For additional information concerning the university's equal opportunity policy, call 662-325-2493.

Mississippi State University assigns a high priority to the implementation of its equal opportunity policy and to maintaining an inclusive environment. The realization of this priority requires the cooperation of all members of the University community, each of whom must take responsibility for ensuring that work and learning environments are free from discriminatory behavior of any kind. The University community should be guided not only by what is legally required, but also by fairness, working together to ensure that the University clearly and unequivocally demonstrates commitment to excellence in teaching and learning, values the contributions of every individual, and benefits from its diversity.

# College of Agriculture and Life Sciences

## GEORGE M. HOPPER, Dean

Walter N. Taylor, Associate Dean

Office: 201 Bost Extension Building Telephone: (662) 325-2110 Fax: 325-8580 Mailing Address: Box 9760, Mississippi State, MS 39762 E-mail: dean@cals.msstate.edu

## **GENERAL INFORMATION**

The College of Agriculture and Life Sciences (CALS) at Mississippi State University is one of the leading colleges of agriculture, life sciences, and human ecology in the southeast. Student enrollment, degree offerings, and student placement have increased steadily each year.

As a land-grant institution, Mississippi State's College of Agriculture and Life Sciences offers excellent academic programs related to basic life sciences, environmental issues, agricultural production, food and fiber processing, agribusiness, agricultural information science, and the conservative and sustainable use of natural resources. With the establishment of MSU's Life Sciences and Biotechnology Institute, the College will continue to enhance the study of the life sciences, including biotechnological applications that will have a tremendous impact on education, agriculture production, food, fibers, human and animal health, the environment and bio-based industrial products.

Students may choose from 15 undergraduate curricula in the College of Agriculture and Life Sciences. Each degree program will prepare students for career opportunities in the multi-billion dollar agricultural and life sciences' industry. These programs will also prepare students for graduate and/or professional school study.

Organization: The College of Agriculture and Life Sciences is one of five major units of the Division of Agriculture, Forestry and Veterinary Medicine. The others are the Mississippi Agricultural and Forestry Experiment Station (MAFES), Mississippi State University Extension Service (MSU-ES), the College of Forest Resources (CFR), the Forest and Wildlife Research Center (FWRC), and the College of Veterinary Medicine (CVM).

Faculty and Facilities: The level of education of the faculty of the College of Agriculture and Life Sciences, as measured by advanced degrees and by the diversity of the institutions from which these degrees were earned, is exceptionally high. The teaching faculty includes resident staff of the MAFES and MSU-ES, which offer valuable opportunities for students on the undergraduate and graduate (See MSU Graduate Bulletin) levels. The sharing of faculty and facilities between the College of Agriculture and Life Sciences, MAFES, and MSU-ES keeps the instructional program current and meaningful to students.

## POLICIES

Graduation Requirements: The minimum requirements for graduation with a Bachelor of Science degree in the College of Agriculture and Life Sciences include the following:

1. Fulfillment of all university academic requirements as published in this Bulletin.

2. Completion of the General Education requirements as published in this Bulletin. (See Listing of Approved General Education Courses)

3. Completion of all program requirements in the major of choice with an average of "C" or better (2.00 on a 4.00 scale).

4. Completion of sufficient upper level credit hours to satisfy the university requirement of twenty-five percent of degree hours in upper level courses.

All students should consult with their assigned departmental advisor who will review and approve course schedules and provide information and answer questions regarding progress toward degree, career opportunities, and campus resources.

Computer Requirements: The College of Agriculture & Life Sciences requires all entering freshmen and transfer students to own or lease a personal computer. This college-wide requirement is a proactive measure to insure that students will develop the computer skills necessary for success in agriculture and life sciences professions. The CALS will identify the minimum computer specifications, which is vital to the overall university computing system, the university's Information Technology Services, and classroom and laboratory computer accommodations. This information will be posted on the College of Agriculture and Life Sciences Web site (http://www.cals.msstate.edu) by July 1 of each year. Additional information on computer specifications, software, and purchasing and/or lease information (if available), and additional departmental requirements, will also be included on the CALS web site.

PRE-PROFESSIONAL PROGRAMS: The College of Agriculture and Life Sciences offers a number of programs of study that lead to Professional and graduate degree programs including:

> Pre-Veterinary Medicine Pre-Law Pre-Medicine Pre-MBA Pre-Pharmacy

Pre-professional programs of study within CALS enable students to have completed all requirements necessary for admission to the graduate and professional programs of their choice. See listed majors for the specific requirements for each of these areas and contact departmental representatives for additional information.

#### **DEGREE PROGRAMS**

Students may choose from the following degree programs and concentrations in the College of Agriculture and Life Sciences:

Agricultural Engineering Technology and Business Aquacultural Systems Enterprise Management Gin Management and Technology Surveying/Geomatics Natural Resource and Environmental Management Precision Agriculture/Ag Systems Agribusiness Management Policy and Law Production Agricultural Information Science Teaching Agricultural Leadership Agricultural Science Animal and Dairy Science Dairy Science and Production Equine Science and Production Meat Animal Science and Production Science/Veterinary Science Biochemistry **Bioinformatics** Entomology Forensic Science Plant Pathology Pre-Dental Pre-Medicine Pre-MBA Pre-Optometry Pre-Pharmacy Pre-Veterinary Medicine Science **Biological Engineering** Culinology Environmental Economics and Management Food Science, Nutrition and Health Promotion Food/Nutrition

Food Safety/Pre-Veterinary Medicine Food Processing/Business Culinology® Food Science Human Sciences Apparel, Textiles and Merchandising Human Development and Family Studies Gerontology Certificate Landscape Architecture Landscape Contracting and Management Agronomy Golf and Sports Turf Management Integrated Crop Management Agricultural and Environmental Soil Science Integrated Pest Management Horticulture Floriculture and Ornamental Horticulture Floral Management Poultry Science **Business Management** Processed Products Manufacturing Production Systems Pre-Veterinary Medicine Minors are available in a number of these programs. See the appro-

Minors are available in a number of these programs. See the appropriate degree program in this Bulletin for additional information or call departmental representatives.

## **Emphasis in INTERNATIONAL AGRICULTURE**

An emphasis in International Agriculture is available to students majoring in any curriculum in the College of Agriculture and Life Sciences. This emphasis is intended to prepare students for possible careers in agricultural production or marketing on an international scale.

Students interested in this emphasis will take the following in addition to requirements for their majors. The specific courses included will be determined by the department involved and the student's interest, but will include the following minimums.

SUBJECT MATTER	REQUIRED SEMESTER HOURS
Production Agriculture	
(outside student's major)	6-9
Agricultural Economics	6-9
World Geography/Political	Science
and/or Sociology	3-6
Foreign Language	6-9

## FIVE-YEAR, TWO-DEGREE CURRICULA in AGRICULTURE and BUSINESS and in AGRICULTURE and LIBERAL ARTS

Five-year, two-degree curricula leading to Bachelor of Science degrees in both Agriculture and Business and Agriculture and Liberal Arts are available. Such curricula may be designed with a major in any field of agriculture or human sciences combined with a major in any field of business or liberal arts. These programs must meet the minimum requirements of 124 semester hours with a C average or better for a degree in Agriculture including (1) a minimum of 54 semester hours with a C average or better in business approved by the College of Business and Industry, or (2) a minimum of 48 hours with a C average or better in the liberal arts field approved by the College of Arts and Sciences.

Students desiring to follow a five-year, two-degree curriculum will develop a detailed program by consultation with advisors in the College of Agriculture and Life Sciences and the College of Business and Industry or the College of Arts and Sciences. The two degrees are conferred simultaneously at the end of the fifth year. Students should declare their intentions of pursuing the two-degree program as early as possible, generally not later than the end of the sophomore year.

## PRE-VETERINARY MEDICINE

The College of Agriculture and Life Sciences does not offer a degree in Pre-Veterinary Medicine; therefore, students should select a major that includes Pre-Veterinary courses. These requirements are included in the following degree programs: Animal and Dairy Sciences, Poultry Science, Food Science, Nutrition and Health Promotion, Biochemistry and Molecular Biology, Microbiology and Biological Sciences (the latter two degree programs are located in the College of Arts and Sciences). Each of the four degree programs within the College of Agriculture and Life Sciences (CALS) allows the student to complete the necessary requirements for entry to the College of Veterinary Medicine and a Bachelor of Science simultaneously. To receive a Bachelor of Science degree, each student must meet the curriculum requirements set forth by the respective department provided through the Pre-Veterinary Medicine Concentration (Example: See Animal and Dairy Sciences). Upon the successful completion of the undergraduate degree program through the junior year and the pre-veterinary medicine course requirements, a student may apply to the College of Veterinary Medicine (CVM). Upon the successful completion of the first year of CVM courses (approximately 40-42 hrs.), a student may apply these hours toward the bachelor's degree. This course work can serve as the senior year of the undergraduate curriculum. This "three plus one" program is offered by the College of Agriculture and Life Sciences for Pre-veterinary students.

Address inquiries concerning the Pre-Veterinary medicine concentrations available to desired degree program and advisor listed below:

Animal and Dairy Sciences Pre-Veterinary Medicine Program Department of Animal and Dairy Sciences Dr. Carolyn Huntington, Pre-Veterinary Advisor 4017 Wise Center Box 9815 Mississippi State, MS 39762 Phone: (662) 325-2802

Biochemistry and Molecular Biology Pre-Veterinary Medicine Program Department of Biochemistry and Molecular Biology Dr. Scott Willard, Pre-Veterinary Advisor 402 Dorman Hall Box 9540 Mississippi State, MS 39762 Phone: (662) 325-2640

Food Science Pre-Veterinary Medicine Program Department of Food Science, Nutrition and Health Promotion Dr. Wes Schilling, Pre-Veterinary Advisor 105 Herzer Dairy Science Building Box 9805 Mississippi State, MS 39762 Phone: (662) 325-3200

Poultry Science Pre-Veterinary Medicine Program Department of Poultry Science 114 Hill Poultry Science Building Box 9665 Mississippi State, MS 39762 Phone: (662) 325-3416

## Pre-Veterinary Requirements for entry into The College of Veterinary Medicine

Writing/Composition (6 hrs) Public Speaking or Technical Writing (3 hrs) Fundamentals of Public Speaking OR CÔ 1003 Intro to Tech Writing in Agricomm AIS 3203 Mathematics (6 hrs) Microbiology with lab (4 hrs) Biological Science with lab (8 hrs) 1134 BIO Biology I 1144 Biology II BIO General/Inorganic Chemistry with lab (8 hrs) Organic Chemistry with lab (8 hrs) CH 4521 Organic Chemistry Lab CH 4523 Organic Chemistry II Biochemistry (3 hrs) Physics with lab (6 hrs) (can be trig-based)

Advanced Science Electives (12 hrs) Fine Arts (3 hrs) Humanities (6 hrs) Social/Behavioral Science (6 hrs)

**Total Credit Hours: 79** 

Electives will be needed from requirements toward the student's alternate major to complete the minimum 124 hour degree.

# Department of AGRICULTURAL ECONOMICS (AEC)

Major Advisor: Dr. Randy Little Office: 325-2750

Agriculture and related businesses create more employment than does any other industry. The agribusiness industry accounts for nearly one-fifth of the U.S. gross national product and employs close to onefourth of the U.S. labor force. Fully understanding how economic forces affect today's agriculture industry is critical for those seeking careers in agriculture-related businesses.

A growing field within economics is environmental economics. A key challenge to the U.S. economy in the 21st century is finding a balance between the demand for natural resources and the need to preserve our environment. Individuals who can analyze these complex problems will be needed for the new "green jobs" that require sustainable solutions to resource and environmental issues.

Two majors, Environmental Economics and Agribusiness, are offered to provide an understanding of economic forces and business management principles as well as technical knowledge of technical agriculture and environmental science. Students completing either major will be prepared to pursue additional training at the graduate level.

Students who plan to attend a community college before transferring to Mississippi State are strongly encouraged to contact the Department's major advisor regarding their proposed community college course schedule and transfer requirements.

Students in both majors are required to earn a "C" or better in all required (non-elective) agricultural economics (AEC), economics (EC), English (EN), and mathematics (MA) courses.

# **ENVIRONMENTAL ECONOMICS and MANAGEMENT (EEM)**

The Environmental Economics and Management (EEM) major is designed to prepare students for the efficient and productive management of natural and environmental resources. Students receive excellent functional training and learn skills in the areas of environmental science, policy and economics. Potential career fields include, but are not limited to, environmental law; natural resource and environmental policy analysis; environmental consulting; and resource management. In addition, students desiring postgraduate training will have a solid academic foundation for pursuing graduate or professional degrees.

#### **General Education Requirements**

English	Composition	(6 hours)

- EN 1103 English Comp I OR
- Accelerated Comp I EN 1163
- EN 1113
- English Comp II OR EN 1173 Accelerated Comp II

Mathematics (9 hours)

- MA 1313 College Algebra or higher level Mathematics
- MA 1613 Calculus for Business and Life Sciences I OR an equivalent or higher level calculus
- BQA 2113 **Business Statistics Methods**

Science (7 hours)

- - CH 1043 Survey of Chemistry I
  - CH 1051 Experimental Chemistry lab
  - BIO 1134 Biology I

Humanities (6 hours)

- PHI 1113 Intro to Logic
- Select from General Education courses 3 hours

Fine	Arts	(3)	hours)

Select from General Education courses

- Social/Behavioral Sciences (6 hours)
- AEC 2713 Intro to Food & Resource Econ OR Principles of Microeconomics
  - EC 2123 EC 2113 Principles of Macroeconomics

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Jor	COLC		
	ACC	2013	Principles of Financial Accounting
	ACC	2023	Principles of Managerial Accounting
	AEC	2611	Seminar I
	AEC	3113	Introduction to Quantitative Economics
	AEC	3233	Intro to Environmental Econ & Policy
	AEC	3513	Economics of Food and Fiber Production
	AEC	4133	Analysis of Food Markets & Prices
	AEC	4223	Applied Quantitative Analysis
	AEC	4233	Environmental Economics
	AEC	4243	Natural Resource Economics
	AEC	4413	Public Problems of Agriculture
	BIO	3104	Ecology
	BL	4263	Environmental Law
	EC	3113	Intermediate Macroeconomics
	EC	3123	Intermediate Microeconomics
	EC	4423	Intro to Public Finance
	PS	1113	American Government
	PS	2703	Intro to Public Policy
	PS	4743	Environmental Policy
	15 ho	urs	Restricted Elective**
	9 hou	rs	Free Electives
		niantian	Dequirement

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

AIS 3203 Introduction to Technical Writing

Courses are listed in alphanumeric order. Students should contact an advisor, refer to the appropriate departmental curriculum sheet or refer to the course description section of this bulletii determine the prerequisites for each course.

See major advisor for a list of courses approved as Restricted Electives

#### Total hours needed for major: 124

#### **Environmental Economics and Management Minor**

The Department of Agricultural Economics offers a minor in Environmental Économics and Management to students outside the department. Course selection for the minor is designed to equip students with fundamental economic and management principles pertinent to environmental and resource policy issues to broaden the scope of career opportunities for students completing the minor.

A minor in Environmental Economics and Management is attained by completing at least 18 hours of environmental and resource economics courses. To satisfy the minor, students must maintain a 2.0 grade point average in courses taken to satisfy the minor. Students may choose among the following:

#### Required:

In add

AEC 2713	Introduction to Food and Resource Economics	
	(or EC 2123 Principles of Microeconomics)	
AEC 3233	Intro to Environmental Economics and Policy	
AEC 4233	Advanced Topics in Environmental Economics	
AEC 4243	Natural Resource Economics	
ition, choose at least three of the following:		
AEC 3113	Introduction to Quantitative Economics	

	Economics of Food and Fiber Production
AEC 4123	Financial and Commodity Futures Marketing
	Dublic Droblems of Agriculture

AEC 4413 Public Problems of Agriculture

Students are responsible for satisfying all prerequisites before registering for courses. A grade of C or better must be earned in each course to be counted toward the minor. A grade of C or better must be earned in each course to unter doward the minor. Only students outside the Department of Agricultural Economics are eligible for the minor.

#### AGRIBUSINESS (AGB)

The Agribusiness (AGB) major provides training in business including accounting, management, marketing, finance and economics, along with training in the agricultural sciences. The AGB major offers students flexibility in preparing for a wide variety of careers in agriculture and agribusiness. The major provides all students excellent foundational training in applied economics and business management while offering students the opportunity to specialize in specific areas. Potential career fields include, but are not limited to, agricultural and environmental law; agricultural policy analysis; economic consulting; agricultural lending; agricultural production management; commodities and equities marketing; and food chain supply management, including procession, sales, and distribution. Also, students desiring post-graduate training will have a solid academic foundation for pursuing graduate degrees.

#### **General Education Requirements**

English Composition (	(6	hours)
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- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- English Comp II OR EN 1113
- EN
- - MA 1613 Calculus for Business and Life Sciences I OR an equivalent or higher level calculus

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Select from General Education courses

(CH 1043/CH 1051 recommended)

Humanities (6 hours)

- PHI 1103 Intro to Philosophy OR
- 3 hours
- Fine Arts (3 hours)

- - 2123 Principles of Microeconomics EC
  - EC 2113 Principles of Macroeconomics
- **Major Core\*** 
  - ACC 2013 ACC 2023

  - BL 2413

# Oral Communication Requirement

# Choose one of the following concentrations:

# Management Concentration (MGT)

- ACC 3203 Financial Statement Analysis Introductory Agribusiness Management AEC 3133 AEC 4113 Agribusiness Firm Management
- AEC 4123 Fin & Commodity Futures Marketing
- FIN 3123 Financial Management
- 3 hours Communication or Computer Elective
- 15 hours Restricted Electives\*\*
- Free Electives 8 hours

- 1173 Accelerated Comp II
- Mathematics (9 hours)3
  - MA 1313 College Algebra or higher level Mathematics
  - BQA 2113 **Business Stat Methods**

Science (7 hours)

- - - - Foreign Language course
    - Select from General Education courses

Select from General Education courses

- Social/Behavioral Sciences (6 hours)
  - AEC 2713 Intro to Food & Resource Econ OR
  - - Principles of Financial Accounting
    - Principles of Managerial Accounting
    - AEC 2611 AEC 3113 Seminar I
    - Introduction to Quantitative Economics
    - AEC 3213 International Trade in Agriculture
    - AEC 3233 AEC 3413 Introduction to Environmental Econ & Policy
    - Introduction to Food Marketing
    - AEC 3513 Economics of Food and Fiber Production
    - AEC 4133 Analysis of Food Markets & Prices
    - AEC 4223 Applied Quantitative Analysis
    - AEC 4413 Public Problems of Agriculture
    - Legal Environment of Business
    - 3113 Intermediate Macroeconomics EC
    - EC 3123 Intermediate Microeconomics

- CO 1003 Fundamentals of Public Speaking
- Writing Requirement

AIS 3203 Introduction to Technical Writing

# Policy and Law Concentration (POLL)

AEC 4233 Environmental Economics AEC 4243 Natural Resource Economics EC 4423 Public Finance EN 4223 Principles of Legal Writing PHI 1113 Intro to Logic PS 1113 American Government PS Intro to Public Policy 2703 Restricted Electives\*\* 15 hours 5 hours Free Electives

### **Production Concentration (PROD)**

ADS 1114	Animal Science
AEC 3133	Introductory Agribusiness Management
AEC 4123	Fin & Commodity Futures Marketing
AEC 4343	Adv Farm Management
FIN 3123	Financial Management
PSS 1313	Plant Science
15 hours	Restricted Electives**

7 hours Free Electives

#### Total hours needed for major: 124

\* Courses are listed in alphanumeric order. Students should contact an advisor, refer to the appropriate departmental curriculum sheet or refer to the course description section of this bulletin to determine the prerequisites for each course.

\*\* See major advisor for complete list of courses approved as Restricted Electives for each concentration

#### **Agribusiness Minor**

The Department of Agricultural Economics offers a minor in Agribusiness to students outside the Department. Course selection for the minor in Agribusiness is designed to equip students with fundamental economic and management principles to broaden the scope of career opportunities for students completing the minor. A minor in Agribusiness is attained by completing at least 18 hours

of Agribusiness courses. To qualify for a minor, students must maintain

a 2.0 grade point average in courses taken to satisfy the requirements for

AEC 3133 Introductory Agribusiness Management

International Trade in Agriculture

Introduction to Food Marketing

Agribusiness Firm Management

Advanced Farm Management

Students are responsible for satisfying all prerequisites before registering for courses. A grade of C or better must be earned in each course to be counted toward the minor. Only students outside the Department of Agricultural Economics are eligible for the minor in Agribusiness.

Agricultural Engineering Technology and Business (AETB) Interim Department Head: Dr. Jonathan Pote

Office: 150 Agricultural and Biological Engineering Building The AETB program provides an educational opportunity for students interested in applying technical, business, and management skills

to problems in agricultural production, processing, commodity related

business and finance, and natural resources utilization. A Bachelor of

Science degree is offered by the Agricultural and Biological Engineering

possessing excellent skills in the engineering technologies, as well as

a thorough background in business and management. This combination

allows the AETB graduate to excel in virtually any business enterprise.

The AETB program provides the industry with men and women

Department through the College of Agriculture and Life Sciences.

AEC 4413 Public Problems of Agriculture

Analysis of Food Markets and Prices

Introduction to Food and Resource Economics

(or EC 2123 Principles of Microeconomics)

Financial and Commodity Futures Marketing

the minor. Students may choose among the following:

In addition, choose at least four of the following:

Other approved AEC Elective

Department of AGRICULTURAL

and BIOLOGICAL ENGINEERING (ABE)

AEC 2713

AEC 3213

AEC 3413 AEC 4113

AEC 4123

AEC 4133 AEC 4343

The AETB Base Curriculum prepares the graduate for the many diverse opportunities afforded by the industrial and agricultural industries. In addition to the broad background in agricultural technologies and business, students may concentrate on a particular career-path by completing an AETB concentration. The AETB Base Curriculum provides six concentrations: (1) Aquacultural Systems, (2) Enterprise Management, (3) Gin Management & Technology, (4) Natural Resources & Environment Management, (5) Precision Agriculture, and (6) Surveying/Geomatics. These concentrations are achieved by completing 12-18 hours of specified technical electives as approved by an AETB advisor. In addition, the Surveying/Geomatics concentration is supported through a unique AETB curriculum.

The Aquacultural Systems concentration provides an enhanced background in fishery management, fish disease, and water quality. The Enterprise Management concentration is designed to provide skills for agricultural and business enterprise management. The curriculum provides a broad background including both animal and plant sciences, agricultural technology, economics, business and management. The Gin Management and Technology concentration provides graduates with a thorough education in cotton gin management and fiber processing. Courses emphasize technologies that are specific to the fiber processing industry including: hydraulics, pneumatics, industrial controls, seed technologies, biological materials handling, industrial safety and human relations. The Natural Resources and Environmental Management concentration provides an enhanced background in geology, hydrogeology, resource conservation, and water quality for students pursuing careers that require environmental training. The Precision Agriculture and Surveying/Geomatics concentrations provide courses in remote sensing, GPS, GIS, and surveying to enhance the student's abilities for careers involving spatial technologies. The Surveying/Geomatics students take an additional 12 hours of surveying courses. The jobs available in several of these concentrations exceed the supply of graduates.

Transfer credits with a grade of C or higher will be considered toward fulfillment of the degree requirements in the AETB curriculum. A maximum of 12 transfer hours of technical credit can be applied toward degree requirements.

Employment for AETB graduates includes the following agricultural industries/government agencies: food/fiber production (farming), agrichemical, agricultural lending, aquaculture, banking, cotton ginning, seed & grain processing, crop consulting, agricultural equipment manufacturers and sales, farm management, land surveying in both the public and private sectors, food processing, and hydrographic surveying and map development via the use of remote sensing, GIS, GPS, photogrammetry, etc. data.

# **General Education Requirements**

English	n Com	position	n (6 hours)
		1103	English Comp I OR
		1163	Accelerated Comp I
		1113	English Comp II OR
	EN	1173	Accelerated Comp II
Mather	natics	(6 hour	rs)
		1313	College Algebra
	MA	1323	Trigonometry
Science	e (9 ho	ours)	
	PH	1113	General Physics I
	PH	1123 1043	General Physics II
	CH	1043	Survey of Chemistry I
Humar	ities (	6 hours	)
	3 hou	rs	Select from General Education courses
	3 hou	rs	Select from General Education courses
Fine A	rts (3 ł	nrs)	
3 hours		rs	Select from General Education courses
Social	Scienc	e (6 ho	urs)
	AEC	2713	Intro to Food and Resource Econ
	3 hou	rs	Select from General Education courses
Major	Core		
		1073	Agricultural Mechanics
	ABE	2873	Land Surveying
		3513	GPS and GIS
		4263	Soil and Water Management
		4383	Building Construction
		4473	Elec Applications
		4961	Seminar
	EG		Graphic Communications
	3 hou	rs	Technical Elective

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Oral Communication Requirement		
lic Speaking		
Writing Requirement		

Choose one of the following concentrations:

and ABE 4473.

#### Aquaculture Systems (ACSY)

ABE 1863	Engineering Tech in Ag		
PSS 3303	Soils		
PSS 3301	Soils Lab		
ADS 1114	Animal Science OR		
BIO 1134	Biology I		
PSS 1313	Plant Science OR		
BIO 1023	Plants and Humans		
AEC 3133	Ag Business Management		
MA 1613	Calculus for Business and Life OR		
ST 2113	Intro to Statistics		
Electives: choose 18 hours*			
BIO 3524	Biology of Vertebrates		
CVM4134	Aquatic Animal Health Mgt		
WFA 4183	Principles and Practices of Aquaculture		
WFA 4372	Water Quality Management		
WFA 4371	Water Quality Mgt Lab		
FNH 2664	Food Processing OR		
FNH 4613	Seafood Processing		
3 hours	Aquatic Science Elective - consult advisor		

Total hours needed for major: 124

# **Enterprise Management (EMGT)**

ABE 1863	Engineering Tech in Ag
PSS 3303	Soils
PSS 3301	Soils Lab
ADS 1114	Animal Science OR
BIO 1134	Biology I
PSS 1313	Plant Science OR
BIO 1023	Plants and Humans
AEC 3133	Ag Business Management
Electives:	choose 18 hours*
MA 1613	Calculus for Business and Life Sciences
ST 2113	Intro to Statistics
AEC 3213	International Trade in Ag
AEC 3233	Intro to Environmental Economics
3 hours	Enterprise Mgt Elective - consult advisor
3 hours	Enterprise Mgt Elective - consult advisor

Total hours needed for major: 124

Precision Agriculture (PRAG)

ABE 1863 PSS 3303 PSS 3301 ADS 1114	Animal Science OR
BIO 1134 PSS 1313	
BIO 1023	
AEC 3133	0
MA 1613	Calculus for Business and Life OR
ST 2113	Intro to Statistics
Electives:	choose 18 hours*
FO 4312	Forest Photogrammetry
10 4512	i orest i notogrammen j
FO 4311	
	Forest Photogrammetry Lab
FO 4311	Forest Photogrammetry Lab Remote Sensing Applications
FO 4311 FO 4452	Forest Photogrammetry Lab Remote Sensing Applications Remote Sensing Applications Lab
FO4311FO4452FO4451	Forest Photogrammetry Lab Remote Sensing Applications Remote Sensing Applications Lab GIS for Natural Resource Mgt
FO4311FO4452FO4451FO4472	Forest Photogrammetry Lab Remote Sensing Applications Remote Sensing Applications Lab GIS for Natural Resource Mgt GIS for Natural Resource Mgt Lab
FO4311FO4452FO4451FO4472FO4471	Forest Photogrammetry Lab Remote Sensing Applications Remote Sensing Applications Lab GIS for Natural Resource Mgt GIS for Natural Resource Mgt Lab

Total hours needed for major: 124

#### Gin Management and Technology (GMT)

ABE 1863	Engineering Tech in Ag
PSS 3303	Soils
PSS 3301	Soils Lab
ADS 1114	Animal Science OR
BIO 1134	Biology I
PSS 1313	Plant Science OR
BIO 1023	Plants and Humans
AEC 3133	Ag Business Management
Electives:	choose 18 hours*
Electives: ABE 4453	choose 18 hours* Cotton Ginning Systems & Mgt
ABE 4453	Cotton Ginning Systems & Mgt
ABE 4453 PSS 4133	Cotton Ginning Systems & Mgt Fiber and Oil Seed Crops
ABE 4453 PSS 4133 PSS 4253	Cotton Ginning Systems & Mgt Fiber and Oil Seed Crops Seed and Grain Conditioning and Storage
ABE 4453 PSS 4133 PSS 4253 TKI 3043	Cotton Ginning Systems & Mgt Fiber and Oil Seed Crops Seed and Grain Conditioning and Storage Industrial Safety

#### Total hours needed for major: 124

#### Surveying/Geomatics (SGEO)

ABE	4803	Biosystem Simulation
CE	2213	Surveying
CE	4233	Control Survey
CE	4243	Land Surveys
MA	1713	Calculus I OR
ST	2113	Intro to Statistics
BL	4333	Real Estate Law
MGT	Г 3323	Entrepreneurship OR
BL	4243	Legal Aspects of Entrepreneurship
GR	2313	Maps Remote
HS	4733	Computer-aided Design
Emp	hasis El	lectives - 12 hours**
	Tota	al hours needed for major: 124

#### Total hours needed for major: 124

# Natural Resource & Environmental Management (NREM)

ABE 1863	Engineering Tech in Ag
PSS 3303	Soils
PSS 3301	Soils Lab
ADS 1114	Animal Science OR
BIO 1134	Biology I
PSS 1313	Plant Science OR
BIO 1023	Plants and Humans
AEC 3133	Ag Business Management
MA 1613	Calculus for Business and Life OR
ST 2113	Intro to Statistics

Elec	tives:	choose 18 hours*
BIO	2503	Environmental Quality
PSS	4373	Geospatial Agronomic Management
GG	1153	Geology for Scientists and Engineers
GG	3133	Intro to Environmental Geology
GG	3613	Water Resources
GG	4613	Physical Hydrogeology

#### Total hours needed for major: 124

 The ABE Department will offer ABE 4990 Special Topics courses periodically. Depending on the subject matter of the course, ABE 4990 may be an approved concentration elective.
 \*\* For approved Emphasis Electives, consult advisor.

# Department of ANIMAL and DAIRY SCIENCES (ADS)

#### Major Advisor: Instructor Carolyn E. Huntington; Office: 4017 Wise Center

The Animal and Dairy Sciences Curriculum is designed to give students essential instruction and practical experience in the science and business of animal agriculture. Courses provide training in the areas of breeding, nutrition, growth and development, reproductive and lactational physiology, marketing, management, evaluation, muscle foods and dairy products processing as related to livestock species. Students may pursue one of several concentrations such as: Science/Veterinary Science, Equine Science and Production, Meat Animal Science and Production, or Dairy Science and Production. Students pursuing admission to the College of Veterinary Medicine or the Graduate School should choose the Science/Veterinary Science concentration. The Science/Veterinary Science concentration allows students to take support courses in the sciences that will prepare the veterinary and graduate student for the professional programs in the CVM or Graduate School. Students interested in a career in animal production/management should choose Equine Science and Production, Meat Animal Science and Production, or Dairy Science and Production.

The department's Bearden Dairy Research Center and the animal research units in the Leveck Animal Research Center provide students contact with modern techniques and practical experience to give insight to the technical problems associated with the animal and dairy industries.

# **General Education Requirements**

# English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II
- Mathematics (6 hours)
  - MA 1323 Trigonometry
    - MA 2113 Intro to Statistics
- Science (9 hours)
- See Major Core
- Humanities (6 hours)

Select from General Education courses

Fine Arts (3 hours)

Select from General Education courses

Social Sciences (6 hours)

Select from General Education courses

#### **Major Core**

7-8 hours Chemistry Sequence (CH 1043, 1053 & 1051 or CH 1211, 1213, 1221 & 1223) À hours Organic Chemistry & Lab (CH 2503 & 2501 or CH 4513 & 4511) Biochemistry - BCH 4013 or BCH 4603 3 hours BIO 3304 General Microbiology BIO 1134 Biology I BIO 1144 Biology II ADS 1114 Animal Science ADS 4115 Nutrition ADS 4123 Animal Breeding ADS 4613 Physiology of Reproduction Practices in Physiology of Reproduction ADS 4611 ADS 4423 Animal Science Internship OR ADS 3312 Livestock Management Practices

ADS 4221 Animal and Dairy Sciences Seminar PO/GNS/BIO 3103 Genetics

#### Computer Literacy

Satisfied by successful completion of ADS 1114; either ADS 3312 or ADS 4423; and ADS 4123

#### Choose one of the following concentrations:

### Meat Animal Science & Production (MASP) (26-29 hrs)

- ADS 4213 Nutrient Requirements & Form of Rations
- ADS 4412 Managing Livestock Sales I
- PSS 4103 Forage & Pasture Crops
- ADS 4324 Beef Cattle Production
- ADS 4113 Swine Science
- ADS 3213 Livestock Growth, Development & Evaluation
- ADS 4314 Meats Processing
- 2-4 hours 1 Production Elective\*
- 2-3 hours 1 Evaluation Elective \*\*

Business electives\*\*\*

12-13 hours Approved courses listed below+

Free electives

- 0-8 hour Free electives
- Writing Requirement
  - Satisfied by successful completion of ADS 3213, ADS 4213, ADS 4613 and one of: ADS 3223, ADS 4324 or ADS 4814

Oral Communication Requirement

Satisfied by successful completion of ADS 3213 and two of: ADS 2102, ADS 2122, ADS 4212, ADS 4221, or ADS 4232

# Dairy Science & Production (DSPD) (29-31 hours)

- FNH 4164 Quality Assurance of Food Products
- ADS 4213 Nutrient Requirements & Form of Rations
- ADS 4412 Managing Livestock Sales I
- PSS 4103 Forage & Pasture Crops
- ADS 4814 Dairy Farm Management
- ADS 3813 Dairy Cattle Appraisal
- ADS 4623 Physiology of Lactation
- 5-8 hours 2 Production Electives\*
- 2-3 hours 1 Evaluation Elective\*\*
- Business electives\*\*\*
  - 12-13 hours Approved courses listed below+

Free electives

0-8 hour Free electives

Writing Requirement

Satisfied by successful completion of ADS 4213, ADS 4613, and ADS 4814

Oral Communication Requirement

Satisfied by successful completion of two of: ADS 2102, ADS 2122, ADS 3213, ADS 4212, ADS 4221, or ADS 4232

# Equine Science & Production (ESPD) (28-31 hours)

- ADS 2102 Equine Conf & Performance Eval
- ADS 3223 Horse Management
- ADS 4314 Meats Processing OR
- FNH 4164 Quality Assurance of Food Products
- ADS 4213 Nutrient Requirements & Form of Rations
- ADS 4412 Livestock Sales I
- PSS 4103 Forage & Pasture Crops
- ADS 4333 Equine Exercise Physiology
- 2-3 hours Horsemanship Elective: choose one
  - ADS 1132 Introduction to Horsemanship
  - ADS 2212 Equine Behavior and Training
  - ADS 2312 Advanced Horsemanship
  - ADS 3233 Equine Assisted Therapy

- 5-8 hours 2 Production Electives\*2-3 hours 1 Evaluation Elective\*\*
- Business electives\*\*\*
  - 12-13 hours Approved courses listed below+
- Free electives

0-8 hour Free electives

Writing Requirement

Satisfied by successful completion of ADS 4213, ADS 4613 and ADS 3223

Oral Communication Requirement

Satisfied by ADS 2102 and by successful completion of one of: ADS 2122, ADS 3213, ADS 4212, ADS 4221, or ADS 4232

#### Total hours needed for major: 124

\* Production Electives: ADS 3223 Horse Management; ADS 4113 Swine Science; ADS 4222 Small Rum. & Diver. Livestock Prod; ADS 4324 Beef Cattle Production; ADS 4814 Dairy Farm Mgt;
\*\* Evaluation Electives: ADS 2102 Equine Conf. & Perf. Eval., ADS 2122 Advanced Equine Eval., ADS 3142 Meats Judging I, ADS 3213 Livestock Growth, Devel & Eval, ADS 3813 Dairy Cattle Appraisal, ADS 4212 Livestock Eval, ADS 4232 Advanced Livestock Eval., FNH 2112 Food Products Eval.

\*\*\* These courses also count towards a Minor in Agribusiness.

+ Choose from: AEC 2713, AEC 3133, AEC 3213, AEC 3233, AEC 3413, AEC 4123, ACC 2013, EC 2113, EC 2123 OR MGT 3114.

#### Science/Veterinary Science (SVTS)

ADS 4314	Meats Processing OR
FNH 4164	Quality Assurance of Food Products
BIO 4413	Immunology
VS 3014	Anatomy & Physiology
PH 1113	General Physics I
ADS 4623	Physiology of Lactation
5-8 hours	2 Production Electives *
2-3 hours	1 Evaluation Elective **
Science Elec	ctives - choose two courses†

Free electives

4-12 hours

Writing Requirement

Satisfied by successful completion of ADS 4613, ADS 4623 and one of: ADS 3213, ADS 3223, ADS 4324 or ADS 4814

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

#### Total hours needed for major: 124

\* Production Electives: ADS 3223 Horse Management; ADS 4113 Swine Science; ADS 4222 Small Rum. & Diver. Livestock Prod; ADS 4324 Beef Cattle Production; ADS 4814 Dairy Farm Mgt;

\*\* Evaluation Electives: ADS 2102 Equine Conf. & Perf. Eval., ADS 2122 Advanced Equine Eval., ADS 3142 Meats Judging I, ADS 3213 Livestock Growth, Devel & Eval, ADS 3813 Dairy Cattle Appraisal, ADS 4212 Livestock Eval, 4232 Advanced Livestock Eval., FNH 2112 Food Products Eval.

pratsal, ADS 4212 Livestock Eval, 4252 Advanced Livestock Eval., FNR 2112 Food Products Eval. †Science electives: ADS 4333 Equine Exercise Physiology, BCH 4613 General Biochemistry, BIO 2103 Cell Biology, BIO 3104 Ecology, BIO 3113 Marine Biology, BIO 3303 Parasitology, BIO 3504 Comparative Anatomy, BIO 3524 Biology of Vertebrates, BIO 4103 Experimental Genetics, BIO 4113 Evolutionary Biology, BIO 4114 Cellular Physiology, BIO 4404 Environmental Microbiology, BIO 4405 Pathogenic Microbiology, BIO 4414 Microbiology, BIO 4404 Environmental Microbiology, BIO 4405 Pathogenic Microbiology, BIO 4414 Microbiology, BIO 4404 Environmental Microbiology, BIO 4502 Toxicology, BIO 4503 Vertebrate Histology, BIO 4504 Comparative Vertebrate Embryology, BIO 4502 Toxicology, BIO 4513 Aminal Physiology, BIO 4523 Mammalogy, BIO 4543 Ornithology, CH 4521 & CH 4523 Organic Chemistry II and lab, CVM 4513 Environmental Toxicology, CVM 4523 Basic Neuroscience, PH 1123 General Physics II, PO 4843 Avian Physiology

#### Course requirements for Pre-Veterinary students (3 + 1 program) to obtain a B.S. degree in Animal and Dairy Sciences

Because (1) the entrance requirements for the College of Veterinary Medicine satisfy a portion of the course requirements for the Animal and Dairy Sciences curriculum (2) a number of students are enrolled in Animal and Dairy Sciences while satisfying their pre-veterinary requirements and (3) an Animal and Dairy Sciences degree will be especially helpful to a practicing veterinarian, the following requirements for those electing to apply for a Bachelor of Science degree in Animal and Dairy Sciences after successfully completing the first year of Veterinary Medicine are listed.

General Education Requirements	27 hours
Dept Core (excluding Seminar)	50-51 hours
Science/Veterinary Medicine Concentration	27-30 hours
(excl. Free Electives)	

To qualify for the Bachelor of Science degree in ADS, a student in the 3+1 program must complete the 3 years of above listed undergraduate course work (105-108 hours) and also successfully complete the first year of the Veterinary Medicine curriculum.

A **minor** is available in Animal and Dairy Sciences by completing a minimum of 17 hours of specified ADS courses. Requirements include an introductory course, an evaluation course, a physiology course, 5 to 7 hours of production courses and either a breeding course or a nutrition course. See an ADS advisor for a complete list of approved courses.

# Department of BIOCHEMISTRY, MOLECULAR BIOLOGY, ENTOMOLOGY and PLANT PATHOLOGY (BCH, EPP)

#### Department Head/Major Advisor: Scott T. Willard Office: 402 Dorman

# **BIOCHEMISTRY and MOLECULAR BIOLOGY Program**

The Biochemistry and Molecular Biology program within the Department of BCH-EPP involves disciplines at the cutting edge of a revolution in biology. Molecular methods and the use of genetic engineering have given scientists unprecedented power to begin to understand the chemistry of life processes. The Department of BCH-EPP aims to prepare students at Mississippi State in this exciting area. In addition to the undergraduate curriculum in biochemistry and molecular biology, the department provides opportunities for an M.S. degree in Agricultural Life Sciences with a concentration in Biochemistry and a Ph.D. in Molecular Biology (See the Graduate Bulletin for description of programs and requirements for advanced degrees). For the Bachelor of Science degree in biochemistry, the objective of this curriculum is to provide the student with a strong background in science, and to prepare the student for entry into professional schools, graduate study and/or highly technical scientific careers after graduation. There are sufficient individual choices in the curriculum to allow students to tailor their programs to any of several areas of specialization by appropriate use of elective hours.

#### **General Education Requirements**

English Composition (6 hours)

EN	1103	English	Comp I OR

- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II
- Mathematics (6 hours)
  - MA 1713 Calculus I
  - MA 1723 Calculus II
- Science (9 hours)

Satisfied in major core

Humanities (6 hours)

Select from General Education courses

- Fine Arts (3 hours)
- Select from General Education courses
- Social Sciences (6 hours)

See concentration requirements

# Major Core

CH 1213 Chemistry I CH 1211 Investigations in Chemistry I CH 1223 Chemistry II CH 1221 Investigations in Chemistry II Organic Chemistry I CH 4513 CH 4511 Organic Chemistry Lab CH 4523 Organic Chemistry II CH 4521 Organic Chemistry Lab BCH 1001 Intro to Biochemistry

- BCH 3901 Senior Seminar
- BCH 4414 Protein Methods
- BCH 4503 Scientific Communication Skills
- BCH 4603 General Biochemistry I
- BCH 4613 General Biochemistry II
- BCH 4623 Biochemistry of Special Tissues
- BCH 4713 Molecular Biology

BCH 4804	Molecular Biology Methods
BIO 1134	Biology I
BIO 1144	Biology II
BIO 3304	General Microbiology
PH 1113	General Physics I OR
PH 2213	Physics I*
PH 1123	General Physics II OR
PH 2223	Physics II*
21-32 hours	Technical Electives ** (concentration dependent)
0-10 hours	General Electives (concentration dependent)

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

Satisfied by successful completion of BCH 4414 and BCH 4804 Computer Literacy

Satisfied by successful completion of BCH 4414, BCH 4713 and BCH 4804

#### **Pre-Medicine Concentration (MED)**

Biochemistry is an excellent preparation for medical school. In order to be better prepared for the Medical College Admissions Test (MCAT), medical school classes, and to meet medical school entrance requirements, the following courses are required in lieu of technical or general electives. These courses are also appropriate for students interested in dental school.

BIO 21	103	Cell Biology OR
BIO 41	14	Cellular Physiology
BIO 30	)04	Human Anatomy OR
BIO 30	)14	Human Physiology OR
VS 30	)14	Anatomy & Physiology OR
BIO 45	514	Animal Physiology
BIO 31	103	Genetics OR
BIO 41	133	Human Genetics
PH 11	33	General Physics III OR
PH 22	233	Physics III OR
		a technical elective if transferring 8 hours of
		Physics to the program
PHI 11	23	Intro to Ethics OR
PHI 21	123	Medical Ethics OR
		Science Elective
6 hours		Technical electives
8-9 hou	rs	General or Free electives

Total hours needed for major: 120

#### Pre- Dental Concentration (DENT)

Biochemistry is an excellent preparation for dental school. This concentration prepares students for the Dental Admissions Test, dental school classes, and to meet dental school requirements. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

PSY 1013	General Psychology
3 hours	Social Science (See General Education courses)
BIO 2103	Cell Biology OR
BIO 4114	Cellular Physiology
BIO 3014	Human Physiology OR
BIO 4514	Animal Physiology
ST 2113	Introduction to Statistics
PHI 1123	Intro to Ethics* OR
PHI 2123	Medical Ethics OR
	Science Elective
PH 1133	Physics III OR
	Science elective if transferring 8 hours of
	Physics to the program
6 hours	Science electives
8-9 hours	General or Free electives

\* PHI 1123 Intro to Ethics may be used to fulfill three of the six hours of General Education Humanities requirements. Students taking this course can apply this as a humanities elective (if they so choose) and then can take either PHI 2123 Medical Ethics or any other approved Science elective to fulfill this technical elective requirement.

Total hours needed for major: 120

#### Pre-Pharmacy Concentration (PPHR)

Pharmacy school typically requires only two to three years of college work for entry. However, four-year undergraduate programs can be of benefit to students and Biochemistry graduates have been very successful in Pharmacy School and perform well on the Pharmacy College Admissions Test. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

- PSY 1013 General Psychology OR
- Introduction to Sociology SO 1003
- EC 2113 Principles of Macroeconomics
- 2123 Principles of Microeconomics EC
- 2113 ST Introduction to Statistics
- BIO 3103 Genetics OR
- BIO 4113 Human Genetics
- BIO 4405 Pathogenic Microbiology
- BIO 4413 Immunology
- Animal Physiology BIO 4514
- PHI 2123 Medical Ethics
- PH 1133 Physics III OR
- Science elective if transferring 8 hours of Physics to the program 4 hours General or Free electives

Total hours needed for major: 120

#### Pre-Optometry Concentration (OPT)

Biochemistry is an excellent preparation for optometry school. This concentration prepares students for the Optometry Admissions Test, optometry school classes, and to meet optometry school requirements. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

PSY 1013	General Psychology
3 hours	Social Science (See General Education courses)
BIO 2103	Cell Biology OR
BIO 4114	Cellular Physiology
BIO 3014	Human Physiology OR
BIO 4514	Animal Physiology
ST 2113	Introduction to Statistics
PHI 1123	Intro to Ethics* OR
PHI 2123	Medical Ethics OR
	Science Elective
PH 1133	Physics III OR
	Science elective if transferring 8 hours of
	Physics to the program
6 hours	Science electives
8-9 hours	General or Free electives

PHI 1123 Intro to Ethics may be used to fulfill three of the six hours of General Education Humanities requirements. Students taking this course can apply this as a humanities elective (if they so choose) and then can take either PHI 2123 Medical Ethics or any other approved Science elective to fulfill this technical elective requirement.

#### Total hours needed for major: 120

#### Science Concentration (SCI)

The Science concentration provides students with core classes towards a degree in biochemistry coupled with undergraduate research and/or internship requirements. Additional coursework as technical electives concentrate on cell biology, anatomy and/or physiology, with much of the coursework remaining flexible to allow students to explore specialized subject matter or broad areas of interest in the sciences. This concentration is intended for students that may pursue graduate research after their undergraduate degree, or those seeking to tailor a specialization to their interest or intended career track. The following courses are required in lieu of technical or general electives.

	U
RCH /100	BCH Internship OP

- BCH Internship OF BCH 4000 Directed Individual Study
- BIO 3014 Human Physiology OR
- 3014 VS
- Anatomy and Physiology OR Animal Physiology BIO 4514
- BIO 2103 Cell Biology OR
- Cellular Physiology BIO 4114
- Science or business technical electives 12 hours 8-9 hours General/free electives

# Total hours needed for major: 120

# **Bioinformatics Concentration (BINF)**

This concentration provides the student with a B.S. in Biochemistry and Molecular Biology incorporating a strong background in the biochemical sciences along with a rigorous preparation in the field of computer science. The graduate will be able to either enter graduate school or directly enter a career requiring knowledge of bioinformatics. This exciting field applies computational and database skills to molecular biological problems. Practitioners routinely mine genomic databases for information relating to basic understanding of life processes as well as information providing clues for medical and agricultural advances. This program also constitutes a minor in computer science. Students MUST take the following courses in lieu of technical and general electives.

6 hours	Social Sciences (See General Education courses)
CSE 1284	Introduction to Computer Programming
CSE 1384	Intermediate Computer Programming
CSE 2383	Data Structures and Analysis of Algorithms
CSE 2813	Discrete Structures
CSE 3813	Introduction to Formal Languages and Automata
CSE 4613	Bio-computing
CSE 4633	Artificial Intelligence
CSE 4623	Computational Biology
CSE 4833	Intro to Analysis of Algorithms
ST 3123	Introduction to Statistical Inference OR

\* Completion of the Bioinformatics program also constitutes a minor in Computer Science from the Department of Computer Science and Engineering, and students receive a Certificate in Computa-tional Biology from the Institute of Digital Biology. Note that students must declare to the appropriate program and/or departmental advisor to receive credit for a degree minor and/or to receive a Certificate

#### Total hours needed for major: 121

#### Pre-MBA Concentration (PMBA)

This concentration provides the student with a B.S. in Biochemistry incorporating a strong background in science while preparing the student for immediate entry into a graduate program leading to an advanced business degree (either the Master of Business Administration or the Master of Agribusiness Management). Either program can be completed in a minimum of three semesters. Students thus educated may enter into management level positions in the biotech or agribusiness industry. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

ACC 2013	Financial Accounting
ACC 2023	Managerial Accounting
EC 2113	Macroeconomics
EC 2123	Microeconomics
BQA 2113	Business Statistics I
BQA 3123	Business Statistics II
MGT 3114	Principles of Management and Production
MKT 3013	Principles of Marketing
FIN 3123	Financial Management
3 hours	Computer elective
6 hours	General/Free electives

Total hours needed for major: 120

# Forensic Sciences Concentration (FOSC)

This concentration provides the student with a B.S. in Biochemistry incorporating a strong background in the biochemical sciences along with a rigorous preparation in the general area of criminology and forensics. Because of the ever increasing use of molecular sciences in forensics, graduates with this specialization should be employable by crime labs or by industry using DNA profiling or other biometric techniques. Internships are encouraged. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

PSY 1013 General Psychology SO 1003 Introduction to Sociology CH 2313 Analytical Chemistry OR PSY 3103 Intro to Psychological Statistics OR ST2113 Introduction to Statistics SO 3603 Criminology CRM 3103 Contemp Issues in Criminal Justice SO 3313 Deviant Behavior OR PSY 4213 Psychology of Abnormal Behavior Forensic Psychology OR PSY 4373

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Computer Science Elective

AN 4313	Forensic Anthropology OR
CSE 4273	Intro to Computer Forensics OR
BIO 3103	Genetics
BIO 2103	Cell Biology OR
BIO 4114	Cellular Physiology
BCH 2013	Intro to Forensic Science
BCH 4333	Advanced Forensics Science
SO 4513	Correctional Systems OR
	Science elective
3-4 hours	General/free electives

Total hours needed for major: 120

#### Entomology concentration (ENT)

This concentration provides a student with a B.S. in Biochemistry but incorporates a focal area in entomology. Students receive excellent training in the biochemical sciences, coupled with general and specific entomology subject areas from which the student can choose subject matter in their areas of interest. The following courses are required in lieu of technical or general electives.

> 6 hours Social Sciences (see General Education courses)

- EPP 4154 General Entomology
- EPP 4164 Insect Taxonomy
- EPP 4263 Principles of Insect Pest Management
- EPP 4335 Insect Physiology

Choose three of the following:

- EPP 3124 Forest Pest Management
- EPP 3423 Ornamental and Turf Insects
- EPP 4173 Med/Veterinary Entomology
- EPP 4234
- Field Crop Insects
- Aquatic Entomology EPP 4244
- Toxicology & Insecticide Chemistry EPP 4543
- 3-6 hours General/free electives

#### Total hours needed for major: 120

## Plant Pathology concentration (PPTH)

This concentration provides a student with a B.S. in Biochemistry but incorporates a focal area in plant pathology. Students receive excellent training in the biochemical sciences, coupled with general and specific plant pathology subject areas in plant disease epidemiology, pathology and disease identification/diagnostics. The following courses are required in lieu of technical or general electives.

- 6 hours Social Sciences (see General Education courses)
- EPP 3124 Forest Pest Management
- EPP 4113 Principles of Plant Pathology
- EPP 4152 Adv Fungal Taxonomy - Fungi Imperfecti
- EPP 4163 Plant Disease Management
- EPP 4214 Diseases of Crops
- EPP 4523 Turfgrass Diseases
- Plant Biology OR BIO 2113
- PSS 1313 Plant Science
- PSS 2443 Hort and Crop Physiology OR
- PSS 4553 Plant Growth and Development OR
- BIO 4214 General Plant Physiology
- 5-6 hours General/free electives

# Total hours needed for major: 120

#### Pre-Veterinary Medicine Concentration (PVBC)

Biochemistry is an excellent preparation for veterinary medical school. In order to be better prepared for the Graduate Record Examination (GRE) or Veterinary College Admissions Test, veterinary medical school classes, and to meet veterinary medical school entrance requirements, the following courses are required in lieu of technical or general electives.

- BIO 3103 Genetics OR
- BIO 4133 Human Genetics
- VS 3014 Anatomy and Physiology OR
- BIO 4514 Animal Physiology

BIO 2103	Cell Biology OR
BIO 4114	Cellular Physiology
12 hours	Science or business technical electives
6 hours	Social Sciences (See General Education courses)
8-9 hours	General/free electives

Total hours needed for major: 120

#### Three year program (3+1) for early admission into the COLLEGE of VETERINARY MEDICINE

The aim of this curriculum is to allow a student to matriculate through the Department of Biochemistry and Molecular Biology for three years and then proceed into the College of Veterinary Medicine under their early admissions policy. Successful completion of the courses taken during the first year in Veterinary Medicine will satisfy the Department's requirements for technical electives and allow the University to grant the student a B.S. in Biochemistry and Molecular Biology after this period.

30 ho	ours	General Education requirement
	1213	Chemistry I
CH	1211	Investigations in Chemistry
CH	1211 1223	Chemistry II
CH	1221	Investigations in Chemistry
CH	4513	Organic Chemistry
	4511	Organic Chemistry Lab
CH	4523	Organic Chemistry
CH	4521	Organic Chemistry Lab
BCH	1001	Intro to Biochemistry
	4503	Science Communication Skills
BCH	4603	General Biochemistry I
BCH	4414	Protein Methods
BCH	4613	General Biochemistry II
BCH	4623	Biochemistry Special Tissues
BCH	4713	Molecular Biology
BCH	3901	Senior Seminar
BCH	4804	Biochemical Methods
BIO	1134	Biology I
	1144	Biology II
BIO	3304	General Microbiology
PH	1113	General Physics I
PH	1123	General Physics II
VS	3014	Anatomy and Physiology OR
BIO	4514	Animal Physiology
DIO	2102	Constice OP

- BIO 3103 Genetics OR
- BIO 4133 Human Genetics

#### 95 hours required plus successful completion of the first vear curriculum of the College of Veterinary Medicine

Mississippi State requires a minimum of 120 hours for the undergraduate degree. Therefore, the first year in the College of Veterinary Medicine will contribute 25 hours of technical electives to this program.

#### GRADUATE STUDIES TRACK

Students aiming for a career requiring graduate education should take Genetics and Cell Biology as technical electives. Since many graduate programs require some form of physical chemistry, it is strongly suggested that students take CH 4413/4423 Physical Chemistry or CH 4404 Biophysical Chemistry as technical electives.

#### Preparation for entry into an accelerated MASTER'S PROGRAM (THESIS) in **BIOCHEMISTRY and MOLECULAR BIOLOGY**

This program requires careful planning by the student in order to complete the requirements for the B.S. while beginning a research program that should result in successful completion of a Master's thesis at the end of the second summer after the B.S. Only exceptional and motivated students should attempt this program. It is critical that BCH 4603 General Biochemistry I be scheduled in the spring of the sophomore year. The student will be expected to begin a research project in the senior year by taking up to nine hours of Directed Individual Study courses (BCH 4000). Research will continue during the summer after completion of the B.S. degree. The student must register for BCH 8000 (3 hours), Thesis Research during the summer. In addition, the student should schedule a graduate level BCH course and ST 8114 in the spring of the senior year.

The student interested in the five year program should apply early

in the undergraduate program to facilitate the scheduling of courses to conform to time constraints. In addition to applying for admission to the graduate program, the student must also take the Graduate Record Examination early enough so that the results are available by the beginning of the semester in which the student expects to graduate. The student must complete the courses required for completion of the BS degree with no more than 10 hours remaining in the semester of expected graduation.

#### Preparation for entry into an accelerated MASTER'S PROGRAM (NON-THESIS) in BIOCHEMISTRY and MOLECULAR BIOLOGY

This program requires careful planning by the student in order to complete the requirements for the B.S. while initiating graduate work that should result in completion of courses leading to a Master's Degree, non-thesis concentration. This curriculum allows completion of the two degrees in a minimum of five years. Required courses and electives must be scheduled so that the student has only eight hours of undergraduate course work remaining in the spring of the senior year. The student should then schedule ST 8114 Statistical Methods and an 8000 level BCH course in that same semester. Graduate work must include BCH 8654 Intermediary Metabolism and BCH 7000 (3 hrs) Directed Individual Study (to allow completion of an independent research paper).

The student interested in the five year program should apply early in the undergraduate program to facilitate the scheduling of courses to conform to time constraints. In addition to applying for admission to the graduate program, the student must also take the Graduate Record Examination early enough so that the results are available by the beginning of the semester in which the student expects to graduate. The student must complete the courses required for completion of the B.S. Degree with no more than 10 hours remaining in the semester of expected graduation.

#### Preparation for entry into an accelerated Ph.D. PROGRAM IN MOLECULAR BIOLOGY

This program requires careful planning by the student in order to complete the requirements for the B.S. while beginning a research program that should meaningfully accelerate progress towards early completion of the Ph.D. degree in Molecular Biology. By initiating a research program in the senior year, a student should reduce the time to completion of the Ph.D. by a year. Only exceptional and motivated students should attempt this program. It is critical that BCH 4603 General Biochemistry I be scheduled in the spring of the sophomore year.

The student will be expected to begin a research project in the senior year by taking the Directed Individual Study Courses. Research will continue during the summer after completion of the B.S. degree. The student must register for BCH 9000, Dissertation Research during the summer.

The student should plan his/her complete graduate program of study in conjunction with research Director and Graduate Committee. Since the Ph.D. is primarily a research degree, ultimate time to completion will be dependent upon the period necessary to satisfy the research requirements of the Graduate Committee. This concentration allows the student to begin that research substantially earlier than usual.

# Department of FOOD SCIENCE, NUTRITION and HEALTH PROMOTION (FSNH)

#### Interim Department Head: Professor Juan Silva Office: 107 Herzer Building

The Food Science, Nutrition and Health Promotion major offers the opportunity to gain a broad education in food science, nutrition, and health, as well as the specific academic background to pursue careers as food scientists and dietitians/nutritionists. It involves the integration of new knowledge and advances in technology and the physical and biological sciences with psychological, sociological, and behavioral sciences in the provision of a safe, nutritious food supply. Research, teaching, and outreach extend the continuum from the processing of food to its marketing, consumption, and impact on public health and community.

Food scientists integrate knowledge from engineering, biological, and physical sciences to study the nature of foods, the causes of deterioration, the principles underlying food processing, and the improvement of foods for the consuming public (www.ift.org/cms, 2001). Food technology is the application of food science to the selection, preservation, processing, packaging, distribution, and use of safe, nutritious, and wholesome foods (www.ift.org/cms, 2001).

The Department offers either a degree or a concentration in Culinology®. This is a dual degree program in which students take courses at Mississippi State University and Mississippi University for Women in Columbus, Miss.

The Culinology® curriculum includes courses that combine the disciplines of food science and culinary arts. Culinologists work in diverse areas within the food industries -from experimental chefs and menu planners to food manufacturing, fine dining and product development.

Nutritionists research ways to improve health through a better understanding of nutrition. Nutritionists focus on "the science of foods, the nutrients and other substances therein; their action, interaction, and balance in relationship to health and disease; the processes by which the organism ingests, digests, absorbs, transports and utilizes nutrients and disposes of their end products. In addition, nutrition must be concerned with social, economic, cultural and psychological implications of food and eating."

~Council on Food and Nutrition. 1963. Journal of the American Medical Association 183:955

The Department of Food Science, Nutrition and Health Promotion (FNH) is proud to offer undergraduate education in Food Science (approved by the Institute of Food Technologists) and Nutrition (currently granted accreditation by the Commission on Accreditation for Dietetics Education of the American Dietetic Association, 120 South Riverside Plaza, Suite 200, Chicago, IL 60606, (800) 877-1600, ext. 5400). Students in Food Science, Nutrition and Health Promotion have many exciting and diverse career opportunities.

Food Science, Nutrition and Health Promotion careers include Research Scientist (Industrial, Government, Academic); Food Engineer; Food Microbiologist; Research and Development; Product Development Technologist; Research Chef; Food Manufacturing Operations Manager; Quality Control Technician; Regulatory Affairs; Food Packaging Specialist; Processing Engineer; Technical Sales in the Food Industry; Technical Services; Community Nutritionist; Public Health Nutritionist; Clinical Dietitian; Pediatric Dietitian; Cardiovascular Dietitian; Healthcare/School Food Service Director; Private Practice Dietitian; Sports/ Wellness Dietitian; Pharmaceutical Sales Representative; Dietitian in Business and Industry; Journalism and Communications; Public Relations and Marketing; and Researchers in universities and hospitals.

A major in Food Science, Nutrition and Health Promotion is also an excellent choice for students interested in pursuing pre-professional career paths like Veterinary School, Medical School, Pharmacy, Physical Therapy, etc.

The following concentrations are offered in the Department of Food Science, Nutrition and Health Promotion:

- Food Processing/Business
- Food Science
- Food Safety (pre-vet)
- Culinology®
- Nutrition

#### **General Education Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II
- Mathematics (6 to 9 hours)

Refer to concentration

Science (6 to 9 hours)

- Refer to concentration
- Humanities (6 hours)
  - Select from General Education courses

Fine Arts (3 hours)

- Select from General Education courses
- Social Sciences (6 hours)
  - FPB/FS/PV Select from General Education courses (w/advisor approval)
  - NTR Refer to concentration

# Major Core (7 hours)

Oral Communication Requirement

FNH 1103 Intro to Food Sci, Nutrition and Health Promotion FNH 3111 Food Sci, Nutrition and Health Promotion Seminar Writing Requirement

FNH 4373 and Health Promotion

#### Choose one of the following concentrations:

# Food Processing/Business Concentration (FSTP)

Major Advisor: Associate Professor Wes Schilling

- Combines food science and business courses to prepare students for careers in the food industry, government, or private business.

- Chemistry I CH 1213
- CH 1211 Investigations in Chemistry I 1223 CH Chemistry II
- 1221 CH
- Investigations in Chemistry II CH 2503
- Elementary Organic Chemistry 2501 Elementary Organic Chemistry Laboratory CH
- PH 1113 General Physics I
- MA 1313 College Algebra
- 3123 Introduction to Stat. Inference ST
- BIO 1134 Biology I
- General Microbiology BIO 3304
- MGT 3513 Introduction to Human Resource Management
- ACC 2013 Principles of Financial Accounting
- MKT 3013 Principles of Marketing
- AIS 4203 Applications of Computer Technology\*
- FNH 2112 Food Products Evaluation
- FNH 2293 Individual and Family Nutrition
- FNH 4114 Analysis of Food Products
- FNH 4164 Quality Assurance of Food Products
- FNH 4333 Food Law
- FNH 4583 Food Preservation Technology OR
- FNH 4573 Food Engineering Fundamentals
- FNH 4593 New Food Product Development
- FNH 4243 Composition and Chemical Reactions of Foods
- FNH 4241 Applied Food Chemistry
- FNH 4414 Microbiology of Foods
- Food Processing Electives\*\* 6-8 hours
- 9-12 hours FNH Electives \*
- 6-8 hours Electives

# Total needed for major: 124

\* Fulfills Computer Literacy requirement

\*\* Choose two courses (6-7 hours) from the Food Processing Electives: FNH 4314 Meat Processing; FNH 4613 Seafood Processing; FNH 4513 Poultry Processing; FNH 4123 Fermented Food Processing; FNH 4143 Dairy Foods Processing; or FNH 4583 Food Preservation Technology.

\*\*\* Choose additional FNH 3-4000 level courses including but not limited to food processing electives, FNH 4573 Food Engineering, FNH 4583 Food Preservation Technology, or FNH 4393 Prevention and Control of Disease.

# Food Science Concentration (FSSC)

#### Major Advisor: Associate Professor Wes Schilling

- Is designed for students who wish to explore a career in research, pursue graduate studies, work for the government, or the food industry.

- CH 1213 Chemistry I
- 1211 CH Investigations in Chemistry I
- CH 1223 Chemistry II
- CH 1221 Investigations in Chemistry II
- 2503 Elementary Organic Chemistry
- CH 2503 CH 2501 Elementary Organic Chemistry Laboratory
- BCH 4013 Principles of Biochemistry
- PH 1113 General Physics I
- General Physics II PH 1123
- MA 1713 Calculus
- MA 1723 Calculus II
- Introduction to Stat. Inference ST 3123
- BIO 1134 Biology I
- BIO 1144 Biology II
- General Microbiology BIO 3304
- MGT 3513 Introduction to Human Resource Management
- ACC 2013 Principles of Financial Accounting OR
- MKT 3013 Principles of Marketing
- AIS 4203 Applications of Computer Technology\*
- FNH 2112 Food Products Evaluation
- FNH 2293 Individual and Family Nutrition

ED. II. 4114	
FNH 4114	Analysis of Food Products
FNH 4164	Quality Assurance of Food Products
FNH 4333	Food Law
FNH 4573	Food Engineering Fundamentals OR
FNH 4583	Food Preservation Technology
FNH 4593	New Food Product Development
FNH 4243	Composition and Chemical Reactions of Foods
FNH 4241	Applied Food Chemistry
FNH 4414	Microbiology of Foods
3-4 hours	Food Processing Electives**
6-9 hours	FNH Electives***
4-5 hours	Electives

#### Total hours needed for major: 124

\* Fulfills Computer Literacy requirement

\*\* Choose one course (3-4 hours) from the Food Processing Electives: FNH 4314 Meat Processing; FNH 4613 Seafood Processing; FNH 4513 Poultry Processing; FNH 4123 Fermented Food Processing; FNH 4143 Dairy Foods Processing; or FNH 4583 Food Preservation Technology. \*\*\* Choose additional FNH 3-4000 level courses including but not limited to food processing electives, FNH 4573 Food Engineering Fundamentals, FNH 4583 Food Preservation Technology, or FNH 4393 Prevention and Control of Disease.

#### Food Safety Concentration (FDS)

Major Advisors: Associate Professor Wes Schilling, Assistant Professor J. Byron Williams

- Is designed as a Pre-Veterinary option that focuses on factors affecting food safety and all coursework essential for acceptance in the College of Veterinary Medicine.

- MA 1313 College Algebra MA 1323 Trigonometry OR MA 1713 Calculus I OR Intro to Statistical Inference ST 3123 CH 1213 Chemistry I Invest in Chemistry I CH 1211 CH 1223 Chemistry II CH 1221 Invest in Chemistry II CH 4511 Organic Chemistry Lab I CH 4513 Organic Chemistry I CH 4521 Organic Chemistry Lab II CH 4523 Organic Chemistry II BIO 1134 Biology I Biology II BIO 1144 BIO 3304 General Microbiology OR Microbiology of Food Animal Production PO 3834 BCH 4013 Principles of Biochemistry PH 1113 General Physics I PH 1123 General Physics II NTR 4115 Nutrition FNH 4241 Applied Food Chemistry FNH 4243 Food Composition and Reactions FNH 4314 Meat Processing FNH 4333 Food Law FNH 4414 Microbiology of Foods
- FNH 4583 Food Preservation
  - 12-15 hours Electives\*
- See advisor for list of approved electives

#### Total hours needed through Junior year: 103-106

Students will receive a B.S. in Food Science, Nutrition and Health Promotion upon completion of their first year in the College of Veterinary Medicine at Mississippi State University.

If students do not obtain admittance into the College of Veterinary Medicine after their junior year, an optional fourth year that is listed below will allow these students to graduate with a B.S. in Food Science, Nutrition and Health Promotion (Food Animal Safety Concentration) after their fourth year of studies as well as allow these students another year to attempt to earn admittance into the College of Veterinary Medicine.

- Optional Fourth Year
- FNH 4114 Analysis of Food Products
- FNH 4164 Quality Assurance of Food Products
- FNH 4593 New Food Product Development
- ST 3123 Intro to Statistical Inference
- 3 hours of electives for 3000-4000 level FNH classes
- Electives from the electives list above to reach a minimum of 124 hours.

Career Success Skills in Food Science, Nutrition

#### Culinology<sup>®</sup> Concentration (CN)

#### Assistant Professor: Jason Behrends

- Is designed for students who wish to work as a research chef or work in the areas of product development or research and development in the food industry.

- CH 1213 Chemistry I 1211 CH Investigations in Chemistry I CH 1223 Chemistry II CH 1221 Investigations in Chemistry II CH 2503 Elementary Organic Chemistry 2501 CH Elementary Organic Chemistry Laboratory PH 1113 General Physics MA 1313 College Algebra ST 3123 Introduction to Stat. Inference BIO 1203 Plant Biology BIO 3304 General Microbiology Introduction to Human Resource Management MGT 3513 ACC 2013 Principles of Financial Accounting MKT 3013 Principles of Marketing Applications of Computer Technology\* AIS 4203 FNH 2112 Food Products Evaluation FNH 2293 Individual and Family Nutrition FNH 4164 Quality Assurance of Food Products FNH 4333 Food Law FNH 4583 Food Preservation Technology New Food Product Development FNH 4593 FNH 4243 Composition and Chemical Reactions of Foods FNH 4241 Applied Food Chemistry Microbiology of Foods FNH 4414 5-6 hours Electives in Food Processing\*\* Electives in FNH\*\*\* 4-6 hours CA 125 Servsafe (1 hour) Introduction to Culinary Arts\*\*\*\* (3 hours) CA 200 CA 300 Food Preparation I with Lab\*\*\*\* (5 hours) Food Preparation I with Lab\*\*\*\* (5 hours) Dining Room Services\*\*\*\* (3 hours) 301 CA CA 310 World Cuisine\*\*\*\* (3 hours) CA 401
  - the for world cuisine (5 hours)

#### Total needed for major: 124

\* Fulfills Computer Literacy requirement.

\*\* Choose 2 courses (6-7 hours) from the Food Processing Electives: FNH 4314, Meat Processing: FNH 4613 Seafood Processing: FNH 4513 Poultry Processing: FNH 4123, Fermented Food Processing: or FNH 4143 Dairy Foods Processing: or FNH 4583 Food Industry Unit Operations.

\*\*\* Choose two additional FNH 3-4000 level courses from the food processing electives, FNH 4573 Food Engineering, FNH 4583 Food Preservation Technology, or FNH 4393 Control and Prevention of Disease

\*\*\*\* These 19 credits are taught at the Mississippi University of Women in the Culinary Arts Institute. A relationship is being fostered between the two entities to train culinary arts students in food science and train food science students in culinary science so that these students can meet the needs of the food industry.

# Nutrition Concentration (FN)

Major Advisors: Dietetics Education Director Sylvia Byrd, Associate Professor Diane Tidwell, Assistant Professor Chiquita Briley, Assistant Extension Professor Brent Fountain and Instructor Lynn Burney

- Prepares students for a wide variety of careers. For students interested in becoming a Registered Dietitian, the Didactic Program in Dietetics (DPD) at Mississippi State University is currently accredited by the Commission of Accreditation for Dietetics Education (CADE) of the American Dietetic Association, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606; telephone 800-877-1600, ext. 5400. Upon completion of the DPD program, graduates may pursue participation in a supervised practice program. Successful completion of the supervised practice program, followed by the Registration Exam, fulfills the requirements to become a Registered Dietitian. All students in Nutrition are required to have a computer that meets specifications established by the Department of Food Science, Nutrition and Health Promotion.

- CH 1213 Chemistry I
- CH 1211 Investigations in Chemistry I
- CH 1223 Chemistry II
- CH 1221 Investigations in Chemistry II
- CH 2503 Elementary Organic Chemistry
- CH 2501 Elementary Organic Chemistry Lab
- MA 1313 College Algebra
- ST 2113 Intro to Stats

DIO 1154	blology I
BIO 3014	Human Physiology
BIO 3304	General Microbiology
BIO 4133	Human Genetics OR
PO 3103	Genetics I
PSY 1013	General Psychology
SO 1003	
SO 1103	Contemporary Social Problems
CO 2213	Small Group Communication
MGT 3114	Prin of Management and Prod
MGT 3513	Intro Human Resources Mgt
FNH 2203	Science of Food Preparation
FNH 2293	Individual and Family Nutrition
FNH 3003	Nutrition Field Experience
FNH 3263	Research Methods in Food & Nutrition*
FNH 3274	Quantity Food Production & Service
FNH 3283	The Foodservice System
FNH 4213	Nutrition Public Policy & Promotion
FNH 4233	Medical Nutrition Therapy
FNH 4253	Nutritional Biochemistry of Foods
FNH 4353	Nutrition Throughout the Life Cycle
FNH 4273	Nutritional Assessment
FNH 4283	Purch Food & Equip for Food Service Systems
FNH 4293	Vitamins, Minerals and Supplements
FNH 3701	Nutrition Professional Development
FNH 4263	Nutrition and Chronic Disease
9 hours	Electives

#### Total hours needed for major: 124

\* Fulfills Computer Literacy requirement.

BIO 1134 Biology I

#### Food Science Minor (18 hours)

Students will be required to complete the following courses to receive a minor in Food Science:

- FNH 4241 Applied Food Chemistry
- FNH 4243 Composition and Chemical Reactions of Foods
- FNH 4414 Microbiology of Foods
- FNH 4583 Food Preservation Technology
- Choose 7 or more credits from the following electives:
- FNH 4593 New Food Product Development FNH 1103 Intro to Food Science, Nutrition & Health Promo.
- FNH 4164 Quality Assurance of Food Products
- FNH 4143 Dairy Processing
- FNH 4314 Meats Processing
- FNH 4513 Poultry Processing
- FNH 4114 Analysis of Food Products

# B.S. in Culinology®

Major Advisors: Associate Professor Wes Schilling

The Culinology® degree program offers the opportunity to gain a broad education in Food Science and Culinary Arts. It involves the integration of Food Science and Culinary Arts so that students are prepared to work in diverse areas within the food industries -- from experimental research chefs and menu planners to food manufacturing, fine dining, and product development.

Culinology® is an approach to food that blends culinary arts and food technology. Through the blending of these two disciplines, culinology® seeks to make food taste better -- whether purchased in a supermarket or eaten in a restaurant. Culinology® also seeks to make food more consistent and safer. A primary application of culinology® is to logically translate sophisticated food concepts, such as those applied in fine dining or in a traditional ethnic cuisine, to items that are on the menus of chain restaurants or those processed for retail sale. Such chain-menu or retail product development is only possible through the astute combination of culinary arts and food science and technology.

According to Jeff Cousminer in Food Product Design Magazine, the word *culinology*® was coined by the first president and founder of the Research Chefs Association, Winston Riley. The original meaning of the word was quite different than what it has come to mean today. Originally the word was designed to be a combination of two words, culinary and

technology. So the first meaning of the word was the convergence of culinary arts and all technology, which includes communications, chemistry, physiology, economics and many others.

Accredited culinology® educational programs are offered by many institutions. The curriculum included courses that combine the disciplines of cooking and food science. According to industry professionals, like Kraft's Harry Crane, culinology® should "help jump-start product development."

# **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR
  - EN 1163 Accelerated Comp I EN
  - English Comp II OR 1113 EN 1173 Accelerated Comp II
- Mathematics (6 to 9 hours)
- - MA 1313 College Algebra 3123 ST
- Science (6 to 9 hours)
  - - CH 1211
    - Investigations in Chemistry I CH 1223 Chemistry II
    - CH1221 Investigations in Chemistry II
- Humanities (6 hours)

Select from General Education courses

Fine Arts (3 hours)

Select from General Education courses

- Social Sciences (6 hours)
  - AEC 2713 Introduction to Food and Resource Economics 3 hours Select from General Education courses (w/advisor approval)

#### **Major Requirements**

CH 2503 Elementary Organic Chemistry 2501 CH Elementary Organic Chemistry Lab BIO 1134 Biology I BIO 3304 General Microbiology Intro to Food Sci, Nutrition and Health Promotion FNH 1103 FNH 2203 Science of Food Preparation FNH 2112 Food Products Evaluation FNH 2293 Individual and Family Nutrition FNH 4164 Quality Assurance of Food Products FNH 4333 Food Law FNH 4583 Food Preservation Technology FNH 4593 New Food Product Development FNH 4243 Composition and Chemical Reactions of Foods FNH 4241 Applied Food Chemistry Microbiology of Foods FNH 4414 CA 1251 Servsafe (MUW) Introduction to Culinary Arts (MUW) CA 2003 3005 Food Preparation I with lab (MUW) CA CA 3015 Food Preparation II with lab (MUW) Menu and Recipe Development (MÚW) CA 3023 Summer Internship (6 hours)+ CA 3500 CA 4013 World Cuisine (MUW) Business Skills in the Culinary Arts (MUW) CA 4103 **CA/FNH Electives** 

6-10 hours Choose from list of approved electives\*

- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking OR
  - CO 2213 Small Group Communication
- Writing Requirement

AIS 3203 Technical Writing

#### Total needed for major: 124

MUW = CA courses offered by Mississippi University for Women in Columbus, Mississippi

MUW = CA courses offered by Mississippi University for Women in Columbus, Mississippi \* At least 3 hours must be FNH or business (ACC, MKT, MGT) electives and at least 3 hours must be Culinary Arts (CA) electives: FNH 3263 Research Methods in Food & Nutrition, FNH 4114 Analysis of Food Products, FNH 4143 Dairy Foods Processing, FNH 4314 Meat Processing, FNH 4513 Poultry Processing, FNH 4573 Food Engineering, FNH 3283 Food Service System, FNH 4283 Purchasing of Food and Equipment for Food Service, ACC 2013 Principles of Accounting, MKT 3013 Principles of Marketing, MGT 3513 Introduction to Human Resource Management, CA 3103 Dining Room Services, CA 3153 Demonstration Techniques, CA 3753 Advanced Baking, CA 4909 Selected Topics in Culinary Arts, CA 4153 Food Styling, CA 2603 Introduction to Culinary Entrepreneurship, CA 3623 Susiness Law for Culinary Entrepreneurs, CA 3633 Culinary Service Design and Manage-ment, CA 3643 Culinary Venture Marketing, CA 3653 Applied Human Resource Management, CA 4603 Seminar in Culinary Entrepreneurship + To he completed after the Invitor on Service Nore.

To be completed after the Junior or Senior Years.

# SCHOOL of HUMAN SCIENCES (HS)

#### Director: Michael E. Newman Office: (662) 325-2950

The mission of the School of Human Sciences is to improve the well-being of individuals, families, communities and related businesses and industries through teaching, research and outreach. An integrative approach is carried out in these program areas:

- Agricultural Information Science and Education (AISE)
- Apparel, Textiles and Merchandising (ATM)
- . Human Development and Family Studies (HDFS)

The School of Human Sciences currently has the following accreditations: American Association of Family and Consumer Sciences (AAFCS) and National Council for Accreditation of Teacher Education (NCATE) in Vocational Home Economics and Agriculture.

The commitment of Human Sciences' faculty and staff to excellence is evident in teaching, especially considering the growth, demand for the programs offered in the School, and the number of teaching and advising awards received by the faculty. The School of Human Sciences has more Grisham Master Teachers and CALS Excellence in Teaching Awards than any other unit within the Division and College. The School remains committed to this path of excellence, striving to provide students with contemporary programs and outstanding learning opportunities at the undergraduate and graduate levels. The School provides strong curricula and excellent teaching and advising.

The School's programs are strong components of the land grant institution, which is designed to provide outreach to the community and state. The School's commitment to this process is evident in several outreach programs, such as its early childhood development work. Human Sciences faculty and graduates work with people in and across a variety of settings, including homes; schools; clinical settings; community agencies and institutions; and business, industry, and government. Graduates are prepared to address the social and economic challenges that face the state and its communities.

#### Agricultural Information Science (AIS) Major

Major Advisor: Professor Kirk Swortzel Office: (662) 325-7837

Agricultural Information Science is the science of assisting others to learn how to access, analyze, apply, and amend information to solve problems in agriculture. The curriculum is designed to prepare students to enter professions requiring extensive knowledge and skill in solving agricultural and agriculturally related problems. Students are prepared to meet agriculture industry's needs for individuals who can create, access, disseminate, apply, amend, and integrate information to solve problems in agriculture. Agricultural Information Science graduates may become involved in a variety of occupations in agricultural business and industry, education, production, extension, public relations, and others. The major requires 124 semester hours as shown in the catalog description. Students may choose to complete a concentration in either Teaching or Agricultural Leadership. These concentrations are achieved by completing a combination of 42 hours of specified courses and restricted electives as approved by an AIS advisor. Those students who would prefer an emphasis in communications will need to complete the Agricultural Leadership Concentration and complete their electives in communication, subject to advisor approval.

The Teaching Concentration is designed to provide skills for individuals seeking careers in production agriculture or secondary school education. The Agricultural Leadership Concentration is designed to provide skills for individuals seeking careers in business, industry and extension.

Students desiring to receive certification to teach in secondary agriculture programs will need to complete certification requirements. The Agricultural Education teacher education program at Mississippi State University is NCATE accredited. Students must conform to the policies on teacher education, as explained under "Teacher Licensure" elsewhere in this catalog.

Graduates will have knowledge of (1) agricultural and ecological information sciences; (2) principles of teaching and learning; (3) basic agricultural sciences; (4) theories and principles of human communication; and (5) agricultural business principles.

Graduates will be able to (1) plan and conduct education programs in classroom and community settings; (2) assess and prioritize the needs and goals of various audiences; (3) develop strategies to meet constitu-

- Introduction to Statistical Inference
- CH 1213 Chemistry I

ents' needs and accomplish goals; (4) assess the appropriateness of strategies and revise the strategies as needed; (5) communicate effectively orally and in writing to various audiences; and (6) access and analyze information.

In capstone courses, students produce and present reports that demonstrate the performance learning objectives. In addition to faculty assessment, external assessors from other departments and from typical clientele audiences observe presentations and provide feedback.

Field experience supervisors and co-curricular sponsors, along with student participants, provide feedback about the field experience using a form based on the learning objectives.

#### **General Education Requirements**

English Composition (6 hours)

- 1103 English Comp I OR EN
- EN 1163 Accelerated Comp I
- English Comp II OR EN 1113
- 1173 Accelerated Comp II EN
- Mathematics (6 hours)
  - MA 1313 College Algebra
  - MA 1323 Trigonometry OR
  - MA/ST 2113 Intro to Statistics

Science (9 hours)

- BIO 1134 Biology I
- BIO 1144 Biology II
- CH 1043 Survey of Chemistry I
- Humanities (6 hours)
  - Select from General Education courses
- Fine Arts (3 hours)
  - Select from General Education courses
- Social Sciences (6 hours)
  - AEC 2713 Intro to Food and Resource Econ
  - PSY 1013 General Psychology
- **Major Core** 
  - ADS 1114 Animal Science
  - AEC 3133 Intro Agribusiness Management
  - AIS 2413 Intro to AIS
  - 3333 **Professional Presentations** AIS
  - AIS 3803 Leadership Development
  - 4403 Development of Youth Programs AIS
  - AIS 4424 Teaching Methods in Ag & Human Sciences
  - PSS 1313 Plant Science
  - PSS 3301 Soils Laboratory
  - PSS 3303 Soils

Oral Communication Requirement

- Satisfied by successful completion of AIS 3333 and AIS 4424
- Writing Requirement
  - AIS 3203 Intro to Technical Writing in Agricomm
- Computer Literacy
  - AIS 4203 App of Computer Info Systems

#### **Teaching Concentration (TC)**

- AIS 4113 Methods of Teaching Ag Science
- AIS 4873 Professional Seminar in AIS
- AIS 4886 Teaching Internship in AIS
- AIS 4896 Teaching Internship in AIS
- EDX 3213 Psych & Ed of Exceptional Child & Youth
- ABE 1073 Ag Mechanics
- Controlled Environment Agriculture PSS 4343
- Restricted Plant Science Elective\*
- Restricted Environmental Science Elective\*\*
- Restricted Animal Science Elective \*
- 6-7 hours of agriculture electives
- 8 hours free electives

\* Select one course from PSS 2343, PSS 2423, PSS 3133, PSS 3923, PSS 4103, PSS 4123, PSS 4133, PSS 4613, FO 2113

Select one course from GR 3113, EDS 4990, PSS 4333

\*\*\* Select one course from ADS 2102, ADS 3142, ADS 3213, ADS 3223, ADS 3312, ADS 3813, ADS 4113, ADS 4212, ADS 4222, ADS 4232, ADS 4314, ADS 4324, ADS 4814, PO 3313

# Agricultural Leadership Concentration (AGLD)

PHI 1123 Introduction to Ethics OR MGT 3823 Socially Responsible Leadership

MGT 3813 PSY 3623	Organizational Behavior OR Social Psychology OR
PS 3013	Political Leadership
CO 2213	Small Group Communication OR
CO 3803	Principles of Public Relations
EXL 1191	Leadership Studies Internship
AIS 3500	Internship (3 hours)
AEC 3233	Intro Environmental Economics Policy
MGT 3114	Principles of Management Production
MGT 3513	Intro Human Resource Management
MGT 4533	Adv Human Resource Management
3 hours	Agricultural Leadership Elective
13 hours	Agric./Management/ Communication Electives
8 hours	Free electives

Total hours needed for major: 124

# Agricultural Science (AGS) Major

Major Advisor: Professor Kirk Swortzel Office: (662) 325-7837

The Agricultural Science degree prepares individuals for a variety of agricultural related careers. Many agricultural businesses and organizations are seeking graduates who have a diversified knowledge of agriculture and life sciences, which includes production agriculture, business, leadership and management. Many graduates become involved in agriculture business and industry, production agriculture operations, international agriculture development or pursue advanced study in areas such as nutrition and agricultural education.

Agricultural Science allows students to develop a high concentration of science and specialized agricultural study. Through the Agricultural Science degree program, a student can pursue a bachelor of science in agriculture and develop specialization areas that will serve his/her individual needs and interests. For the degree requirements, students must complete 124 hours, which includes 18 hours of science and 58 hours of agricultural science. Thirty hours will be agricultural science electives, which must be taken from two different agriculture focus areas within the College of Agriculture and Life Sciences. (See advisor for suggested focus areas.) The student should select agricultural focus areas that are closely related and complement each other and are related to the career objectives of the student. At least 12 hours in each agricultural focus area must be 3000-4000 level courses. The student will also have 14 hours of agriculture and science electives to complete which should also complement the selected agricultural focus areas. At least three hours must be a natural life science.

Graduates will have knowledge of (1) the diversified field of agriculture; (2) basic agricultural sciences; (3) leadership principles; (4) the basic principles of production; and (5) the application of basic science principles to production agriculture and agricultural business management.

Graduates will be able to (1) plan and conduct basic agricultural research; (2) manage an agricultural enterprise (business or production); (3) provide leadership in a variety of employment settings; and (4) communicate effectively orally and in writing to various audiences.

In various courses, students produce and present reports that demonstrate the performance learning objectives. In addition to faculty assessment, external assessors from other departments and from typical clientele audiences observe presentations and provide feedback.

Internship supervisors and co-curricular sponsors, along with student participants, provide feedback about the internship using a form based on the learning objectives.

#### **General Education Requirements**

English Composition (6 hours)

		1			
	EN	1103	English Comp I OR		
	EN	1163	Accelerated Comp I		
	EN	1113	English Comp II OR		
	EN	1173	Accelerated Comp II		
Mathen	natics	(6 hou	rs)		
	MA	1313	College Algebra		
3 hours		ırs	Select from General Education courses		
Science	e (9 ho	ours)			
	BIO	1134	Biology I		
	BIO	1144	Biology II		
	CH	1043	Survey of Chemistry I		
Human	Humanities (6 hours)				
Select from General Education courses					

Fine Arts (3 hours)

	Select	from	General	Education	courses	
Social	Science	a (6 h	ure)			

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	ADO	0710	τ.	

AEC 2713	Intro to Food and Resource Econ
3 hours	Select from General Education courses

# Major Core

ајог	Core	
	ABE 1863	Eng Tech Agriculture
	ADS 1114	Animal Science
	AEC 3133	Introduction to Agribusiness Management
	AIS 3333	Professional Presentations
	AIS 3500	Internship (3 hours)
	CH 1051	Exp Chemistry Lab
	CH 1053	Survey of Chemistry II
	EPP 2213	Intro to Insects OR
	EPP 4113	Principles of Plant Pathology
	PSS 1313	Plant Science
	PSS 3301	Soils Lab
	PSS 3303	Soils
	30 hours	15 hours from each of two agriculture focus areas*
	14 hours	Agriculture/science electives *+
	6 hours	Free electives

Oral Communication Requirement

Satisfied by successful completion of AIS 3333

Writing Requirement

AIS 3203 Intro to Technical Writing in Agricomm

# Computer Literacy

AIS 4203 App of Computer Info Systems

Total hours needed for major: 124

See advisor for approved courses

3 hours must be a natural/life science.

#### Human Sciences (HS) Major

The Human Sciences degree provides educational, research, and outreach programs related to the interaction of people with their environment. More importantly, the multidisciplinary areas within Human Sciences focus more on the basic human needs, such as food, shelter, clothing, human interaction and relationships, commerce and family life. In light of the current trends and anticipated changes, the mission of the Human Sciences degree is to prepare students and to conduct research and outreach activities to impact the social, health, and economic concerns facing individuals, families, and communities.

The following concentrations are offered in the School of Human Sciences: Apparel, Textiles, and Merchandising (ATM); and Human Development and Family Studies (HDFS).

A minor in Human Sciences is available. Required are HS 2293, HS 2593, HS 3303, HS 3673, HS 4853. In addition, six credits are to be selected from HS 1533, HS 2203, HS 2283, HS 2603, HS 2613, HS 2813, HS 4193, HS 4313, HS 4333, HS 4403, and HS 4513.

#### **General Education Requirements**

English Composition (6 hours)

	()		
EN 1103	English Comp I OR		
EN 1163	Accelerated Comp I		
EN 1113	English Comp II OR		
EN 1173	Accelerated Comp II		
Mathematics (6 hour	rs)		
	MA 1313 College Algebra		
ATM	BQA 2113 Business Stats OR		
	ST 2113 Intro to Stats		
HDFS	Select 3 hrs from General Education		
Science (9 hours)			
HDFS	See concentration requirements		
ATM	CH 1043 + 6 hrs from General Education		
Humanities (6 hours)			
ATM	3 hours Foreign Lang + 3 hours from Gen. Ed.		
HDFS	Select from General Education courses		
Fine Arts (3 hours)			
Select from General Education courses			
Social Sciences (6 hours)			
ATM	PSY 1013 General Psychology		
	EC 2113 Principles of Macroeconomics		
HDFS	See concentration requirements		

# **Major Core**

-	HS	1701	Survey of Human Sciences
			Consumer Economics
			Human Sciences Senior Seminar
			The Family: An Ecological Perspective

#### Choose one of the following concentrations:

#### Apparel, Textiles, and Merchandising (ATM) Concentration

Professors Wanda Cheek and Phyllis Bell Miller; Instructor Charles Freeman

This program is designed to provide students with an understanding of fashion and textile industries, consumer behavior, product development, business principles, and technology applications. Students concentrate in one of two areas: Merchandising or Apparel Production and Design. Merchandising combines an overview of the fashion industry, consumer behavior, product development, planning, buying business operations and entrepreneurship. Apparel Production and Design emphasizes the total design and production process from inception to finished product and its ultimate sale to the consumer. Specialized labs and industry software provide students with extensive hands-on experience in the latest design, product development, and fashion retailing technology applications.

11		
ACC	2013	Principles of Financial Accounting
ACC	2023	Principles of Managerial Accounting
BL	2413	The Legal Environment of Business
EC	2113	Principles of Macroeconomics*
EC	2123	Principles of Microeconomics
	3013	Principles of Marketing
MGT	3114	Principles of Management and Prod
HS	1533	Apparel Design I
HS	1523	Visual Design in Dress
HS	1533 1523 2553	Fashion Merchandising
HS	2293	Individual and Family Nutrition
HS	3593	Merchandising & Promotion Strategies OR
	4123	Advertising
	2593	Apparel/Sewn Prod Analysis & Evaluation
	3553	
	2524	
	3573	11
	3563	
HS	4513	Social-Psych Aspects of Clothing
HS	4701	Internship Placement Seminar
HS	1711	Professional Protocol
HS	1711 4763	Apparel, Textiles & Merch. Internship
HS	4533	Merch. Planning and Buying OR
HS	4343	Apparel Design II
		n Requirement
СО	1003	
Writing Requ		
		for approved courses
Computer Li	-	
HS	4733	Computer-Aided Design for Human Sciences
Restricted E	lective	s - choose 9 credit hours from one area
Apparel Proc	luction	and Design Area
HS	4424	Teaching Methods in Ag and HS
HS	4583	Entrepreneurship for Human Sciences
HŠ	4710	Study Tour
	1123	Design I

Com

#### Rest

Apparel Production and Design Area			
HS	4424	Teaching Methods in Ag and HS	
HS	4583	Entrepreneurship for Human Sciences	
HS	4710	Study Tour	
ART	1123	Design I	
ART	1133	Design II	
ART	1213	Drawing I	
ART	1223	Drawing II	
ART	3103	Photography I	
ART	2213	Life Drawing I	
Merchandising Area			
HS	4424	Teaching Methods in Ag and HS	
HS	4583	Entrepreneurship for Human Sciences	
HS	4710	Study Tour	
FIN	3123	Financial Mgt	

IB 3913 Prin of International Business

MGT 3513	Intro to Human Resource Mgt
MKT 3213	Retailing
MKT 3933	International Marketing
MKT 4113	Personal Selling
MKT 4123	Advertising
MKT 4213	Internet Marketing
MKT 4413	Consumer Behavior
MKT 4533	Marketing Research
MKT 4613	Services Marketing
PHI 3013	Business Ethics

Total hours needed for major: 124

Satisfies General Education requirements.

# Human Development & Family Studies (HDFS) Concentration

Professors Jan Cooper Taylor, Sheri Worthy and Wanda Cheek; Assistant Professors Joe Wilmoth and Tommy Phillips; Instructor Angel Fason

This program offers an interdisciplinary lifespan approach to the study of children, youth, and families. It encompasses specialty areas in preschool teaching, childcare, youth studies, family studies, child life, and family and consumer sciences teacher education. Students develop an awareness of trends, issues and public policy affecting families; analyze factors that influence cognitive, emotional, social and physical development in the contexts of culture and family. Graduates enter diverse public and private sectors that focus on enabling children, youth, and families to function effectively in today's complex society.

Specific course work is required to specialize in each area or meet Class A teacher licensure requirements for family and consumer sciences in the state of Mississippi. Specific course work is also required to specialize in child life, preschool education, youth studies, or family studies. A grade of "C" or better is required for all major courses (Human Sciences courses).

The Family and Consumer Sciences teacher education program at Mississippi State University is NCATE accredited. Students must conform to the policies on teacher education, as explained under "Teacher Licensure" elsewhere in this catalog. Following is a list of courses taught in selected Mississippi high schools and vo-tech centers: family dynamics, resource management, nutrition and wellness, family and individual health, personal development, and child development. Family and Consumer Sciences teachers can also teach in high school Occupational Programs (such as food production, childcare, and clothing production). Some additional on-the-job training is required to teach these courses. Completion of a Bachelor of Science in Human Sciences (Family and Consumer Sciences Education emphasis) degree from the School of Human Sciences at Mississippi State University leads to licensure to teach these courses.

#### **Individual and Family Development Emphasis**

6 hours		Science with Laboratory*	
3 hours		Science*	
6 hou	irs	Social/Behavioral Sciences*	
CO	1003	Fundamentals of Public Speaking	
HS	1813	Indiv & Family Dev through the Lifespan*	
HS	3813	Lifespan Theory	
HS	4333	Families, Legislation, & Public Policy	
HS	4424	Teaching Methods in Ag & HS	
HS	4701	Internship Placement Seminar	
HS	4750	Internship	
HS	4803	Parenting	
HS	4883	Risk, Resilience, & Preventive Interventions	
3 hours		Computer Literacy course	
27 hours		Restricted Electives (see advisor)	
18 hours		Electives	
Writing Requ	iiremer	ıt	
AIS	3203	Intro to Tech Writing OR	
EDF	3413	Writing for Thinking OR	
EPY	3513	Writing for Behavioral Sciences OR	
MGT	3213	Organizational Communication OR	

SO 3103 Social Theory I

# Restricted Electives - choose 12 hours from one area

Child S	Child Studies (Preschool/Child Life)			
HS	2283	Child Health & Nutrition OR		
HS	4834	Hospitalized Child (required for Child Life)		
HS	2803	Prenatal & Infant Development		
HS	2813	Child Development		
HS	3803	Child Care Procedures		
HS	3823	Designing Child Care Programs		
HS	4823	Dev & Admin of Child Ser Prog		
EDE	3233	Teaching Children's Literature		
EDX	3213	Psy & Ed of Exc Child & Youth		
COE	2 4013	Facilitative Skills Dev		

#### Youth Studies

HS 4873 Positive Youth Development

Choose three of the following (9 hours):

AIS	4403	Development of Youth Programs
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PSY 3413 Human Sexual Behavior EDX 3213 Psy & Ed of Exc Child & Youth

COE 4013 Facilitative Skills Dev

Choose 15 hours from focus area or other restricted elective area.\*\*

#### **Family Studies**

HS	2813	Child Development
HS	3673	Environments for Special Needs
HS	4313	Family Resource Management
HS	4403	Intro to Gerontology
HS	4813	Adult Development: The Middle Years
HS	4843	Family Interaction
HS	4873	Positive Youth Development
COE	4013	Facilitative Skills Dev
PSY	3413	Human Sexual Behavior

#### Total hours needed for major: 124

Satisfies General Education requirements.

Satisfies General Education requirements..
 Focus Areas Notes: Recreation & Leisure electives include HS 3833 Human Dev. in the Context of Leisure & Rec., HS 3673 Environments for Special Needs, HS 2813 Child Development, PSY 4223 Drug Use & Abuse, EDX 4423 Teaching the Disadvantaged Child, EPV 3503 Principles of Educational Psychology, EPY 3553 Giftedness/Creativity, EPY 4053 Psych & Education of Ment Retarded, SO 4233 Juvenile Delinquency, SO 3313 Deviant Behavior, SO 3503 Violence in the U.S., SO 3603 Criminology, SO 4333 Sociology of Sport, SO 3213 Intro to Social Research, SO 2203 Cultural and Racial Minorities, PE 3033 Basketball / Football Officiating, PE 3133 Adaptive Physical Education, PE 3163 Psychology of Sport & Exercise, PE 3213 Emergency Healthcare, PE 3432 Coaching Basketball, PE 3452 Coaching Softball and Baseball, PE 3433 General Safety Methods, MGT 3313 Organizational Communications, MGT 3114 Prin of Mgt & Prod, MGT 3513 Intro to Human Res Mgt, MGT 3810 Organizational Behavior, MGT 4563 Staffing in Organizations, MKT 3013 Principles in Marketing, MKT 3213 Retailing, MKT 4113 Personal Selling, MKT 4123 Advertising

Child Life Specialist - must have all courses from Child Studies Emphasis Area and HS 4834 Hospitalized Child, BIO 1004 Anatomy & Physiology (with lab)

# Family & Consumer Sciences Education Emphasis

		r an r ar r ar r ar r ar r ar r ar r
CH	1043	Survey of Chemistry I*
6 hrs		Science with laboratory*
EDF	3333	Social Foundations of Education
EDF	4243	Planning for Diversity of Learners
EDX	3213	Psych & Ed of Excep Child & Youth
EPY	3143	Human Dev & Learning Strategies in Ed
EPY	3253	Evaluating Learning
EPY	3543	Psychology of Adolescence*
EDS	3411	Practicum in Secondary Ed
EDS	4873	Seminar in Managing Secondary Class
KI	1803	Health Trends and Topics
PSY	1013	General Psychology
PSY	3413	Human Sexual Behavior
HS	1533	Apparel Design I
HS	2203	Science of Food Preparation
HS	2283	Child Health and Nutrition
HS	2293	Individual and Family Nutrition
HS	2524	Textiles for Apparel
HS/II	D2603	Interior Design Fundamentals
HS	2813	Child Development
HS	3000	Field Experience
HS	4313	Family Resource Management
HS	4462	Curriculum in Human Sciences
HS	4886	Teaching Internship in Vocat. Human Sci.
HS	4896	Teaching Internship in Vocat. Human Sci

Oral Communication Requirement Satisfied by successful completion of HS 4424

Writing Requirement Intro to Tech Writing OR AIS 3203

EDF 3413 Writing for Thinking

Computer Literacy (3 hours)

Satisfied by successful completion of HS 3303

Total hours needed for major: 124

Satisfies General Education requirements.

#### **Gerontology Minor/Certificate**

# Professor Sheri Worthy

The Gerontology Minor/Certificate provides students with current factual and theoretical data along with practical experience relating to the process of aging. It is a multidisciplinary effort with contributions from a variety of departments cutting across several colleges. Students completing the requirements will earn a minor/certificate in gerontology.

This area of study is open to students from all colleges within the University. The Gerontology Minor/Certificate was developed to supplement the student's chosen major. Undergraduate students wishing to complete the Gerontology requirements will select a major in addition to electing 15 hours of gerontology course work.

# **Undergraduate Minor Requirements: (minimum 15 hours)**

HS 4403 Introduction to Gerontology

Select at least three of the following:

- ABE 4513 Dynamics of Aging
- COE 4713
- Issues in Aging Aging and Physical Activity EP 4123
- EP 4143 Aging and Disability
- HS 4813 Adult Development
- HS 4863 Consumer Aspects of Aging
- Psychology of Aging PSY 4983
- SO 4413 Aging and Retirement in American Society
- 4433 Sociology of Death and Dying SO
- SW 3023 Human Behavior and Social Environment II
- SW 4623 Social Work with the Aged Select one of the following: (may include courses from above)
  - Environments for Special Needs HS 3673

  - HS/FNH4353 Nutrition Throughout the Life Cycle
  - Families, Legislation, and Public Policy HS 4333 SO
  - 4423 Health and Society
  - SW 2323 Social Welfare Policy II
  - DIS or Practicum in Aging 3 hours

# Graduate Certificate Requirements (minimum 13 hours)

HS 6403 Intro to Gerontology

Select at least three of the following:

- ABE 6513 Dynamics of Aging
- Psychology of Aging PSY 6983
- SO 6413 Aging & Retirement in American Society
- SO 6433 Sociology of Death and Dying
- 6863 HS Consumer Aspects of Aging
- HS 6813 Adult Development
- COE 8813 Counseling the Elderly
- COE 6713 Issues in Aging

# Department of LANDSCAPE ARCHITECTURE (LA)

Department Head: Professor Sadik Artunc Office: Landscape Architecture Facility C103

#### Landscape Architecture Major

The profession of landscape architecture offers students the opportunity to engage in shaping the environmental and cultural landscape through planning and design to improve quality of life. The Mississippi State University Landscape Architecture programs teach the artful synthesis of social and ecological processes related to planning, designing, building and managing regenerative communities in Mississippi and the Northern Gulf Region, within a global perspective. Students enrolled in the Bachelor of Landscape Architecture (BLA) program experience an immersive, intense, and rewarding education structured around a studio environment that promotes critical thinking and creative problem solving. The department is dedicated to providing a high-quality education for our students, through small class sizes and one-on-one interaction between student and faculty. The teaching philosophy of the MSU Department of Landscape Architecture is rooted in the cultural and ecological phenomena that constitute our placed-based educational approach to empower student learning. Students in the BLA program cultivate their knowledge, skills, and abilities in a context specific environment across multiple-scales including the site, community, urban, and regional settings.

Our BLA program is the only accredited bachelor of landscape architecture degree program in the three state region of Alabama, Mississippi, and Tennessee. The BLA is a Landscape Architectural Accreditation Board (LAAB) accredited professional degree program. The LAAB evaluates a program based on its stated objectives and compliance to externally mandated minimum standards and accredits professional degrees at the bachelor's and master's levels in the United States. Our BLA program prepares students for entry-level positions in design offices, public practice, not-for-profits and primes students for graduate studies in allied professions. In addition, our department offers a Bachelor of Science in Landscape Contracting and Management that students in the BLA program can pursue simultaneously.

#### Curriculum

The four-year BLA curriculum provides the foundational framework for a career in landscape architecture. The coursework involves knowledge acquisition, skill development, and the ability to apply knowledge and skill through the design process. The first year of the program introduces the student to relevant history, theory and criticism, plants and cultural systems, and digital and traditional communication applications. The second year begins the Design and Construction sequence.

The design studio is at the core of the professional program. The professional studio sequence includes six (6) landscape architecture design studios, Design I-V and Landscape Architecture Capstone Studio. Capstone is the climax studio, where students pursue individual or specialized interests through the development of a semester long project. The construction sequence consists of three (3) courses, Construction I-III. The studio and construction sequence addresses the design, planning and management of the landscape at multiple scales through the application of the design process.

In years two and three of the program, each student must participate in two department led field trips. The field trips are a critical component of the professional curriculum and provide opportunities for students to study, explore, and experience significant works of landscape architecture in the United States and around the world.

The remainder of the required courses in the curriculum addresses professional practice, public policy and regulation, and professional values and ethics. Finally, year four offers students eleven (11) elective hours of coursework to meet each student's own objectives that lead to a well-rounded university education.

At the successful completion of the fourth year, students receive the professional degree of Bachelor of Landscape Architecture (BLA).

#### **Standards and Requirements**

All students in Landscape Architecture are required to have their own personal computer. Students should check with the department for equipment specifications prior to purchasing.

Landscape Architecture requires that a grade of "C" or better is required to fulfill a Major Core Requirement.

The department reserves the right to retain student work for the purpose of records, exhibition, instruction, and accreditation.

\*\*

In addition to University policies, all students enrolled in this curriculum shall be required to abide by all approved departmental policies.

#### **General Education Requirements** English Composition (6 hours) EN 1103 English Comp I OR EN Accelerated Comp I 1163 EN 1113 English Comp II OR EN 1173 Accelerated Comp II Mathematics (6 to 9 hours) Select from General Education courses Science (6 to 9 hours) Select from General Education courses Humanities (6 hours) Select from General Education courses Fine Arts (3 hours) ART 1113 Art Appreciation OR ARC 1013 Arch Appreciation Social Sciences (6 hours) Select from General Education courses **Major Core** ART 1123 Art Design I ENS 2103 Introduction to Environmental Science Plant Materials I PSS 2423 LA 1153 Introduction to Landscape Architecture LA 1223 Use of Computer in LA Landscape Systems 1333 LA LA 1423 History of LA Presentation Methods and Media LA 1533 Construction I: Materials LA 2544 2554 LA Design I: Site Design 2652 Precedent Studies LA Construction II: Grading LA 2644 Design II: Neighborhood Context LA 2654 3534 Construction III: Hydrology LA 3554 Design III : Town/Rural Context LA LA 3623 Urban Planning Theory 3652 Case Studies of Ex. Works of LA LA 3653 Plant Design Fund in LA LA Design IV: Urban Design LA 3654 4723 Professional Practice of LA LA 4754 Design V: Regional Context LA 4844 Design Sustainable Communities LA LA 4854 Capstone Studio 11 hours Electives Oral Communication Requirement Satisfied by successful completion of LA 4854 Writing Requirement Satisfied by successful completion of LA 4723 Computer Literacy Satisfied by successful completion of LA 1223 Total hours needed for major: 124 Landscape Contracting and Management Major (LAC)

A landscape contractor is a specialty contractor who provides the materials and services needed to make the landscape architect's project become a reality; and/or to provide the management and maintenance needed to keep the project in prime condition after implementation.

All students in Landscape Contracting and Management are required to have their own personal computer. Students should check with the department for equipment specifications prior to purchasing.

The Landscape Contracting and Management degree program at Mississippi State University, accredited by the Professional Landcare Network (PLANET), requires three internships which involve three semesters of experiential learning and field experience with an approved landscape contracting company or agency; and, under supervision of a qualified supervisor and oversight of Mississippi State University faculty. In addition, two departmental field trips are specific curriculum requirements for this degree. A field trip fee will be assessed to specific courses. Upon successful completion of curriculum requirements, a student receives a Bachelor of Science degree in Landscape Contracting and Management.

In as much as the published Bulletin of Mississippi State defines a letter grade of "D" as poor, The Department of Landscape Architecture requires that a grade of "C" or better is required to fulfill a major core requirement.\*

The department reserves the right to retain student work for the purpose of records, exhibition, instruction, industry review, etc. In addition to Mississippi State University policies, all students enrolled in this curriculum shall be required to abide by all approved departmental policies.

As published in the Department of Landscape Architecture policy manual.

# **General Education Requirements**

General Education	Requirements		
English Composition (6 hours)			
EN 1103			
EN 1163			
EN 1113	English Comp II* OR		
EN 1173	Accelerated Comp II		
Mathematics (6 hou	rs)		
MA/ST 211	3 Intro to Statistics***		
3 hrs	Select from General Education courses		
Science (10 hours)*	*		
BIO 2113	Plant Biology with Lab		
CH 1043	Survey of Chemistry I		
PSS 3303			
PSS 3301	Soils Lab		
Humanities (6 hour	s)		
FLS 1113	Spanish I		
FLS 1123	Spanish II		
Fine Arts (3 hours)			
Select from	General Education courses		
Social Sciences (6 h	nours)		
EC 2113	Principles of Macroeconomics		
EC 2123			
Major Core	1.		
LA 1711	Landscape Contracting Internship I		
LA 1153	Intro to Landscape Architecture		
LA 1333	Landscape Systems and Plant Communities		
LA 1533	Presentation Methods & Media		
LA 1533 LA 2253	Planting Design Fundamentals in LA		
LA 2711 LA 2544	Landscape Contracting Internship II		
LA 2544	Construction I: Materials		
LA 2644 LA 3701	Construction II: Grading		
	Landscape Contracting Seminar II		
LA 4724	Landscape Contracting II		
LA 3721	Landscape Contracting Field Trip I		
LA 3711 LA 4701	Landscape Contracting Internship III Landscape Contracting Seminar III		
LA 4344	Landscape Architecture Construction IV		
LA 4721	Landscape Contracting Field Trip II		
LA 4753	Sustainable Landscape Management		
EPP 3423	Ornamental & Turfgrass Insects		
PSS 2423	Plant Materials I		
PSS 3133	Intro to Weed Science		
PSS 3473			
PSS 4353	Arboriculture & Landscape Maintenance		
PSS 4414	Turfgrass Management		
ACC 2013	Principles of Financial Accounting		
ACC 2023 MKT 3013	Prin of Managerial Accounting Principles of Marketing		
BL 3223	Law of Commercial Transactions		
MGT 3323	Entrepreneurship		
MGT 3513	Intro Human Resource Management		
Oral Communicatio			
CO 1003	Fundamentals of Public Speaking OR		
CO 1003	Introduction to Communication		
Writing Requirement	Professional Practice of LA		
211 1/20	FIOIESSIOIIAI FIACUCE OI LA		
Computer Literacy			
LA 1223	Use of Computer in Landscape Arch		
Total hours needed for major: 124			
* If a student makes be	Now "B" in English Comp Lor II MGT 3213 Organization of Cor		

If a student makes below "B" in English Comp I or II, MGT 3213 Organization of Communications I will be required

at least two science courses must include a lab to comply with General Education Requirements.

MA 1313 College Algebra is a prerequisite for MA/ST 2113 Intro to Statistics.

# Department of PLANT and SOIL SCIENCES (PSS)

# Department Head: Dr. Mike Phillips Office: 117 Dorman Hall

Plant and Soil Sciences curricula focus on the application of sciences to the integrated management of plants, soil, and climate for high-quality production of food, fiber, fuel, and ornamental plants. Central to this course of study is the dedication to conserve, maintain and enhance our environment. An undergraduate student may major in either Agronomy (AGN) or Horticulture (HO) and specialize in concentration areas such as Agricultural and Environmental Soil Sciences (AGN), Golf and Sports Turf Management (AGN), Integrated Crop Management (AGN), Integrated Pest Management (AGN), Floriculture and Ornamental Horticulture (HO), and Floral Management (HO). A grade of "C" or better is required in all required PSS courses in the student's major prior to completion of the degree.

Graduate programs (M.S. and Ph.D.) are also offered in the Department of Plant and Soil Sciences in Agronomy, Horticulture, and Weed Science. Consult the Graduate Bulletin for additional details.

#### Agronomy Major (AGN)

# **General Education Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- 1163 Accelerated Comp I EN
- EN 1113 English Comp II OR
- Accelerated Comp II EN 1173
- Mathematics (6 to 9 hours)
  - MA 1313 College Algebra
  - 3 hours Select from General Education courses or see Concentrations
- Science (6 to 9 hours)
  - See major core/concentration

Humanities (6 hours)

See major core/concentration or General Education list Fine Arts (3 hours)

See major core/concentration or General Education list Social Science (6 hours)

See major core/concentration or General Education list **Major Core** 

- BIO 4214
  - General Plant Physiology PSS 3301 Soils Laboratory
  - PSS 3303 Soils
  - PSS 4313 Soil Fertility and Fertilizers

Oral Communication Requirement

1003 Fundamentals of Public Speaking CO

#### Choose one of the following concentrations:

#### Agricultural and Environmental Soil Sciences Concentration (SOSI)

Advisors: Professors Michael Cox, William Kingery, and Jac Varco

The Agricultural and Environmental Soil Science curriculum provides an educational foundation in soil processes involving physical, chemical, and biological interrelationships. The soil resource is an integral component of our environment and is subject to loss and degradation through human activities. Humanity's dependence on soil for food and fiber production and the need for ensuring environmental quality require individuals trained in the management of this resource. Career opportunities exist both nationally and internationally in agricultural and environmental consulting, agribusiness, government agencies, teaching, and research. Required courses provide soil science training, while elective courses can be selected to meet specific needs.

Cooperative Education: Agricultural and Environmental Soil Science students are encouraged to participate in the cooperative education program.

BIO 2113 Plant Biology\*

GR	1123	Intro to World Geography*
MA	1323	Trigonometry*
MA	1713	Calculus I*
ST	3123	Intro to Statistical Inference
AEC	2713	Intro to Food & Resource Econ*
BIO	3304	General Microbiology
CH	1211	Investigations in Chemistry I*
CH	1213	Chemistry I*
CH	1221	Investigations in Chemistry II*
CH	1223	Chemistry II*
CH	2314	Analytical Chemistry I
CH	4513	Organic Chemistry I
CH	4523	Organic Chemistry II
GG	1111	Earth Science Lab
GG	1113	Survey of Earth Science I
PH	1113	General Physics I
PH	1123	General Physics II
PSS	4314	Soil Microbiology
PSS	4603	Soil Chemistry
PSS	4323	Soil Classifications

W 110

- PSS 4333 Soil Conservation and Land Use
- 19 hours Restricted Electives\*\* (see advisor)

Computer Science Requirement

- AIS 4203 Applications of Computer Tech of AIS & Ed OR
- AEC 1223 Computer Applications for Ag and Life Scientists

Writing Requirement

AIS 3203 Intro to Tech Writing in Agricomm

#### Total hours needed for major: 123

Satisfies General Education requirements

\* Satisfies General Education requirements.
\*\* Restricted Electives include ABE 4263 Soil & Water Mgt., ADS 1114 Animal Science, AEC 3133 Intro to Agribus Mgt., BCH 4013 Principles of Biochemistry, BCH 4414 Protein Methods, BIO 4213 Plant Ecology, BIO 4404 Environmental Microbiology, CH 3213 Inorganic Chemistry, CH 4303 Biophysical Chemistry, CH 4413 Physical Chemistry, CH 4403 Biophysical Chemistry, CH 4413 Physical Chemistry, CH 2404 Biophysical Chemistry, CH 4413 Physical Chemistry, CH 2403 Biophysical Chemistry, CH 4413 Physical Chemistry, CH 4304 Biophysical Chemistry, CH 4316 Physical Chemistry, CH 4316 Biophysical Chemistry, CH 4317 Physical Chemistry, CH 4318 Biophysical Chemistry, CH 4318 Biophysical Chemistry, CH 4318 Physical Chemistry, CH 4318 Physical Chemistry, CH 4318 Physical Chemistry, CH 4319 Physical C

#### Golf and Sports Turf Management Concentration (GSTM)

#### Advisor: Associate Professor Barry Stewart

Golf and Sports Turf Management (GSTM) is the study of plant and soil sciences for the culture of turfgrass on golf and sports facilities. The GSTM curriculum prepares individuals for careers as golf course superintendents at private, daily fee, and resort courses or as sports turf managers at city, school, and professional sports turf facilities (i.e. football, baseball, soccer fields.) New construction of golf courses and sports facilities has led to a heightened demand for trained golf and sports turf management professionals. Three semesters of Cooperative Education work experience will be required of all students enrolled in the GSTM concentration.

Cooperative Education Requirements: GSTM students must complete a minimum 12 months or three semesters of Coop work at a golf course with an individual who is certified or progressing toward certification with the Golf Course Superintendents Association of America or at a sports stadium with a recognized sports turf manager. One of the three Coop semesters enrolled by the student must be a non-summer semester period. A 2.50 cumulative GPA on all MSU work is required to participate in the GSTM program. All new students must register with their coop advisor early in their initial semester of enrollment.

ACC	2013	Principles of Financial Accounting
ABE	2873	Land Surveying
ABE	4163	Machinery Mgt for Agro-Ecosystems
BIO	2113	Plant Biology*
CH	1043	Survey of Chemistry I*
CH	1053	Survey of Chemistry II*
CH	1051	Experimental Chemistry*
CH	2503	Elementary Organic Chemistry
CH	2501	Elementary Organic Chemistry Lab
EC	2113	Principles of Macroeconomics*
EPP	4113	Principles of Plant Pathology
EPP	3423	Ornamental & Turfgrass Insects
EPP	4523	Turfgrass Diseases
ET C	1112	Constant 14

FLS 1113 Spanish I\*

FLS	1123	Spanish II*
LA	3603	Design of Golf Environment
LA	4344	Landscape Arch Construction IV
MGT	3513	Intro to Human Resource Mgt
KI	2213	Emergency Health Care
PSS	1313	Plant Science
PSS	2423	Plant Materials I
PSS	3133	Intro Weed Science
PSS	3411	Turf Seminar I
PSS	3421	Turf Seminar II
PSS	4353	Arboriculture & Landscape Maintenance
PSS	4414	Turfgrass Management
PSS	4423	Golf Course Operations
PSS	4443	Athletic Field Management
PSS	4823	Turfgrass Weed Management
CP	2103	First Work Semester
CP	2203	Second Work Semester
CP	3303	Third Work Semester

- 9 hours Restricted Electives\*\* (see advisor)
- Computer Science Requirement

Satisfied by successful completion of PSS 4423 and 4443 Writing Requirement

Satisfied by successful completion of PSS 3411 and 3421

#### Total hours needed for major: 122

Satisfies General Education requirements.

\*\* Restricted Electives include ABE 1073 Agri. Mechanic, ABE 2173 Int. Combust. Eng. Tech., BCH 4013 Principles of Biochemistry, BIO 2213 Survey of Plant Kingdom, BIO 4203 Taxonomy of Spermatophytes, CO 2213 Small Group Communication, CO 2525 Fund of Interpersonal Communica-tion, CO 3833 Interviewing, FIN 2003 Personal Money Management, MGT 3213 Org. Communica-tions, PE 1081 Beginning Golf, PH 1113 General Physics, PSS 3473 Plant Materials II, PSS 3923 Plant Propagation, PSS 4223 Seed Production, PSS 4314 Soil Microbiology, PSS 4323 Soil Classifica-tion, PSS 4333 Soil Conservation, PSS 4343 Controlled Envir Ag, PSS 4503 Soil Chemistry.

#### Integrated Crop Management Concentration (ICM)

Advisors: Professors Brian Baldwin and Frank B. Matta Associate Professors David J. Lang and Ted Wallace

Integrated Crop Management (ICM) is the study of food and fiber production utilizing ecologically sound and technologically advanced methods. Areas covered include basic concepts of plant science and specific practices in crop initiation, culture, harvesting, processing, distribution and marketing. Methods of germplasm enhancement are taught. Specific program areas of study include agronomic crop production, crop science, fruit science, seed science, seed technology, and vegetable crop production. Students completing the Integrated Crop Management curriculum are prepared for careers as producers, consultants, technical representative plant breeders, extension agents, or inspectors with USDA and state agencies. This curriculum also provides a good background of basic sciences for those who wish to pursue graduate studies.

- AEC 2713 Intro to Food & Resource Econ\*
- AEC 3133 AEC 3413 Intro to Agribusiness Mgt
- Intro to Food Marketing
- BCH 4013 Principles of Biochemistry
- BIO 2113 Plant Biology\*
- BIO 3304 General Microbiology
- 1043 Survey of Chemistry I\* CH
- 1053 Survey of Chemistry II\* CH
- CH 1051 Experimental Chemistry
- 2503 CH Elementary Organic Chemistry
- CH 2501 Elementary Organic Chemistry Lab
- EPP 2213 Introduction to Insects
- EPP 4113 Principles of Plant Pathology
- PO 3103 Genetics I
- PSS 1313 Plant Science
- PSS 3133 Intro Weed Science
- Restricted Electives\*\* (see advisor) 24 hours
- 9 hours Unrestricted Electives
- Computer Science Requirement
  - AIS 4203 Applications of Computer Tech of AIS & Ed OR
- AEC 1223 Computer Applications for Ag and Life Scientists Writing Requirement

- AIS 3203 Intro to Tech Writing in Agricomm
- Total hours needed for major: 122

Satisfies General Education requirements

\*\* Restricted Electives include EPP 4163 Plant Disease Management, EPP 4263 Princ. Insect Pest Management, GA 1111 Survey of Agriculture, MA 1713 Calculus I, PH 1113 Gen. Physics, PSS 2423 Plant Materials I, PSS 3043 Fruit Science, PSS 3423 Agronomy Internship, PSS 3923 Plant Propa-gation, PSS 4103 Forage and Pasture Crops, PSS 4123 Grain Crops, PSS 4133 Fiber and Oilseed Crops, PSS 4143 Advanced Fruit Science, PSS 4213 Seed Production, PSS 4243 Seed Technology, PSS 4253 Seed & Grain Drying Storage, PSS 4314 Soil Microbiology, PSS 4323 Soil Classification, PSS 4333 Soil Conservation, PSS 4343 Controlled Envir Ag., PSS 4363 Sustained Nursery Mgt, PSS 4373 Geospatial Agronomic Mgt, PSS 4414 Turf Management, PSS 44503 Plant Breeding, PSS 4463 Soil Chemistry PSS 4633 Weed Biology and Erology PSS 4513 Herbicide Pech. 3 Her Apriles PS 4650 Soil Chemistry PSS 4633 Weed Biology and Erology PSS 4503 Plant Breeding, PSS 4650 Soil Chemistry PSS 4633 Weed Biology and Erology PSS 4503 Plant Breeding, PSS 4650 Soil Chemistry PSS 4613 Weed Biology and Erology PSS 4503 Plant Breeding, PSS 45 ----- viguation: Froudecuoit, FSS 4463 Intro to Remote Sensing, PSS 4503 Plant Breeding, PSS 4603 Soil Chemistry, PSS 4633 Weed Biology and Ecology, PSS 4813 Herbicide Tech, 3 Hrs Agribusiness Elective

# Integrated Pest Management Concentration (IPM)

# Major Advisor: Assistant Professor Fred R. Musser

Integrated Pest Management (IPM) is an interdisciplinary concentration of study in Entomology, Plant Pathology and Weed Science jointly administered by the Department of Entomology and Plant Pathology and the Department of Plant and Soil Sciences. Effective management of pest problems requires a broad base of knowledge in the pest disciplines and practical field experience. The Integrated Pest Management concentration features a strong core of courses in the three pest disciplines (entomology, plant pathology, and weed science); a strong background in biological and physical sciences; and practical training through an internship. The curriculum is designed to meet the needs of students who wish to pursue advanced degrees and of students who wish to terminate their higher education with a baccalaureate degree. A range of restricted and non-restricted electives allows students to personalize their degree program for careers in crop production, agri-business, natural resource management, and/or graduate studies preparation. A grade of "C" or better is required in all courses with the EPP, PSS, CH, or BIO prefix prior to completion of the degree. No course may be transferred for credit from another college or university in which a grade of "D" was made. A student may transfer up to nine hours of "T" level technical courses from community colleges as unrestricted lower-level electives. "T" level technical courses may not be transferred for credit on any course listed specifically in the IPM curriculum.

Graduates are well prepared for employment with industry; state and federal research, extension and regulatory agencies; private agricultural consulting firms; farmer's cooperatives; nurseries, home and garden centers; greenhouse plant production; and corporate farms.

Internship: IPM students must complete a minimum one semester internship with an approved internship sponsor in industry, private consulting firms/individuals, or governmental agencies.

0		
AEC 2713		Intro to Agricultural Economics*
BIO 1134		Biology I*
BIO 1144		Biology II *
BIO	4213	
CH	1051	Experimental Chemistry
CH	1043	Survey of Chemistry I*
CH	1053	Survey of Chemistry II*
CH	2503	Elementary Organic Chemistry
EPP	4113	Principles of Plant Pathology
EPP	4154	General Entomology
EPP	4163	Plant Disease Management
EPP	4263	Principles of Insect Pest Management
PO	3103	Genetics I
PSS	3133	Introduction to Weed Science
PSS	3423	Agronomy Internship
PSS	4633	Weed Biology and Ecology
PSS	4813	Herbicide Technology
ST	3123	Introduction to Statistical Inference*
17 ho	ours	Restricted Electives** (see advisor)
11 hc	ours	Unrestricted Electives
Writing Requ	uiremer	nt (3 hrs)
AIS	3203	Intro to Technical Writing
Computer Li	iteracy (	(3 hrs)
AIS	4203	Applications of Computer Tech to AIS and Ed
OR		** *
AEC	1223	Comp Applications for Ag & Life Scientists

AEC 1223 Comp Applications for Ag & Life Scientists

# Total hours needed for major: 124

Satisfies University Core

Satisfies University Core \*\* Restricted Electives include FO 4311 Spatial Tech Nat Res Lab, FO 4313 Spatial Tech Nat Res Mgt. FO 4451 Remote Sensing Lab, FO 4452 Remote Sensing Appl, GR 3303 Survey Geospatial Tech, GR 3311 Geospatial Appl, WFA 4371 Water Qual Mgt Lab, WFA 4372 Water Quality Mgt, ABE 3513 GPS/GIS-AG&Eng, ABE 4313 Bio Trimnt of NPS Poll, ACC 2013 Princ Financial Acct, AEC 3113 Intro to Quant Econ, AEC 3313 Intro Agribus Mgt, AEC 3213 Interna.Trade in Ag, AEC 3233 Intro to Env Econ & Policy, AEC 3413 Intro to Food Mkt, AEC 3513 Food & Fiber Prod, AEC 4123 Fin & Comm Futures Mktg, BIO 3304 Gen Microbiology, BIO 4203 Tax of Spermatophyte, BIO 4223 Fresh-

water Algae. ENS 2103 Intro Environ Sci, EPP 3124 Forest Pest Mgt, EPP 3423 Orna Turf Insects, EPP 3522 Turfgrass Diseases, EPP 4214 Diseases of Crops, EPP 4223 Pest Control, EPP 4234 Field Crop Insects, EPP 4244 Aquatic Entomology, EPP 4543 Tox & Insect Chem, GR 2313 Maps Remote, GR 3313 Intro to Geodatabases, GR 4303 Princ of GIS, GR 4322 Cartographic Sci, LA 2433 Landscape Sys &PIts, MGT 3513 Intro to Human Res Mgt, PSS 2423 Plt Mat I, PSS 3473 Plt Mat II, PSS 4103 Forage Pasture, PSS 4123 Grain Crops, PSS 4135 Tiber&Oilseed Crops, PSS 4314 Soil Microbiology, PSS 4323 Soil Classification, PSS 4333 Soil Conservation, PSS 4343 Controlled Envir Ag., PSS 4353 Arboriculture, PSS 4363 Sustained Nursery Mgt, PSS 4373 Geospatial Agn Mgt, PSS 4411 Remote Sens Seminar, PSS 4414 Turf Mgt, PSS 4453 Vegetable Prod, WFA 4153 Princ Wild Con & Mgt, WFA 4253 GIS&GPS in WFA Mgmt

# **HORTICULTURE Major (HO)**

# **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR
  - EN 1163 Accelerated Comp I
  - EN 1113 English Comp II OR EN
  - 1173 Accelerated Comp II

# Mathematics (6 hours)

- MA 1313 College Algebra
- 3 hours See concentration
- Science (10 hours)
  - BIO 2113 Plant Biology
  - Survey of Chemistry I CH 1043
  - 1051 Experimental Chemistry CH
  - CH 1053 Survey of Chemistry II
- Humanities (6 hours)
  - Floriculture See concentration
- Floral Management Select from General Education courses Fine Arts (3 hours)
  - - PSS 2343 Floral Design OR
  - LA 1803 Landscape Arch. Appreciation (F&O only)
- Social/Behavioral Sciences (6 hours)

Floriculture

- AEC 2713 Intro to Food & Resource Econ OR
- EC 2113 Macroeconomics OR
- EC 2123 Microeconomics
- 3 hours Select from General Education courses
- Floral Management
  - PS 1113 American Government
  - PSY 1013 General Psychology

#### **Major Core**

- ACC 2013 Principles of Financial Accounting
- MKT 3013 Principles of Marketing
- PSS 1313 Plant Science
- PSS 2423 Plant Materials I
- PSS 3313 Interior Plant Design & Maintenance
- PSS 3473 Plant Materials II
- PSS 3923 Plant Propagation
- PSS 3511 Seminar

Writing Requirement

AIS 3203 Intro to Tech Writing Agricomm

# Choose one of the following concentrations:

#### Floral Management Concentration (FLMG)

Advisors: Professor James DelPrince Instructor Lynette McDougald

Floral Management involves sourcing, purchasing, distributing, marketing, designing with, and selling floricultural products. Students enrolled in this concentration are provided with courses in design and horticulture, balanced with business and sciences. Career opportunities for graduates include retailing, wholesaling, special event designing, and display gardening. The University Florist, a professional flower shop owned and operated by the Department of Plant and Soil Sciences on the MSU campus, provides students with work and management opportunities.

Internship Requirements (PSS 3413): FM majors must complete a 12 week, 480 clock hour work experience in a floral industry enterprise. The

internship requirement may be completed any semester after successful completion of PSS 2343 Floral Design.

- ACC 2023 Principles of Managerial Accounting
- ART 1113 Art Appreciation
- ART 1123 Design I
- BL. 2413 The Legal Environment of Business
- EPP 2213 Intro to Insects\*
- FIN 3113 Financial Systems
- Interior Design Fundamentals HS 2603
- 2423 History of Landscape Architecture LA
- 2351 Techniques in Flower Shop Mgt PSS
- 3023 Retail Floristry Operation and Mgt PSS
- PSS 3343 Wedding Floral Design
- PSS 3413 Retail Floristry Internship
- PSS 3443 Permanent Floral Design
- 3 hours Math course from General Education
- 6 hours Art Electives\*\* (see advisor)
  - Restricted Electives \*\*\* (see advisor) 6 hours

Oral Communication Requirement

CO 1003 Fund of Public Speaking

- Computer Literacy Requirement choose one
  - Comp Applications for Ag & Life Sci AEC 1223
  - AIS 4203 Appl Computer Tech AIS and Ed
  - BIS 1012 Intro to Business Information Systems
  - TKT 1273 **Computer Applications**

#### Total hours needed for major: 123

Satisfies General Education requirements

\*\* Art Electives include ART 1013 Art History I, ART 1023 ART History II, ART 1133 Design II, ART 1153 Three Dimensional Design, ART 1213 Drawing I, ART 1223 Drawing II, Art 1303 Ceramic Art I, ART 2013 Painting I, ART 2213 Life Drawing I, ART 2303 Printmaking, ART 2313 Ceramic Art II, ART 2403 Sculpture I, ART 3103 Photography I, ART 3153 African Art and Culture, ART 3423 Color Photography, ART 3703 Jewelry/Metal I, ART 4133 Watercolor II, ART 4533 Ceramic Art III. \*\*\* Restricted Electives include PSS 3043 Fruit Science, PSS 3303 Soils, PSS 4003 Directed Individual Study, PSS 4143 Advanced Fruit Science, PSS 4343 Controlled Envir Ag, PSS 4353 Arboricul-ture and Landscape Maintenance, PSS 4363 Sustained Nursery Mgt, PSS 4444 Plant Tissue Culture, PSS 4453 Vegetable Production, PSS 4503 Plant Breeding, PSS 4613 Floriculture Crop Programming.

A minor in Floral Management is available. To obtain a minor, students are required to complete the following 15 hours: PSS 2343, PSS 3023, PSS 3313, PSS 3343 and PSS 3443.

# **Floriculture and Ornamental Horticulture Concentration (FLOR)**

Advisors: Professor Richard L. Harkess; Instructor Paul Meints

Floriculture and Ornamental Horticulture offers diversified opportunities that are challenging, intellectually stimulating, and economically rewarding. Floriculture and Ornamental Horticulture is the science and art of producing, distributing, and marketing flowers, flowering and foliage plants. It offers a wide variety of employment opportunities and competitive salaries. Students completing this curriculum are prepared for many different careers including greenhouse or nursery management, landscape management, public service, research and technical product research and sales.

- BIO 4203 Taxonomy of Spermatophytes BIO 4214 General Plant Physiology CH 2501 Elementary Organic Chemistry Lab
- 2503 Elementary Organic Chemistry CH
- EPP 4113 Principles of Plant Pathology
- EPP 2213 Introduction to Insects OR
- EPP 3423 Ornamental and Turfgrass Insects
- FLS 1113 Spanish I\*
- FLS 1123 Spanish II\*
- Intro to Statistics\* OR 2113 MA
- ST 2113 Intro to Statistics\*
- PO 3103 Genetics
- PSS 3301 Soils Laboratory
- PSS 3303 Soils
- PSS 3433 Horticulture Internship
- Controlled Environment Agriculture 4343 PSS
- PSS 4341 Controlled Environment Agriculture Lab
- PSS 4363 Sustainable Nursery Production
- PSS 4444 Plant Tissue Culture
- PSS 4613 Floriculture Crop Programming
- 15 hours Restricted Electives\*\* (see advisor)

#### Oral Communication Requirement

- CO 1003 Fundamentals of Public Speaking OR
- CO 1093 Honors Oral Communication

Computer Literacy Requirement

- AEC 1223 Computer Applications for Ag and Life Sci. OR
- AIS 4203 Applications of Computer Technology in AIS

# Total hours needed for major: 124

Satisfies General Education requirements

\* Satisfies General Education requirements.
\*\* Restricted Electives include AEC 3413 Intro Food Marketing, BCH 4013 Principles of Biochemistry, BIO 3304 General Microbiology, BIO 4204 Plant Anatomy, BIO 4213 Plant Ecology, BIO 4404 Environmental Microbiology, EPP 4163 Plant Disease Management, EPP 4263 Princ. Insect Pest Mgt, FLS 2133 Spanish III, FLS 2143 Spanish IV, LA 2253 Plant Design Fund, LA 2433 Landscape Systems Plant Com., LA 4753 Sustainable Landscape Mgt, MGT 3114 Princ. Of Mgt. & Production, MKT 3213 Retailling, PSS 2343 Floral Design, PSS 2443 Horticulture Crop Physiology, PSS 3023 Retail Floristry Operation and Management, PSS 9043 Fruit Science, PSS 3133 Intro to Weed Science, PSS 3343 Weeding Floral Design, PSS 4434 Permanent Floral Design, PSS 4333 Soil Fertility and Fertilizers, PSS 4353 Arboriculture & Landscape Maint., PSS 4403 International Hort, PSS 4414 Turf Management, PSS 4533 Vegetable Production, PSS 4530 Plant Breeding, PSS 4553 Plant Growth and Dev.

A minor in Floriculture and Ornamental Horticulture is available. To obtain a minor, students are required to complete PSS 2423, PSS 3473 and PSS 3923, and choose two of the following courses: PSS 3313, PSS 4343, PSS 4353, PSS 4363, or PSS 4613.

# Department of POULTRY SCIENCE (PO)

Major Advisor: Assistant Professor Aaron Kiess Office: Hill Poultry Science

The U.S. poultry industry is a \$21 billion+ business employing hundreds of thousands of people in the United States. Mississippi ranks 4th in broiler production and is continuing to expand. This dynamic industry employs about 25,000 Mississippians directly and another 25,000 indirectly.

The Poultry curriculum provides for in-depth study of scientific principles important in the production, processing and marketing of poultry and poultry products. The curriculum is designed with academic and experiential components to ensure that graduates are prepared to manage people and resources vital to this important food industry. Poultry students should also expect to develop creative thinking skills that will allow them to develop solutions for complex real world problems as they develop their careers as managers. The strong science content of the curriculum also makes it an excellent fit for pre-vet students and students interested in graduate studies. The department provides one-on-one advising for all Poultry Science students. Concentrations available are:

-Production Systems -Business Management

-Processed Products

-Pre-Veterinary Medicine

Only grades of C or higher will be accepted for PO and VS courses.

### **General Education Requirements**

English Composition (6 hours)					
	EN	1103	English Comp I OR		
	EN	1163	Accelerated Comp I		
	EN	1113	English Comp II OR		
	EN	1173	Accelerated Comp II		
Mather	natics	(6 hour	rs)		
	MA	1313	College Algebra		
	MA/S	ST	3 hours (see major/concentration)		
Science	e (9 ho	ours)			
	See major/concentration				
Humanities (6 hours)					
	Select from General Education courses				
Fine Arts (3 hours)					
	Select from General Education courses				
Social Sciences (6 hours)					
	AEC	2713	Intro to Food & Resource Econ		
	3 hou	ırs	Select from General Education courses		
Major Core					
0		3513	Intro to Human Resource Mgt		

PO	3011	Seminar
PO	3021	Seminar
PO	3103	Genetics
PO	3313	Commercial Poultry Production
PO	3323	Poultry Judging
PO	3834	Microbiology of Food Animal Production
PO	4031	Seminar
PO	4041	Seminar
PO	4313	Management of Commercial Layers
PO	4324	Avian Reproduction
PO	4333	Broiler Production
PO	4413	Poultry Nutrition
PO	4423	Feed Manufacturing
PO	4513	Poultry Processing
PO	4523	Commercial Broiler Processing Tech
PO	4833	Avian Anatomy
PO	4843	Avian Physiology
VS	2033	Diseases of Poultry
DO	2252	

PO 3353 Poultry Production Internship

PO 3363 Poultry Processing Internship

Oral Communication Requirement

Satisfied by successful completion of PO 3021, 4031, and 4041 Writing Requirement

Satisfied by successful completion of PO 4324 and 3834 Computer Literacy

Satisfied by successful completion of PO 4324 and 3834

#### Choose one of the following concentrations:

#### Production Systems Concentration (POPS)

The technical aspects of poultry production demands knowledge of business operation, building construction and the operation of the sophisticated equipment utilized throughout the industry. This concentration is appropriate for students interested in entering into a personal poultry operation of field services with large poultry enterprises.

ABE	1863	Engineering Technology in Agriculture
ABE	4383	Building Construction
ABE	4473	Electrical Applications
ACC	2013	Principles of Financial Accounting
AEC	3133	Intro to Agribusiness Management
AEC	3233	Intro to Envir. Econ and Policy
BIO	1123	Animal Biology
BIO	1203	Plant Biology
BL	2413	Legal Environment of Business
CH	1043	Survey of Chemistry I
EG	1143	Graphic Communication
PO	3333	Advanced Poultry Judging
PSS	3303	Soils
ST	2113	Introduction to Statistics

Total hours needed for major: 123

#### **Business Management Concentration (POBM)**

Poultry is one of the largest agribusinesses in the U.S. The business management concentration satisfies all the requirements for a minor in Agribusiness. Thus, this concentration offers lucrative employment opportunities to the poultry science major.

ACC	2013	Principles of Financial Accounting
ACC	2023	Principles of Managerial Accounting
AEC	3213	International Trade in Ag
AEC	3413	Intro to Food Marketing
AEC	4123	Financial & Commodities Futures Markets
AEC	4523	Farm Financial Management
BIO	1123	Animal Biology
BL	2413	Legal Environment of Business
CH	1043	Survey of Chemistry I
CH	1053	Survey of Chemistry II
EC	2113	Principles of Macroeconomics
MA	1613	Calculus for Business and Life Sciences
PO	3333	Advanced Poultry Judging
	T-4	

# **Processed Products Concentration (POPP)**

The future growth of the poultry industry is closely associated with advancements in processing technology. There is a large demand for well trained poultry scientists with this capability. This processed products concentration satisfies the requirements for a minor in Food Science.

- BCH 4013 Principles of Biochemistry
- BIO 1134 Biology I
- BIO 1144 Biology II
- CH 1213 CH 1223 Chemistry I
- Chemistry II Organic Chemistry I CH 4513
- CH 4523 Organic Chemistry II
- FNH 4164 Quality Assurance of Food Products
- FNH 4241 Applied Food Chemistry
- Composition and Chemical Reactions of Foods FNH 4243
- FNH 4414 Microbiology of Foods
- FNH 4513 Food Preservation Technology
- ST 3123 Intro to Statistical Inference

# Total hours needed for major: 122

#### **Pre-Veterinary Concentration (PVSP)**

The Pre-Veterinary concentration allows a student to satisfy the preveterinary requirements while completing a B.S. in Poultry Science. The Poultry Science department offers a 3 + 1 program for admission to the College of Veterinary Medicine. Contact the Poultry Science department for these requirements.

- ACC 2013 Principles of Financial Accounting AEC 3133 Introductory Agribusiness Manager BCH 4013 Principles of Biochemistry Introductory Agribusiness Management
- BIO 1134 Biology I
- Biology II BIO 1144
- CH 1211 Investigations in Chemistry I
- CH 1213 Chemistry I
- 1221 Investigations in Chemistry II CH
- CH 1223 Chemistry II
- CH 4511 Organic Chemistry I Lab
- CH 4513 Organic Chemistry I
- Organic Chemistry II Lab CH 4521
- Organic Chemistry II CH 4523
- PH 1113 General Physics I
- PH 1123 General Physics II
- MA 1323 Trigonometry

#### Total hours needed for major: 123

#### **Poultry Minor**

The need for people who have specialized knowledge outside of classic poultry science is growing rapidly. Currently the industry recruits and employs personnel trained in areas such as accounting, biological sciences, computer science, human nutrition, nursing, microbiology, engineering, food technology, advertising and marketing, veterinary medicine, human resource management and law. A minor in Poultry Science provides these individuals with enhanced employment opportunities in the poultry industry.

Students will be required to complete the following courses to receive a minor in Poultry Science.

- PO 3313
- Commercial Poultry Production Management of Commercial Layers PO 4313
- PO 4333 Broiler Production
- PO 4413 Poultry Nutrition
- Poultry Processing PO 4513

# College of Architecture, Art, and Design

# JAMES L. WEST, Dean

# David C. Lewis, Associate Dean

Office: 240 Giles Hall

Telephone: (662) 325-2202; Fax Number: (662) 325-8872 Mailing Address: 899 Collegeview Street, Box AQ, Mississippi State, MS 39762 Web site: www.caad.msstate.edu

# SCHOOL OF ARCHITECTURE

Director: Michael A. Berk Academic Records Assistant: Pandora Prater Office: 240 Giles Hall

#### **GENERAL INFORMATION**

The profession of architecture offers the student the opportunity to participate in improving the physical world, in solving problems of our society, and in giving form to the needs of modern culture. To meet these demands requires a highly trained profession composed of sensitive, dedicated men and women. The School of Architecture is the educational foundation of the profession in the State of Mississippi and provides for the development of the individual skills and understanding to prepare the student for his or her role in the practice of architecture.

The School of Architecture offers an intense, carefully structured, and rich array of courses which constitute a solid foundation for architectural practice. The course work provides students with an awareness of the diversity and complexity of today's professional world. Each course has its own important role in developing the knowledge and abilities required of architects in a contemporary practice.

The School of Architecture at Mississippi State University is the professional school for the State of Mississippi and is the only program in the state that leads to a professional degree in architecture. To meet the needs of the state and region, the school was established in 1973 with the support of an Advisory Committee of the Mississippi Chapter of the American Institute of Architects.

# ACCREDITATION

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

The Bachelor of Architecture program at the School of Architecture at Mississippi State University has been continuously accredited since its inception. In 2010 the School was reaccredited for another full sixyear term.

#### ADMISSIONS

Admission to the School of Architecture is limited and highly competitive. Prospective students should carefully read materials on the School web site and communicate with the School of Architecture to request current information, and if possible, arrange for a tour of facilities and admissions advisement.

Application Process

- 1. Apply to Mississippi State University.
- 2. Submit all required materials including high school transcripts and ACT or SAT scores
- 3. Indicate your choice of major as "Architecture."

4. Complete and return the Supplemental Application Package.

Applications are reviewed and students accepted as applications are received. Places are reserved for most students submitting applications by January 15. Place for students whose applications are received after this date will be as space permits.

The School of Architecture admits applicants under one of two categories of admission. 1. Full Admission with the opportunity to begin freshman architectural design studio in the fall term. Entrance to the fall design studios is competitive and has academic prerequisites. Students with an ACT score of 24 or better (or the SAT equivalent) and a 3.5 GPA or greater, are automatically accepted into the architecture program, if their formal Supplemental Application Package is received prior to January 15, and depending on available space.

2. Students not accepted into the Fall Design Studios are placed in the Pre-Architecture program. Pre-Architecture students follow a similar course of study, but do not take ARC 1536 Design I-A and ARC 1546 Design I-B. There are many reasons why a student may not admitted to the fall design studios: late application, lower ranking in the applicant pool, and lack of pre-requisites are the main reasons. The School of Architecture attracts highly talented students, and the admissions committee offen faces difficult decisions on whom to admit. The study of architecture is highly rigorous: we want to ensure that students that enter the program succeed. Pre-Architecture students may re-apply for summer admission into the program after completing all first year requirements.

3. Students may receive transfer credit for non-professional courses completed at other universities, colleges, and community colleges, provided a grade of C or better is received for each course. Transfer credit from other architecture programs is reviewed by the admissions committee and the director. Transfer credit for courses listed as technical, vocational, or architectural is solely at the discretion of the department. In addition to transcripts, course descriptions, syllabi, examples of work done and portfolio may all be required to receive any credit for such courses. A student may receive six hours of Reserve Officers' Training Corps (ROTC) credit.

#### FINANCES

Costs for an architectural education are somewhat higher than in other disciplines. In addition to standard costs of fees, tuition, room, board, books, etc, an architectural student must buy required drawing equipment and materials for drawings and models during the school year. This can add \$600 or so per semester. Additionally, at least one major field trip is required each year. Charges for field trip expenses are collected with tuition and currently range from \$350 in first year to \$550 in fourth year. These charges are intended to cover transportation and lodging during field trips. These fees are not refundable after the first day of classes. Students should expect to purchase a laptop computer in their first year, selected from a range of models approved by the School.

#### **SCHOLARSHIPS**

A number of scholarship opportunities as well as design competitions and awards are available to students within the School of Architecture's design programs. Normal MSU Scholarships are available to in-state and out-of-state students. Inquiries for financial aid or assistance should be sent directly to the MSU Office of Student Financial Aid and Scholarships.

#### COUNSELING

Once accepted into the Design Studio courses, students are required to maintain at least an MSU 2.0 cumulative quality point average to remain in design courses. At the end of the first year, a student must have completed all required courses so to enter the second year, and at the end of the senior year, a student must have completed all required courses in order to advance to the fifth year. Any student who receives a grade of D or lower for two sequential design courses must repeat both of these courses and receive a grade of C or higher in both courses to advance in the program, or receive the Bachelor of Architecture degree. If a studio course is failed, a grade of C must be received to advance in the program, or receive the Bachelor of Architecture degree.

# **RESEARCH CENTERS** in the SCHOOL of ARCHITECTURE

#### CARL SMALL TOWN CENTER

Established in 1979, the vision of the Carl Small Town Center is to strengthen communities and to promote a prosperous and sustainable future by raising an awareness of the physical environment through research and excellence in design. For further information, contact the Director of the Carl Small Town Center at 662-325-2207.

# **GULF COAST COMMUNITY DESIGN STUDIO**

The GCCDS was established after hurricane Katrina as an arm of the College of Architecture, Art and Design. GCCDS is located in Biloxi and is providing community planning and architectural design services to communities and rebuilding organizations. GCCDS has provided design and construction assistance for hundreds of new and existing homes, produced survey and GIS mapping for Biloxi, and planning work for a collaboration of housing organizations. For more information, contact the Director of GCCDS at 228-435-7180.

# JACKSON COMMUNITY DESIGN CENTER

The Jackson Community Design Center is an urban research laboratory whose mission is to support urban revitalization in Jackson. The Design Center provides research, visioning, planning, and technical assistance to associations that are working to make a viable, healthy urban environment. The Design Center conducts public educational programs and sponsors visiting lectures and other Continuing Education Programs. For further information, contact the Director of JCDC at 601-354-6480.

#### EDUCATIONAL DESIGN INSTITUTE

Created in 1997 by the Mississippi Legislature, the Educational Design Institute (EDI) is a collaboration between the College of Education and the College of Architecture, Art, and Design focused on quality K-12 school design and planning. In addition to developing and updating the Mississippi School Design Guidelines, EDI works directly with school districts on specific projects. For more information, contact EDI at 662-325-9225

# **DESIGN RESEARCH and INFORMATICS LABORATORY**

Researchers apply state-of-the-art visualization technology to address both economic development and quality of life issues for small businesses and communities in the state of Mississippi. Work ranges from design studies to branding and Web site design. For further information, contact the Director at 662-325-2509.

#### MINOR in ARCHITECTURAL STUDIES

The School of Architecture offers a minor in architectural studies. The minor consists of 18 credit hours of ARC courses. Students are required to take ARC 1013. The following courses can be taken without instructor approval: ARC 2313, ARC 3313, ARC 3323, ARC 4313, ARC 2713, and ARC 4733. The following courses are also available but require consent of instructor for enrollment: ARC 2723, ARC 3713, ARC 3723, ARC 3343, ARC 3573 and ARC 4990.

#### **CURRICULUM**

The curriculum is divided into three levels: the first-year level is defined as the pre-professional program; the second and third year levels comprise the professional core; the fourth year comprises topical studios, and the fifth-year provides the transition to professional practice. The first four years are at the main campus of MSU in Starkville; the fifth year is at the Stuart C. Irby studios in downtown Jackson.

The curriculum is composed of four areas of study representing:

(1) Design, (2) History/Theory, (3) Technology, (4) Professional Practice

1. Design - concerned with the understanding of form, shape, and space responsive to human needs and programs, together with development of architectural communication skills.

2. History/Theory - composed of architectural history and philosophy, current architectural ideas and directions.

3. Technology - providing basic knowledge in physical systems of structures, materials, construction and service systems of plumbing, electrical, heating and air conditioning.

4. Professional Practice - representing the tools necessary to direct the processes of architecture, areas of economics, real estate, finance, promotion, land development, law, and office practice.

Located at the Jackson Center in downtown Jackson, the fifth-year offers the student the opportunity to develop depth and expertise through research and design projects focused on urban issues. The city provides a major resource for the activities and a laboratory for continued study. Professionals involved in all areas of the built environment contribute to the teaching. This experience provides a transition from the academic foundation to the professional realities of architecture.

# **General Education Requirements**

English Composition (6 hours)

EN	1103	English Comp I or
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- FN 1163 Accelerated Comp I
- EN 1113 English Comp II or
- EN Accelerated Comp II 1173

Mathematics (6 to 9 hours)

- MA 1313 College Algebra\*
- MA 1323 Trigonometry\*
- MA 1463 Finite Mathematics and Intro to Calculus OR
- MA 1613 Calculus for Business and Life Sciences I
- Science (9 hours)
  - PH 1113 General Physics I

General Physics II

PH 1123 ARC 2713 Passive Building Systems

Humanities (6 hours)

ARC 2313 History of Architecture I

ARC 3313 History of Architecture II

Fine Arts (3 hours)

See General Education courses

Social Sciences (6 hours)

See General Education courses

**Major** Core

or Core	
ARC 1536	Architecture Design I-A**
ARC 1546	Architectural Design I-B
ARC 2536	Architectural Design II-A
ARC 2546	Architectural Design II-B
ARC 3536	Architectural Design III-A
ARC 3546	Architectural Design III-B
ARC 4536	Architectural Design IV-A
ARC 4546	Architectural Design IV-B
ARC 5576	Architectural Design V-A
ARC 5589	Architectural Design V-B
ART 1213	Drawing I
ART 1223	Drawing II***
ARC 2313	History of Architecture I (see Gen. Ed.)
ARC 3313	History of Architecture II (see Gen. Ed.)
ARC 3323	History of Architecture III
ARC 4313	Architectural Theory
ARC 2713	Passive Building Systems (see Gen. Ed.)
ARC 3723	Active Building Systems
ARC 2723	Materials
ARC 3713	Assemblages
ARC 3904	Architectural Structures I
ARC 3913	Architectural Structures II with lab
ARC 4733	Site Planning for Architects
ARC 5383	Legal Aspects of Architecture
ARC 5443	Architectural Programming
ARC 5493	Architectural Practice
ARC 5353	Philosophy of Architecture
ARC 5623	Theory of Urban Design
9 hours	Approved Electives
3 hours	General Elective
Communicatio	n Doquiromont

Oral Communication Requirement

Satisfied by successful completion of Architectural Design courses.

Writing Requirement

Satisfied by successful completion of ARC 4313

#### Total hours needed for major: 152

\* MA 1313 and 1323 should be completed the summer prior to beginning studies in architecture. Students with 24 ACT in Math are excused from MA 1313 College Algebra. Students may also take the College Level Examination Program (CLEP) exam to place out of MA 1313. Students with a grade of the student "B" or better in a full semester of high school trigonometry may be excused from MA 1323

\*\* Pre-Architecture, accelerated studies and some transfer students take ARC 1536 and 1546 in summer upon demonstrating completion of required courses. Applications due February 15. \*\*\* ART 1223 Drawing II is required of all students receiving a grade of "C" or less in ART 1213 Drawing I.

# **BUILDING CONSTRUCTION SCIENCE (BCS)**

#### Program Head: Theo Haupt Office 132 Howell Hall

The Building Construction Science degree program is a four year Bachelor of Science degree designed to prepare graduates for careers in construction or construction-related fields. The 124 credit hour program is an interdisciplinary curriculum that builds upon expertise existing within the School of Architecture and the Colleges of Engineering and Business and Industry to provide a knowledge base in business, engineering, and construction sciences. The curriculum's foundational areas are based on a problem-based learning (PBL) andragogy. The studiobased teaching puts a focus on the use of case studies, precedents, and integration of multiple subject areas. This integration of a broader scope of architectural, engineering, construction, and business practices is a different approach than a traditional construction technology andragogy that separates subject areas into distinct courses.

The Building Construction Science curriculum includes a general education foundation of mathematics, science, and business. Course development is built upon the strengths of the three colleges that are collaborating in the effort. The Building Construction Science degree has construction-specific courses including construction systems, building technology, structures, materials and methods of construction law. Both the engineering and the architecture curriculums at Mississippi State involve hands-on making using both materials and material constructions. The Building Construction Science curriculum is designed to continue in that vein, and to meet the criteria for American Council for Construction Education (ACCE) accreditation.

#### **General Education Requirements**

#### English Composition (6 hours)

- EN 1103 English Comp I or
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II or
- EN 1173 Accelerated Comp II
- Mathematics (6 hours)
  - MA 1313 College Algebra\*
    - MA 1613 Calculus for Business and Life Sciences I
- Science (9 hours)
  - PH 1113 General Physics I
  - PH 1123 General Physics II
  - BCS 2713 Passive Building Systems
- Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

# BCS 1013 Architecture Appreciation

- Social Sciences (6 hours)
  - EC 2113 Principles of Macroeconomics
  - EC 2123 Principles of Microeconomics
- Major Core

-			
	ST	2113	Statistics I
	CE	2213	Surveying I
	BCS	3713	Assemblages
	BCS	3723	Active Building Systems
	BCS	3904	Structures I
	BCS	3914	Structures II
	BCS	2116	Building Construction Studio 1
	BCS	2126	Building Construction Studio 2
	BCS	3116	Building Construction Studio 3
	BCS	3126	Building Construction Studio 4
	BCS	4116	Building Construction Studio 5
	BCS	4126	Building Construction Studio 6
	BCS	3213	Electrical Systems
	BCS	3323	High Performance Construction
	BCS	4223	Professional Practice
	PHI	3013	Business Ethics
	ACC	2013	Principles of Financial Accounting

ACC 2023	Principles of Management Accounting
BIS 3233	Management Information Systems
FIN 3203	Financial Statement Analysis
0.1	

#### 8 hours Electives Computer Literacy Requirement

Satisfied by successful completion of the BCS studio courses

Oral Communication Requirement

Satisfied by successful completion of the BCS studio courses Writing Requirement

Satisfied by successful completion of the BCS studio courses

Total hours needed for major: 124

# Department of ART (ART)

#### Department Head: Lydia Thompson Office: 102 Freeman

#### Mission

The Department of Art's primary undergraduate responsibilities include educating professional artists with concentrations in Fine Arts, Graphic Design, and Photography; preparing students for a career or advanced study; offering courses that fulfill University requirements; and providing an active art gallery to serve the University, the community, and region.

# **Bachelor of Fine Arts**

The Bachelor of Fine Arts (B.F.A.) degree is a professional studio degree. The B.F.A. degree is earned after successful completion of an intensive, 4 year program that provides the student with a series of indepth studio experiences leading to thesis/senior presentation balanced by studies in humanities, communication, mathematics, and sciences.

The B.F.A. degree may also serve as a preparation for graduate studies-usually the Master of Fine Arts degree in studio art or design.

#### Admission

Art-Undeclared (ARTU) - All students desiring to major in art will be admitted into Art-Undeclared in the Department of Art at Mississippi State University. Students will declare their concentration (and emphasis, where appropriate) following successful passage of the Foundation Portfolio Review in that concentration (and emphasis, where appropriate).

#### **Concentrations and Emphases**

In the Bachelor of Fine Arts degree, a student may choose a concentration from the following: Fine Arts, Graphic Design, and Photography. Students accepted into the Fine Arts concentration will choose one of the following emphasis areas: Ceramics, Drawing, Painting, Printmaking, Sculpture.

#### **Transfer Requirements**

After successful admission to the University, and before application to the Foundation Portfolio Review, transfer students must submit work to the Transfer Portfolio Review so to articulate art studio and history credits. This review requires the presentation of a comprehensive portfolio of artwork completed in studio courses, as well as course descriptions (and in some cases, syllabi) from classes completed for credit at other institutions. This review takes place before the preregistration advising period each semester. The MSU Department of Art reserves the right to deny or accept transfer courses as applicable to the B.F.A. degree based on portfolio evaluation.

#### **Foundation Portfolio Review Requirements**

All Art majors are required to participate in the Foundation Portfolio Review. The review is a faculty evaluation of student work from a minimum of 18 credit hours completed in the following courses: Drawing I, Drawing II, Design I, Design II, 3-D Design, and Introduction to Computing for Art and possibly additional art courses.

For students interested in the Fine Art emphasis areas (Ceramics, Drawing, Painting, Printmaking, or Sculpture), the Foundation Portfolio Review for each emphasis will take place at the beginning of each semester. The Foundation Portfolio Review will result in an "accept" or "deny" into the selected emphasis.

For students interested in the Photography concentration, the Foundation Portfolio Review will take place at the beginning of each semester. The Foundation Portfolio Review will result in an "accept" or "deny" into the Photography concentration. For students interested in Graphic Design, the Foundation Portfolio Review for entrance into that concentration will take place in the fall semester of each year. The Foundation Portfolio Review will result in an "accept" or "deny" in the Graphic Design concentration.

The student who is accepted (by faculty evaluation) into the Photography concentration or a Fine Arts emphasis area may begin the concentration or emphasis sequence of courses. A student who is denied may remain in the art program and resubmit a portfolio in the next Review. Students cannot pursue a Photography concentration or a Fine Arts emphasis area in which they have been denied twice. They will have to choose another concentration or emphasis to pursue a B.F.A. in Art at Mississippi State.

The student who is accepted (by faculty evaluation) into the Graphic Design concentration may begin the concentration sequence of courses. A student who is denied may remain in the art program and may resubmit a portfolio in the Review offered the following year. Students who are denied cannot take concentration courses in Graphic Design until they resubmit a portfolio and are accepted into the program. A student who is denied twice cannot pursue a Graphic Design concentration. He or she will have to choose another concentration to pursue a B.F.A. in Art at Mississippi State.

Only the top students in the Review will be accepted into the Graphic Design concentration. Contact the Advising Coordinator for more information.

#### **Senior Presentation Requirements**

Senior Graphic Design students are required to present a portfolio and senior students in the other concentration areas are required to present an exhibition as degree requirements. These final presentation requirements are fulfilled in capstone courses; ART 4640 Advanced Graphics for students in the Graphic Design concentration; ART 4083 Senior Research/ ART 4093 Senior Thesis for students in the Fine Arts concentration area; and ART 4583 Photographic Portfolio/ART 4593 Photographic Portfolio II for students in the Photography concentration.

Computer and Equipment Requirements in the Graphic Design and Photography Concentrations

The Department of Art requires incoming (post review) B.F.A. Art majors with a concentration in Graphic Design or Photography to purchase certain tools and equipment.

The Graphic Design concentration student is required to purchase a computer after successfully passing the Foundation Portfolio Review, usually in the sophomore year, and before enrolling in ART 3313 Graphic Design I. Art faculty prepare an approved list of current software and minimum computer specifications each year.

The Photography concentration student is required to purchase a camera and, in the digital photography option, a computer, usually in the sophomore year, and before enrolling in ART 3203 Photography II. Art faculty prepare an approved list of specific cameras and minimum computer specifications each year.

Financial aid that includes this requirement may be available by contacting the MSU Student Financial Aid and Scholarship office.

#### **Student Materials Fee**

Additional fees associated with class materials, technology and laboratory materials are required of students and are automatically assessed to the students.

#### Art Minor

The Department of Art offers a minor in Art. The minor consists of 18 credit hours of courses with an ART prefix. One or more 1000-level courses and one 2000-level course must be completed in addition to at least three 3000- or 4000-level courses. For an Art minor, a student may take all Art studio courses or a combination of Studio and Art History.

#### **Art History Minor**

A minor in Art History consists of 18 credit hours. A student must take ART 1013 Art History I and ART 1023 Art History II as well as four other courses selected from the following list: ART 3143, ART 3603, ART 3613, ART 3623, ART 3653, ART 3663, ART 3673, ART 3683, ART 4573, ART 4673 or other approved Art History courses.

#### Accreditation

Mississippi State University is an accredited institutional member of the National Association of Schools of Art and Design.

#### **Bachelor of Fine Arts**

#### **General Education and College Requirements**

English Composition (6 hours)

EN	1103	English Comp I or
EN	1163	Accelerated Comp I

- EN 1113 English Comp II or
- EN 1173 Accelerated Comp II
- Humanities (6 hours)

3 hours See General Education courses

3 hours See General Education courses

Math (6-9 hours)

MA 1313 College Algebra

3 hours See General Education courses

Fine Arts (3 hours)

See Art History and Theory Program

Social Sciences (6 hours)

See General Education courses

Natural Sciences (6-9 hours)

See General Education courses

Writing Requirement

- 3 hours Art History elective
- Oral Communication Requirement

Satisfied by successful completion of ART 4640, 4083 or 4093

#### **Fine Arts Concentration**

(Emphasis areas: Ceramics, Drawing, Painting, Printmaking, and Sculpture)

#### **Foundation Program (18 hours)**

ART 1123	Design I
ART 1133	Design II
ART 1153	3-D Design
ART 1213	Drawing I
ART 1223	Drawing II

Computer Literacy Requirement ART 2803 Intro to Computing for Art

#### Survey Program (18 hours)

ART 2503	Ceramic Art Survey
ART 2013	Painting Survey
ART 2213	Life Drawing I
ART 2303	Printmaking Survey
ART 2403	Sculpture Survey
ART 2103	Photography Survey

#### Art History and Theory Program (15 hours)

ART 1013	Art History I - may be used for Fine Arts Req
ART 1023	Art History II - may be used for Fine Arts Req
9 hours	Art History Electives

#### Fine Arts Concentration Program (30 hours)

Upon successful completion of the Foundation Portfolio Review for the Fine Arts concentration in the chosen emphasis area (Ceramics, Drawing, Painting, Printmaking, or Sculpture), students will complete 6 hours of Fine Arts concentration core, 9 hours of elective credit, and the required 24 hours in one emphasis area, as designated.

Fine Arts Concentration Core

ART 4083 Senior Research\*

ART 4093 Senior Thesis\*

\* Senior Capstone experience, co-requisite with 6 hours of Advanced Studio in the chosen emphasis area.

#### Electives

6 hours	Art Studio Electives
3 hours	General Elective

#### Total hours needed for major: 123

# **Graphic Design Concentration**

#### Foundation Program (18 hours)

ART 1123	B Design I
ART 1133	B Design II
ART 1153	3 3-D Design
ART 1213	3 Drawing I
ART 1223	3 Drawing II

Computer Literacy Requirement

ART 2803 Intro to Computing for Art

The Foundation Portfolio Review is required after successful completion of the Foundation Program.

# Survey Program (12 hours)

Choose four of the following courses:

- ART 2013 Painting Survey
- ART 2213 Life Drawing I
- ART 2303 Printmaking Survey ART 2403 Sculpture Survey
- ART 2103 Photography Survey
- ART 2503 Ceramics Survey

# Art History and Theory Program (15 hours)

- ART 1013 Art History I fulfills Fine Arts Req.
- ART 1023 Art History II - fulfills Fine Arts Req.
- ART 3163 History of Graphic Design
- 6 hours Art History Electives

# **Concentration Core (24 hours)**

- ART 2813 Intermediate Computing for Designers
- ART 3313 ART 3323 Graphic Design I
- Graphic Design II
- ART 4103 Typography I
- ART 4403 Advertising Design I ART 4640 Advanced Studio Graphic Design
- ART 4883 Graphic Design for the Internet
- CO 1003 Fundamentals of Public Speaking

#### **Concentration Studio Electives (12 hours)**

Must be selected from list or with consent of Concentration Direc-

tor

- ART 3443 Illustration
- ART 3873 Digital Photography
- ART 3913 Intro to Print Production
- ART 4113 Typography II
- Advertising Design II ART 4413
- ART 4523 Internship in Graphic Design
- Advanced Print Production ART 4713
- ART 4813 Multimedia I
- Multimedia II ART 4823
- ART 4863 Advanced Studio- Computer Art

## Electives

6 hours Art Studio Electives General Elective 3 hours

Total hours needed for major: 123

### **Photography Concentration**

# Foundation Program (18 hours)

- ART 1123 Design I
- ART 1133 Design II
- ART 1153 3-D Design
- ART 1213 Drawing I
- ART 1223 Drawing II
- CO 1003 Fundamentals of Public Speaking

# Survey Program (12 hours)

- ART 2103 Photography Survey
- ART 2303 Printmaking Survey
- Choose 6 hours from the following:
  - ART 2013 Painting Survey
  - Life Drawing I ART 2213
  - ART 2403 Sculpture Survey
  - ART 2503 Ceramic Art Survey

# Art History and Theory Program (15 hours)

ART 1013 Art History I

ART 1023 Art History II ART 3633 History of Photography (or approved photo/film based art history course) 6 hours Art History Electives

# Concentration Core (18 hours)

centi ation Coi	c (10 110015)
ART 3223	Darkroom Basics
ART 3233	Studio Lighting
ART 3873	Digital Photography
ART 4223	Alternative Photography OR
ART 4443	Alternative Color Processes
ART 4583	The Photographic Portfolio I
ART 4593	The Photographic Portfolio II

# **Concentration Electives (12 hours)**

- Must be selected from list or with consent of Concentration Director. ART 3243 ART 3303 Intermediate Darkroom Printmaking II ART 3803 Gallery Management
  - ART 4223 Alternative Processes
  - ART 4443 Alternative Color Processes
  - ART 4660 Advanced Photography
  - ART 4693 Internship - Fine Art
  - ART 4873 Digital Imaging I
  - CO 3713 Digital Communication

Art Electives (15 hours)

#### Total hours needed for major: 123

# Interior Design (ID)

Director: Beth R. Miller Office: 125 Etheredge Hall

The Interior Design Program offers students the opportunity to develop an ability to identify, analyze, and create solutions using critical thinking and spatial comprehension in solving design problems in the built environment. The program prepares future professional designers to enhance the function and quality of interior spaces for the purpose of improving the quality of life, increasing productivity, and protecting the health, safety, and welfare of the public as well as protecting the environment. Practical studio experience builds competency in design theory; the specification of interior materials and finishes; lighting, barrier-free, and computer-aided design; building and life safety codes; historical interiors; professional practices; interior construction and furniture design; space planning and programming; and graphic and verbal communication skills.

#### Accreditation

The Bachelor of Science in Interior Design degree program is fully accredited by the Council for Interior Design Accreditation.

#### **Portfolio Review**

Each student is required to participate in two portfolio reviews. The first will occur between the second and third year to determine a student's admission to upper level courses. The Sophomore portfolio review will consist of original work (a minimum of two projects per class) from the first two years of ID foundation courses.

A grade of C or higher must be made in these courses to request a review. Students must have a cumulative GPA of 2.5 or higher and a 2.5 in the Interior Design major core. Students failing to pass the review will not be allowed to enter ID 3614 Interior Design Studio III.

The second required review occurs during the spring semester of the senior year. Prior to graduation, all seniors must have their most current portfolios reviewed and approved by the faculty.

#### Internships

All Interior Design majors are required to complete an internship the summer following either their Junior or Senior year. The internship offers employment experiences through a wide range of projects in the design field. Many ID students are placed in interior design and architecture firms across the United States.

#### **Financial Requirements**

Costs for an interior design education are somewhat higher than other disciplines. In addition to standard costs of fees, tuition, room and board, books, field trips, etc., an interior design student must buy required drawing equipment and materials for drawings and models during the school year. A student should budget for at least \$300 per semester for these extra costs.

Due to the technological aspect of the profession, each student is required to purchase a computer prior to the fall of their first year in the program. Prior to entering the program, the department will e-mail each student with a recommended set of computer requirements.

Many of the software programs used in Interior Design are incompatible with the Apple Macintosh operating system and Mac versions os software are not available. Should a student choose to use a Mac they will need to ensure it has the appropriate microprocessor, will need to purchase the Windows 7 Professional operating system, and additional versions of any software they wish to operate in both Mac and Windows 7 operating systems. Due to the additional costs involved, the lack of Mac support in the college, and the potential for software incompatibilities, we DO NOT RECOMMEND the use of Macs. Students who choose to purchase a Mac should have no expectation of support and will assume full responsibility for ensuring they are compatible with Windows 7 counterparts. We are also unable to provide recommendations on the purchase of Macs.

#### **Field Trips**

Field trips are an important part of the curriculum. The observations and experiences from field trips cannot be replaced by library research or reports. Because field trips are a vital part of the design education experience, the cost is an additional charge to their student account to ensure that all students are able to take part in these essential learning opportunities.

#### **General Education Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II

Math (6 hours)

- MA 1313 College Algebra
  - MA 1323 Trigonometry OR
  - MA 1463 Finite Mathematics

Natural Sciences (9 hours, 6 hours with lab)

#### CH 1043 Survey of Chemistry

6 hours See General Education courses

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

ID 3643	History of	Interiors I
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Social Sciences (6 hours)

1100

- PSY 1013 General Psychology
- EC 2113 Principles of Macroeconomics OR
- EC 2123 Principles of Microeconomics

#### **Major Core**

	ART	1123	Design I
	ART	1133	Design II
	ART	1213	Drawing I
	ART	2103	Photography I OR
	HS	2664	Textiles for Interiors
	ID	1683	Interior Design Graphics
	ID	1694	ID Studio I
	ID	2203	Rendering
	ID	2615	ID Studio II
	ID	2633	Int Materials, Treatments & Resources
	ID	3363	3D CAD Modeling
	ID	3603	Digital Design for Interiors
	ID	3611	Portfolio Presentation
	ID	3614	ID Studio III
	ID	3624	ID Studio IV
	ID	3633	ID Detailing & Construction Documents
	ID	3653	History of Interiors II
	ID	3663	Color and Lighting for Interiors
	ID	3673	Environments for Special Needs
	ID	4644	ID Studio V
	ID	4651	Internship Placement
	ID	4654	ID Studio VI
	ID	4663	Prof Procedures & Practices for Interior Des
	ID	4693	Furniture Design
	ID	4753	Interior Design Internship
	ID	2103	CAD for Interiors
	CO	3403	Intro to Photography as Communication
	3 hou	rs	Free Elective
Co	Communication Requirement		
	CO	1003	Fundamentals of Public Speaking OR

CO 1003 Fundamentals of Public Speaking OR

CO 1013 Introduction to Communication

Writing Requirement

Oral

Satisfied by successful completion of ID 3673

Computer Literacy Requirement

Satisfied by successful completion of ID 2103 Total hours needed for major: 124

# College of Arts & Sciences

# R. GREGORY DUNAWAY, Interim Dean

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# **GENERAL INFORMATION**

The College of Arts & Sciences provides the fundamental training needed by all persons who wish to become college graduates. Students in all undergraduate schools and colleges in the University take more than half their courses during the first two years in the College of Arts & Sciences. In addition, the College provides pre-professional curricula for students who take their professional training elsewhere. Thus, pre-medical, pre-dental, pre-pharmacy, pre-law, pre-ministerial, pre-optometry, medical records administration, pre-nursing, and physical therapy training are available within the College of Arts & Sciences. Medical and dental students completing required courses are eligible for consideration of a B.S. degree from Mississippi State after one year in the professional school.

Majors are offered in the following: anthropology, biological sciences, chemistry, communication, economics, English, foreign languages, general liberal arts, general science, geoscience, history, interdisciplinary studies, international business, mathematics, medical technology, microbiology, music, physics, political science, philosophy, psychology, sociology, and social work.

Students who are undecided about a specific curriculum should select the Undeclared category. Advisors are available to assist these students in developing their educational and career goals. A student is permitted to delay a decision as to a field of concentration for one year.

Minors are available in the following: aerospace studies, African American studies, anthropology, biological sciences, chemistry, communication, English, foreign languages, geography, geology, geoscience, history, mathematics, philosophy, physics, political science, psychology, religion, sociology and statistics.

In addition to these majors and minors, courses are offered in Air Force ROTC, archaeology, Army ROTC, corrections, gerontology, and gender studies. Information concerning these offerings can be found in this section of the catalog.

#### MISSION

The educational mission of the College of Arts & Sciences is twofold: to provide students with a liberal education which will facilitate intellectual development and stimulate a life-long pursuit of knowledge, and to give students an in-depth education in at least one specialized area necessary to prepare them for a career or for advanced study.

The College offers curricula in the fine arts, the humanities, the sciences and the social sciences. These curricula are designed to introduce students to the basic methods of inquiry in diverse disciplines, to develop their analytical abilities, to improve their skills in writing and speaking, and to broaden their perspectives on humanity and culture in the natural and technological worlds. Additionally, they provide intensive prepartion in one or more academic disciplines.

A liberal education attained in this context should ensure that graduates of the College have gained an understanding and appreciation of human culture. They should have examined the social, historical, political, philosophical and economic dimensions of the human condition and mankind's perception of the world as it is expressed through the fine arts, language, and literature. They should have learned the use of quantitative and scientific methods and should have participated in the universal quest to comprehend natural phenomena and to utilize this knowledge beneficially and ethically.

#### ADVISING

The student is assigned an advisor as soon as he or she enters the College of Arts & Sciences and should maintain contact with that advisor throughout the university affiliation. The advisor will assist the student in developing a course of study and will serve as a resource person to deal with academic problems and student needs.

#### DEGREES

The College of Arts & Sciences offers three degrees: the Bachelor of Arts, the Bachelor of Social Work, and the Bachelor of Science. All B.A., B.S., and B.S.W. students take a common set of requirements consisting of 25-29 semester credit hours in basic skills, 9-10 semester credit hours in natural sciences, 6 semester credit hours each in humanities and social sciences, and 3 semester credit hours. The B.A. and B.S.W. curriculum requires 12 additional semester credit hours each in humanities and social sciences. The requirements for all three degrees as well as the curricula for specific areas of study are described below. Details for B.S.W. degree requirements are listed under Social Work.

In order to qualify for a second bachelor's degree at Mississippi State University, the candidate must meet the following requirements: (1) The student must satisfy all course requirements for the degree sought; and (2) The student must satisfy residency requirements at Mississippi State University after the first degree has been conferred (30 hours upper division work). The major department from which the second degree is sought shall determine completion of requirements.

#### COLLEGE REQUIREMENTS for ALL A&S DEGREES

The College of Arts & Sciences has identified graduation requirements which must be satisfied by all students pursuing degrees conferred by the College. Furthermore, these requirements (listed immediately below) must be satisfied from a list of courses approved by the College. These approved courses are taken from a longer list of courses satisfying general education requirements which can be found in the front pages of this Bulletin. However, majors in the College of Arts & Sciences must be aware that there are numerous courses on the General Education list which are not on the College approved list. Copies of the College courses approved list are available both from the Dean's Office and from advisors.

## BACHELOR of ARTS DEGREES and REQUIREMENTS

A Bachelor of Arts degree is offered in the following areas: anthropology, chemistry, communication, economics, English, foreign languages, general liberal arts, history, mathematics, music, philosophy, political science, psychology, and sociology. The Bachelor of Social Work is offered in Social Work and follows the same basic regulations as the B.A. degree except that courses must be taken in proper sequence and a minimum of 124 hours is required.

The liberal arts include certain basic academic disciplines that contribute to the development of intelligent, moral beings. Over the centuries various subjects have at one time or another been spoken of as "liberal arts," but the objective of liberal-arts training has remained unchanged. Whether students major in liberal arts or whether they merely take a few basic courses in that field, the liberal arts will enable them to develop those fundamental habits of good citizenship and cultural awareness which are expected of all members of our society.

The curriculum in liberal arts at Mississippi State University is intended to provide:

1. a broad educational experience in the liberal arts, regardless of professional objectives;

2. adequate preparation for admission to professional schools and graduate schools in the liberal arts disciplines;

3. specialized training of a professional or pre-professional nature, as offered by the several liberal-arts departments.

#### BACHELOR of ARTS CURRICULA

A minimum of 120-124 credit hours is required in all B.A. programs, 31 of which must be upper-division ( 3000-level or higher) Arts & Sciences credits.

In most departmental majors, the curricular requirements are sufficiently flexible to allow a student in liberal arts to select his or her departmental major at any time during the freshman or sophomore year. Whenever a student has made a decision as to a departmental major, whether it be at the beginning of the freshman year or later, he or she will be assigned to a major advisor in that department. If a student has not decided upon a major field, he or she should register as an Undecided student and take courses in the common curriculum which will prepare him or her for a subsequent shift into a departmental major.

# **BACHELOR of SCIENCE DEGREES and REQUIREMENTS**

A Bachelor of Science degree is offered in the following areas: biological sciences, chemistry, general science, geoscience, mathematics, medical technology, microbiology, physics and psychology.

The Bachelor of Science degree is awarded:

(1) on the completion of not fewer than 124 semester credit hours of study including 31 upper-division Arts & Sciences approved credits and the common curricula for Arts & Sciences (carrying 248 quality points) approved by the dean and an official advisor.

(2) on the completion of at least 98 semester credit hours (carrying two quality points for each credit hour) of approved study (not fewer than 31 semester hours of upper-division courses in residence at Mississippi State University) and on presentation through the dean or registrar of an approved school of medicine, dentistry, or medical technology of a certificate of the satisfactory completion of all courses in the first year of professional study.

(3) on the transfer of satisfactory credits from other institutions, provided the candidate, during at least one academic year in actual residence, receives 31 credits in upper-division courses in the College of Arts & Sciences.

#### **GRADUATION REQUIREMENTS in the COLLEGE**

Arts & Sciences majors are responsible both for knowing the graduation requirements associated with their degree program and for keeping track of their own progress toward graduation. Faculty advisors are available to offer students informed answers to their questions and, during registration, to review and approve their course schedules. In addition to the graduation requirements outlined above, students pursuing majors in the College of Arts & Sciences need to be aware of a number of special requirements having to do with graduation.

(1) 75-hour check sheets: College seniors who have completed 75 or more semester hours (including 'S' hours) must meet with their advisors and complete a 75-hour check sheet or they will be unable to register for courses. A completed 75-hour check sheet allows a student to determine which graduation requirements are not completed at the time the check sheet is filled out; this then allows the student to identify those remaining courses he/she still needs to pass in order to graduate. A 75-hour check sheet cannot be completed until all transfer course work and/or independent study is on record with the Office of the Registrar.

(2) Independent Study: Arts & Sciences majors are expected to take courses on the Mississippi State University campus when possible. If the desired courses are not offered, or if special circumstances exist, students may receive permission from the Dean to take courses through independent study.

(3) CLEP Credit: The College does not allow graduation requirements in English Composition, Literature, or Public Speaking to be satisfied by the awarding of CLEP credit.

(4) PE: Only two 1-hour PE courses may be used toward graduation requirements.

# **ENGLISH and FOREIGN LANGUAGES REQUIREMENTS**

The English and foreign language requirements apply to all Arts & Sciences students. Since departments have the authority to require specific foreign languages for their majors, students must become familiar with the language required by their individual major. The foreign language requirement is ordinarily satisfied:

The B.A. degree requires a 3rd semester proficiency in a foreign language. Students may fulfill the requirement through placement tests administered by the Department of Foreign Languages or by passing nine hours of a foreign language. One year of a foreign language taken at the high school level allows a student to bypass one semester of foreign language. Students are encouraged to take the foreign language placement test before enrolling in a foreign language course.

The B.S. degree requires a 2nd semester proficiency in a foreign language. Students may fulfill the requirement through placement tests administered by the Department of Foreign Languages or by passing six hours of a foreign language. Students are encouraged to take the foreign language placement test before enrolling in a foreign language course.

Students For Whom English is a Second Language. Students for whom English is a second language must fulfill the English and foreign language requirements as stated in this bulletin. Most majors allow these students to use their native languages to fulfill the foreign language requirement. But students planning to use their native languages in order to satisfy the foreign language requirement are urged to check with their major department to determine if that language is acceptable to the department. As far as the College of Arts & Sciences is concerned, students may use their native language to satisfy the foreign language requirement provided that:

(1) the language is a recognized mode of communication in conducting official business in a given country and taught in the primary and secondary schools of the country (regional languages and dialects do not qualify as official languages);

(2) the Department of Foreign Languages has the expertise to administer a test in the language, or, where such expertise is not available, the student takes the initiative to take a test in the language from those administered through the National Testing Service, or by another certifiable agency;

(3) the language meets specific departmental requirements.

In English, a maximum of 12 semester hours total of English as a Second Language (ESL) and freshman composition courses (including the required EN 1103 and EN 1113) may be counted for graduation. Proper placement of international students from ESL courses into English composition courses is important to students' academic success.

International students with a TOEFL score of 525 or higher should be placed in EN 1103. If their TOEFL score is 475-500, they should be placed in EN 1133; if their TOEFL score is 501-524, they should be placed in EN 1143. Once EN 1143 is passed, such students should be placed in EN 1103.

#### PRE-PROFESSIONAL CURRICULA

The College offers appropriate curricula for students who plan to enter schools of dentistry, law, medicine, theology, nursing, optometry, pharmacy, and physical therapy. These are described with the departmental entries in the following pages.

#### **TEACHER EDUCATION**

Please see the appropriate departmental entry or advisor for information on major programs which can incorporate courses for certification. It is especially important for students desiring certification to consult with their advisors before choosing options in required categories, like the natural sciences, or electives.

Students seeking secondary school teaching certification must complete phases II-IV of the Teacher Education program. (See "Admission Procedures in the College of Education")

The Mississippi State Department of Education provides an alternate route to certification to individuals who hold a baccalaureate or higher degree from a regionally accredited institution of higher education and have achieved a score at or above the 51st percentile, based on the 1983 norms, on each part of the core battery and the specialty area of the NTE. An individual who meets the two above requirements may, upon proper application, receive a provisional certificate for one year. The provisional certificate will allow the holder to seek a teaching job. Additional information is available from the Dean of Arts & Sciences, the Dean of Education, and the Mississippi State Department of Education.

#### **ARTS & SCIENCES CORE**

In order to satisfy College graduation requirements, students seeking B.A., B.S., or B.S.W. degrees must take the number of courses indicated in each of the areas below. By satisfying these College requirements, students will also satisfy all analogous General Education requirements.

B.A. and B.S.W. students must complete 12 hours in Humanities and 12 hours in Social Sciences in addition to the two courses in the Humanities and Social Sciences required of all majors. Hence, a student must complete a total of 18 hours in the Humanities (EN, HI, PHI, REL), AND 18 hours in the Social Sciences (AN, GR, PS, PSY, SO).

These additional 24 hours are not limited to the courses listed below; they may be satisfied by others in EN, HI, PHI, and REL or in AN, EC, GR, PS, PSY, SO as long as they satisfy the distribution requirements for the major.

While all of the courses below satisfy college-wide requirements, individual departments may require that particular courses in each area be taken to satisfy requirements for their majors.

NOTE: Courses separated by "OR" cannot be taken in combination. Students will not receive credit in Arts & Sciences for two courses which are separated by "OR."

Also, Honors classes satisfy requirements and students who qualify are encouraged to take the Honors sections.

#### **Basic Skills**

English Composition (6 hours)

- EN 1103 English Comp I OR
- Accelerated Comp I EN 1163
- English Comp II OR EN 1113
- EN 1173 Accelerated Comp II
- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking
  - CO 1013 Introduction to Communication
  - (Air Force ROTC students may substitute AS 3013 and AS 3023.)
- Foreign Language
  - 3 sem. for B.A. One Foreign Language (1113, 1123, 2133)
  - 2 sem. for B.S. One Foreign Language (1113, 1123)

- Fine Arts (one course required) ARC 1013 ARC 2313 Architectural Appreciation History of Architecture I ARC 3313 ARC 3323 History of Architecture II History of Architecture III ART 1013 Art History I ART 1023 ART 1113 Art History II Art Appreciation OR ART 3143 Italian Renaissance in Art History CO 1503 Intro to Theatre History and Literature of Music I MU 2213 MU 2323 History and Literature of Music II MU 1113 Music Appreciation PE 1323 History and Appreciation of Dance Humanities (EN, FL, HI, REL, PHI) B.S. degree requires one EN and one HI from the core listing. B.A. and B.S.W. require one EN, one HI, and one PHI course plus 3 other humanities (not necessarily on the following list). These three courses should cover at least two areas.) EN 2203 Intro to Literature (Not applicable if Honors sections are taken) EN 2213 English Literature I EN 2223 English Literature II American Literature I EN 2243 2253 American Literature II EN EN 2273 World Literature I 2283 World Literature II EN 19th Century Studies: Baudelaire Seminar 19th Cent. St: Decadents, Dandies & Bohemians FLF 4053 FLF 4123 FLF 4143 17th Century French Literature FLF 4173 Introduction to Francophone Cinema FLF 4193 18th Century French Literature French Novel Before 1945 FLF 4223 FLF 4233 Modern French Poetry FLF 4273 The Human Condition Studies in the 20th Century: Le Clezio Seminar FLF 4323 FLG 4143 Verwandlungen
  - FLG 4303 German Film
  - FLG 4353 German Novella
  - FLG 4493 Mysteries in Lit & Film
  - FLG 4503 German Lit to 1750
  - FLG 4523 Germ Lit 1750 to Present
  - FLS 4213 Modern Spanish Women Writers
  - FLS 4243 Modern Spanish Essay
  - FLS 4273 Modern Spanish Drama
  - FLS 4293
  - Cinema in the Context of Spanish Culture Survey of Modern Spanish-American Literature FLS 4543
  - FLS 4573 Contemporary Spanish-American Drama
  - FLS 4613 Spanish-American Cinema
  - Survey of Spanish-American Poetry Early U.S. History FLS 4853
  - HI 1063
  - 1073 Modern U.S. History HI
  - World History Before 1500 1163 HI
  - HI 1173 World History Since 1500
  - Problems in Modern World Civilization HI 1183
  - Early Western World HI 1213

HI 1223 Modern Western World 1313 East Asian Civilization to 1300 HI East Asian Civilization Since 1300 HI 1323

B.A. and B.S.W. majors must take at least 1 PHI course.

- Intro to Philosophy PHI 1103
- PHI 1113 Intro to Logic
- PHI 1123 Intro to Ethics
- History of Western Philosophy: Part I History of Western Philosophy: Part II PHI 3023
- PHI 3033
- PHI 3013 **Business Ethics**
- PHI 3153 Aesthetics
- Intro to Religion REL 1103
- World Religion I REL 3213 REL 3223 World Religion II
- Social and Behavioral Sciences

B.S. - two courses in different disciplines.

B.A. and B.S.W. - courses spread over at least four disciplines, max of two in each discipline. Of the six, only two are required to be from this list. Only one of the CO and one of the EC courses listed may count.

- Intro to Anthropology Intro Cultural Anthropology 1103 AN AN 1143
- AN 1543 Intro Archaeology
- 1223 Intro to Communication Theory OR CO
- 1403 Intro to Mass Media CO
- EC 2113 Principles of Macroeconomics OR
- Principles of Microeconomics EC 2123
- Intro to World Geography 1123 GR
- Cultural Geography GR 2013
- Conservation of Natural Resources GR 3113
- Urban Geography 4123 GR
- Geography of North America GR 4203
- American Government PS 1113
- PS 1313 Intro to International Relations
- PS 1513 Comparative Government
- PS 2713 Politics of the American Bureaucracy
- General Psychology PSY 1013
- Psychology of Adjustment PSY 2513
- PSY 3073 Psychology of Interpersonal Relations
- Intro to Sociology SO 1003
- Contemporary Social Problems 1103 SO
- SO 1203 Marriage and Family
- **Computer Literacy**

### One 3 hour course required. Consult advisor.

# Mathematics & Statistics

Either two courses required or one MA course at the level of MA 1463 or higher (with the exception of MA/ST 2113).

- MA 1313 College Algebra OR
- MA 1303 Quantitative Reasoning
- MA 1323 Trigonometry
- MA 1613 Calculus for Business and Life Sciences I
- MA 1713 Calculus I
- Calculus for Business and Life Science II MA 1623
- MA 1723 Calculus II
- Calculus III MA 2733
- MA 2743 Calculus IV
- Introduction to Linear Algebra
- MA 3113 MA/ST 2113 Introduction to Statistics
- MA/ST 3123 Introduction to Statistical Inference

#### **Natural Sciences**

3 courses required, 2 with labs. B.A. and B.S.W. Majors must take one lab course in the Life Sciences BIO or EPP and one in the Physical Sciences CH, GG, GR, PH.

AN 1344 Intro To Biological Anthropology BIO 1004 Anatomy and Physiology **Biological Sciences** BIO 1033 BIO 1023 Plants and Humans BIO 1123 Animal Biology BIO 1134 Biology I BIO 1144 Biology II Plant Biology BIO 2113 BIO 3103 Genetics I BIO 3304 General Microbiology Survey of Chemistry I OR CH 1043 Chemistry I CH 1213 1053 Survey of Chemistry II OR CH

CH	1223	Chemistry II
CH	1051	Experimental Chemistry
CH	1211	Investigations in Chemistry I
CH	1221	Investigations in Chemistry II
EPP	2213	
GG	1111	Earth Science I Lab
GG	1113	Survey of Earth Science I
	1121	Earth Science II Lab
GG	1123	Survey of Earth Science II
GR	1114	Elements of Physical Geography
PH	1011	Physical Laboratory I
PH	1063	
PH	1021	Physical Science Lab 2
PH	1013	Physical Science Survey I
PH	1023	Physical Science Survey II
PH	1113	General Physics I
PH	2213	Physics I
PH	1123	
PH	2223	
PH	1133	
PH	2233	
	3301	J
	3303	

#### Junior/Senior Writing

Required Course

3 hours Consult advisor for selections.

# **AFRICAN AMERICAN STUDIES MINOR (AAS)**

African American Studies (AAS) brings together an interdisciplinary community of scholars to offer courses leading to a minor. Our faculty is committed to exploring creative approaches to research and teaching by making the study of African Americans a central element in their scholarship and courses. Our faculty also promotes research across departmental boundaries, thereby producing scholarship touching upon politics, identify, religion, and other variables. The interdisciplinary methodology of AAS informs students who work in a variety of disciplines, including history, political science, sociology, anthropology, music, economics, literature, education, and psychology. While the majority of our courses examine the history and culture of African Americans, the minor concentration also enables students to study Africans in the homeland and the Diaspora.

The interdisciplinary minor consists of 18 credit hours offered in African American Studies, and with the cooperation of several departments within the College of Arts & Sciences. To earn the minor students are required to take AAS 1063. They must also take at least 3 credit hours in the categories of Literature and Fine Arts, 3 in the Social Sciences, at least 6 hours in the Humanities, and one 3-hour elective at the 3000 or 4000 level.

3 hours

Required Course	e 3 nours	
AAS 1063	Introduction to African American Studies	
Literature and F	ine Arts 3 hours	
AAS 1103	African American Music	
AAS 4343	African American Literature	
Humanities	6 hours	
AAS 3013	African American History to 1865	
AAS 3023	African American History since 1865	
AAS 4093	The African Diaspora	
AAS 4363	African American History and Culture	
AAS 4373	History of Modern Civil Rights Movement	
AAS 4383	African American Leadership in the 20th Cent	
AAS 4783	African Civilization to 1880	
AAS 4793	Modern Africa	
Social Sciences	3 hours	
AAS 2203	Cultural and Racial Minorities	
AAS 4273	African American Politics	
AAS 4543	African Politics	
AAS 4983	African Americans and the Law	
Elective	3 hours	
Total hours needed for minor: 18		

# Department of ANTHROPOLOGY and MIDDLE EASTERN CULTURES (AN) (MEC)

Undergraduate Coordinator: Dr. Janet Rafferty Office: 108 Cobb Institute of Archaeology

Anthropology is the study of humans as biological and cultural beings. Its subfields include archaeology, biological anthropology, cultural anthropology, and linguistics. Students majoring in anthropology may undertake course work in all four subfields, with concentrations offered in archaeology and cultural and biological anthropology.

Anthropology is a particularly broad major, designed for students who are preparing for employment with research organizations or museums, for administrative and research positions with state or federal governments (such as state highway departments and the National Park Service), and with human service agencies or organizations that involve work in foreign countries. The undergraduate major in anthropology also prepares students for graduate training in professional fields such as planning, law, and public administration, as well as for graduate training in anthropology leading to college and university teaching and research positions.

A student wishing to pursue a program leading to a Bachelor of Arts with a major in anthropology is required to complete the program of study outlined on this page. Students are encouraged to take elective courses in related fields which will strengthen their academic training and job skills. These may include courses in human anatomy, soils, geology, and geographic information systems (GIS).

Students are eligible for membership in the Alpha chapter of Lambda Alpha, the national anthropology honorary. In order to be considered, a student must have at least a 2.50 overall GPA, with a 3.00 GPA in anthropology courses, and have earned a minimum of 12 semester hours credit in anthropology. Part-time jobs are available for anthropology majors through the Department of Anthropology and Middle Eastern Cultures and through the Cobb Institute of Archaeology.

The Anthropology faculty and staff are housed in the Cobb Institute of Archaeology. Facilities include archaeology laboratories and museum. The museum houses artifacts from Mississippi and the Middle East, including replicas of large-scale relief sculptures and statues from Assyria and Egypt.

Anthropology may be used as a minor field of study at both the undergraduate and graduate levels. Fifteen hours (nine hours must be 3000 level or above), including AN 1103, constitute an undergraduate minor. Requirements for an anthropology minor at the graduate level will be established in consultation with the anthropology graduate advisor. Courses taken for an undergraduate or graduate minor must be taught by anthropology faculty.

#### **General Education and College Requirements**

English Composition (6 hours)

	EN	1103	English Comp I OR		
	EN	1163	Accelerated Comp I		
	EN	1113	English Comp II OR		
	EN	1173			
Foreig	n Lan	guage (	9 hours)		
	3 ser	nesters	one Foreign Language - see advisor		
Humai	nities	(18 hou	rs)		
	3 hou	urs	Literature - see General Education courses		
	3 hou	urs	History - see General Education courses		
	3 hou	urs	Philosophy - See A&S requirements		
	9 hoi	urs	Humanities Elective - Consult Advisor		
			Must be from 2 different areas - see A&S Core		
Mathe	matics	s (6 hou	rs)		
	MA	1313	College Algebra		
MA/ST 2113 Introduction to Statistics					
Fine Arts (3 hours)					
See A&S Co		A&S Co	ore List		
Natural Sciences (9-12 hours)					
	3-4 ł	nours	Physical Sciences w/lab (CH, GG, PH)*		
	3-4 ł	nours	Life Science w/ lab (BIO)		
	3-4 ł	nours	Natural Science Elective**		
Social Sciences (18 hours)					

6 hours	See	: (	Ge	ene	eral	Education	n co	ourses
4.0.1	a			~				

12 hours Social Sciences Electives \*+

# Major Core (36 hours)

- AN 1143 Intro to Cultural Anthropology
- Intro to Biological Anthropology AN 1344
- AN 1543 Intro to Archaeology
- 18 hours Anthropology Upper Div Electives - see advisor Anthropology Lower or Upper Division Elective 2 hours
- Oral Communication Requirement
  - AN 4123 Anthropological Theory

Writing Requirement

# AN 4123 Anthropological Theory

Computer Literacy

- AN 4143 Ethnographic Methods OR
  - AN 3513 Artifact Analysis

General Electives (15-24 hours) Consult advisor

#### Total hours needed for major: 123

- 31 hours must be 3000/4000 A&S work
- See General Education courses.

\*\* Consult advisor.

\*+ Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. Two Anthropology courses may be included. Consult advisor.

# Department of BIOLOGICAL SCIENCES (BIO) (MDT) (MIC)

The biological sciences encompass the three basic sub-disciplines of biology: botany, microbiology and zoology. The curricula of the major areas of concentration are designed to provide the student with a broad academic base while offering valuable practical experiences in laboratory and field situations.

The biology curriculum contains a nucleus of basic courses that present unifying principles, and advanced courses in either botany or zoology. Botany may be defined as a scientific study of plants. It is the basic science of all applied fields of work having to do with plants, such as agronomy, forestry, horticulture, plant breeding and plant pathology. Zoology is a basic science of all work having to do with animals such as taxonomy, ecology, physiology.

Microbiology is the study of living microscopic and submicroscopic organisms which are of importance to mankind. Majors in microbiology are prepared to work in food processing plants, plant or animal disease control agencies, pharmaceutical companies, quality control positions, the industrial fermentation industry, and basic research in cell and molecular biology.

Majors offered in the department are the B.S. in Biological Sciences, B.S. in Medical Technology, B.S. in Microbiology, M.S. in Biological Sciences, and the Ph.D. in Biological Sciences.

A senior research thesis in the Biology is available to outstanding students. A description of the program and application materials may be obtained from the department office. A combined B.S./M.S. degree is available to outstanding students. Application to this program may be made as early as the end of the sophomore year (after completion of 60 or more hours of undergraduate courses). Students should consult with a graduate advisor if interested.

# **BIOLOGICAL SCIENCES Major (BIO)**

Major Advisor: Mary Celeste Reese, Dir. of Undergraduate Advising Office: 117 Harned Hall

#### **General Education and College Requirements**

English Composition (6 hours)

- 1103 English Comp I OR EN
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II

Foreign Language (6 hours)

2 semesters one Foreign Language (see advisor)

Humanities (6 hours)

- 3 hours Literature
- 3 hours History
- Mathematics (6 hours)
  - MA 1313 College Algebra
  - MA 1323 Trigonometry

- Fine Arts (3 hours)
- See A&S requirements
- Natural Sciences (9-12 hours)

See Major Core - Consult advisor for specifics

Social Sciences (6 hours)

Must be from 2 different areas - see A&S requirements

#### Major Core - Biological Sciences (24 hours)

- BIO 1134 Biology I
- Biology II BIO 1144
- BIO 3304 General Microbiology
- BIO 4133 Human Genetics
- BIO 2103 Cell Biology
- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication
- Writing Requirement
  - BIO 3013 Writing for Biologists
- Computer Literacy Requirement BIO 3013 Writing for Biologists BIO 4133 Human Genetics
- **Biological Sciences Area Courses minimum 6 hours in each area**

(Three Biological Sciences area courses must include a laboratory. A minimum of one animal course and one plant course is required from Areas 2, 3 or 4.)

Area 1: Molecules and Cells\*

1: Molecules and Cells*						
BIO	4114	Cellular Physiology				
BIO	4413	Immunology				
BIO	4433	Prin Virology				
BIO	4504	Comparative Vertebrate Embryology				
BIO	4503	Vertebrate Histology				
BCH	4603	General Biochemistry				
BCH	4613	General Biochemistry				
2. Anatomy and Physiology*						

Area 2: Anatomy and Physiology

BIO	4204	Plant Anatomy	
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- BIO 4214 General Plant Physiology
- BIO 3504 Comparative Anatomy
- BIO 4514 Animal Physiology
- Area 3: Organisms\*
  - BIO 2113 Plant Biology
  - BIO 2213 Survey of Plants & Fungi
  - Parasitology BIO 3303
  - BIO 4203 Taxonomy of Spermatophytes
  - BIO 3524 Biology of Vertebrates
  - WFA 4513 Ichthyology
  - WFA 4523 Mammalogy

WFA 4543 Ornithology

Area 4: Ecology and Evolution\*

- BIO 3104 Ecology
- BIO 4113 Evolution
- BIO 4213 Plant Ecology

Life Science Elective (10 hours)\* consult advisor

Physical Science Core (20 hours)

CH	1213	Chemistry I
CH	1223	Chemistry II
CH	1211	Investigations in Chemistry I
CH	1221	Investigations in Chemistry II
CH	4513	Organic Chemistry I
CH	4523	Organic Chemistry II
PH	1113	General Physics I

- PH 1123 General Physics II OR
- PH 1133 General Physics III

General Electives (13 hours)

### Total hours need for major: 124

\* Hours in excess of 24 hours from area courses may be deducted from elective hours. Life Sci-ence electives may be taken in other Departments but must be courses for respective "majors". See advisor

NOTE: University, College and Department restrictions - the following courses may not be used to meet the above science requirements: BIO 1004, BIO 1023, BIO 1033/1001, BIO 1043, BIO 1123, BIO 3004, BIO 3014, BIO 4713/6713

#### Minor in Biological Sciences (21 hours)

BIO 1134	Biology I
BIO 1144	Biology II
BIO 2103	Cell Biology
BIO 3304	Microbiology
BIO 4133	Human Genetics
3-4 hours	Areas 3 or 4 listed above

Major Advisor: Associate Professor Karen Coats Office: 317 Harned Hall

**MICROBIOLOGY Major (MIC) General Education and College Requirements** English Composition (6 hours) EN 1103 English Comp I OR 1163 Accelerated Comp I EN 1113 English Comp II OR EN EN 1173 Accelerated Comp II Foreign Language (6 hours) 2 semesters one Foreign Language (see advisor) Humanities (6 hours) 3 hours Literature - see A&S requirements 3 hours History - see A&S requirements Mathematics (6 hours) MA 1713 Calculus I ST 3123 Intro to Statistical Inference Fine Arts (3 hours) See A&S requirements Natural Sciences See Major Core - Consult advisor for specifics Social Sciences (6 hours) Must be from 2 different areas and from A&S Core. Consult advisor for acceptable areas. **Major Core** BIO 3304 General Microbiology BIO 4405 Pathogenic Microbiology Immunology BIO 4413 BIO 4433 Virology Bacterial Genetics BIO 4443 Bacterial Genetics Lab BIO 4442 BIO 4463 **Bacterial Physiology** Microbiology Electives 8 hours Oral Communication Requirement CO 1013 Introduction to Communication Writing Requirement BIO 3013 Writing for Biologists Computer Literacy Requirement Satisfied by Successful completion of BIO 3013. **Departmental Core** BIO 1134 Biology I BIO 1144 Biology II BIO 2103 Cell Biology Additional department requirements Chemistry I CH 1213 CH 1223 Chemistry II CH 1211 Investigations in Chemistry I 1221 Investigations in Chemistry II CH CH 4513 Organic Chemistry I Organic Chemistry II CH 4523 4511 Organic Chemistry Laboratory I CH Organic Chemistry Laboratory II CH 4521 General Physics I PH 1113 PH 1123 General Physics II OR PH 1133 General Physics III BCH 4013 Principles of Biochemistry OR BCH 4603 General Biochemistry AND BCH 4613 General Biochemistry General Electives 15 to 18 hours

Total hours needed for major: 124

Applied microbiology courses are strongly recommended, regardless of the department in which they are offered (for example, Food Micro, Environmental Micro, or Soil Micro). Upper division courses in Medical Technology or Biochemistry are also acceptable. Students should see their advisor for assistance in selecting courses for microbiology elective credit. Hours in excess of 8 will reduce the general electives requirement by an equal number.

Students planning to attend professional schools should check with the faculty advisor for that program to identify additional courses that may be needed. Such courses can be taken for general elective credit.

For the pre-professional/graduate track, BCH 4603/4613 and 15 hours of general electives are required. For career track, BCH 4013 may be substituted for BCH 4603/4613, and 18 hours of general electives are required.

#### Minor in Microbiology (21 hours)

BIO 1134 Biology I BIO 1144 **Biology II** BIO 3304 Microbiology BIO 4405 Pathogenic Microbiology Choose one: BIO 3504, BIO 4214, BIO 4324, BIO 4404, BIO 4414, or BIO 4514

# MEDICAL TECHNOLOGY Major (MEDT)\*\*

Major Advisor: Mary Celeste Reese, Dir. of Undergraduate Advising Office: 117 Harned Hall

Medical technologists are prepared for positions in hospital laboratories, clinics, research laboratories, the Public Health Service industry, and in various local, state and federal health organizations.

The medical technology curriculum leading to the Bachelor of Science degree from Mississippi State University includes three years of study at Mississippi State University and one year of study in a hospital School of Medical Technology accredited by the National Accrediting Agency for Clinical Laboratory Sciences. Admission to the hospital school is competitive. A student who has satisfactorily completed the three years on the campus and has gained admission to a hospital school will register for the hospital phase and will be considered to be enrolled at Mississippi State during the final year of study. Graduates are prepared for certification by several national agencies.

# **General Education and College Requirements**

English Composition (6 hours)

Lingino		positio	(o nours)	
	EN 1103		English Comp I OR	
	EN 1163		Accelerated Comp I	
	EN	1113	English Comp II OR	
	EN	1173	Accelerated Comp II	
Foreig	n Lang	guage (6	5 hours)	
	2 sen	nesters	one Foreign Language (see advisor)	
Humai	nities (	6 hours		
	3 hou	ırs	Literature - see A&S requirements	
	3 hou	ırs	History - see A&S requirements	
Mathematics (6 hours)			rs)	
	MA	1313	College Algebra	
	MA	1323	Trigonometry OR	
	ST	3123	Intro to Statistical Inference	
Fine Arts (3 hours)				
See A&S requirements				
Natural Sciences (9-12 hours)				
See Major Core - Consult Advisor for specifics				

Social Sciences (6 hours)

Must be from 2 different areas - See University/A&S Core

**Major Core** 

- BIO 1134 Biology I
- BIO 3004
- Human Anatomy (online courses not accepted) Human Physiology (online courses not accepted) BIO 3014
- BIO 3304 General Microbiology
- BIO 3303
- Parasitology Pathogenic Microbiology BIO 4405
- BIO 4303 Bioinstrumentation
- BIO 4413 Immunology

- CO 1003 Fundamentals of Public Speaking OR

- BIO 4636 Clinical Chemistry\*\*
- BIO 4614 Serology/Immunology\*\*
- BIO 4626 Hematology\* Urinalysis\*\*
- BIO 4602
- BIO 4612 Special Topics\*\* BIO 4624
- Immunohematology\*\* BIO 4606 Clinical Microbiology\*\*
- BCH 4013 Principles of Biochemistry
- Chemistry I
- CH 1213 CH 1211 Chemistry Lab
- CH 1223 Chemistry II
- CH 1221
- Chemistry Lab Organic Chemistry I CH 4513
- CH 4523 Organic Chemistry II
- 8 hours General and Science Electives
- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking OR
  - CO 1013 Introduction to Communication
- Computer Literacy Requirement
  - BIO 3013 Writing for Biologists
- Writing Requirement
  - BIO 3013 Writing for Biologists

#### Total hours need for major: 124

(In affiliated hospital schools of Medical Technology, admission is on a competitive basis.)

#### **Program Consultants in Cooperating Hospitals**

Mississippi State University maintains close contact with the teaching personnel in medical technology at the following hospitals in the area:

- Jennifer Knight, MHS, MLS(ASCP), Program Director, Mississippi Baptist Medical Center, Jackson, Miss.
- Lee Montgomery, MT (ASCP), Program Director, North Mississippi Medical Center, Tupelo, Miss.
- Katherine Hopper, MT (ASCP), Program Director, Vanderbilt University Medical Center, Nashville, Tenn.
- Jennie Kyle, MPH, MT(ASCP), Program Director, Baptist Hospital, Little Rock, Ark.

# Department of CHEMISTRY (CH)

Undergraduate Coordinator: Deb Mlsna Advisors: Professors Bill Henry and Steven Gwaltney 1115 Hand Chemical Laboratory

Chemistry is concerned with the properties and compositions of substances and the transformations which they undergo. Because chemistry is a basic science to many careers, two undergraduate degree programs are offered to provide the needed flexibility for majors. These degrees are the B.S. and the B.A. degrees. A minimum of 124 hours is required for the B.S. degree and the B.A. degree. The department also offers the M.S. and the Ph.D. graduate degrees. Students in other majors may earn a minor in Chemistry by achieving at least a 2.00 average in a total of 22 hours of chemistry with 14 of the hours in upper-division courses and a minimum of 11 of the total hours completed at MSU.

The American Chemical Society (ACS) has continually approved the department and its curriculum since 1941, and awards a certificate to students who complete the ACS program with their BS degree. The ACS program is primarily intended as preparatory for graduate study in chemistry leading to a career in basic research. Graduates could also go directly into research and development positions in industry. Students seeking information on the ACS certification should contact a major advisor

The B.A. degree program has a stronger liberal arts emphasis and could serve as a preparation for a secondary teaching career, chemical sales, or further study in a professional school.

#### B.S. in Chemistry

**General Education and College Requirements** English Composition (6 hours) 1103 English Comp I OR ΕN EN 1163 Accelerated Comp I EN 1113 English Comp II OR EN 1173 Accelerated Comp II Foreign Language (6 hours) 2 semesters one Foreign Language (see advisor) Humanities (6 hours) 3 hours Literature - see A&S requirements 3 hours History - see A&S requirements Mathematics (6 hours) MA 1713 Calculus I MA 1723 Calculus II Fine Arts (3 hours) See A&S requirements Natural Sciences (9-12 hours) See Major Core - Consult Advisor for specifics Social Sciences (6 hours) Must be from 2 different areas and must be selected from University/ A&S Core PSY 1013 General Psychology (required for pre-medicine) **Major Core** Student should check for prerequisites for all courses. See advisor. Professional Chemistry: Paths CH 1141 CH 1234 Integrated Chemistry I 1244 Integrated Chemistry II<sup>2</sup> CH 2141 Professional Chemistry: Tools CH CH2311 Analytical Chemistry I Laboratory 2313 Analytical Chemistry I CH 3141 Professional Chemistry: Literature Professional Chemistry: Research CH CH4141 CH 4213 Advanced Inorganic Chemistry 4351 Analytical Chemistry Lab II CH CH4353 Analytical Chemistry II 4554 Integrated Organic Chemistry I3 CH

- CH 4564 Integrated Organic Chemistry II4
- CH 4711 Senior Seminar

Oral Communication Requirement

Satisfied by successful completion of CH 1141, 2141, 3141, 4141 and 4711.

#### Writing Requirement

Satisfied by successful completion of CH 3141, 4141 and 4711.

# Computer Literacy

Satisfied by successful completion of CH 1141, 2141, 2314, 3141, 4141, 4351 and 4711.

- CH 1234 can be replaced by CH 1213 and CH 1211
- CH 1244 can be replaced by CH 1223 and CH 1221 3
  - CH 4554 can be replaced by CH 4513 and CH 4511
- CH 4564 can be replaced by CH 4523 and CH 4521

#### Choose one of following paths to complete the B.S. degree:

#### B.S. with non-A.C.S. certification

CH 4413 Thermodynamics and Kinetics and Physical Chemistry Lab I OR CH 4411 CH 4423 Quantum Mechanics and Spectroscopy and CH 4421 Physical Chemistry Lab II OR **Biophysical Chemistry** CH 4404 Chemistry Elective\* 3 hours 2213 PH Physics I or 1113 General Physics I PH Physics II or PH 2223 General Physics II PH 1123 PH 2233 Physics III or PH 1133 General Physics III Technical Electives (20 hours)

Advisor approved courses

General Electives

Number of credit hours needed to bring the total number of credit hours to 124. Consult advisor.

#### Total hours needed for major: 124

Advisor approved chemistry or biochemistry courses 3000-level and above.

#### A.C.S. concentration

- CH 3213 Inorganic Chemistry CH 4212 Advanced Inorganic Lab
- CH 4413 Thermodynamics and Kinetics
- CH 4411 Physical Chemistry Lab I
- Quantum Mechanics and Spectroscopy CH 4423
- Physical Chemistry Lab II CH 4421
- 4603 Undergraduate Research CH
- General Biochemistry I BCH 4603
- PH 2213 Physics I
- PH 2223 Physics II
- PH 2233 Physics III
- MA 2733 Calculus III
- General Electives

Number of credit hours needed to bring the total number of credit hours to 124. Consult advisor.

#### Total hours needed for major: 124

Advisor approved chemistry courses 3000-level and above.

#### **Pre-Medical concentration**

Student should check for prerequisites for all courses. See advisor. CH 4404 **Biophysical Chemistry** 

- BCH 4603 General Biochemistry
- BCH 4613 General Biochemistry
- 2213 Physics I OR PH
- PH 1113 General Physics I
- PH Physics II **O**R 2223
- PH 1123 General Physics II
- Physics III OR PH 2233
- PH 1133 General Physics III

Technical and General Electives (28 hours)

- BIO 1134
- BIO 1144
- BIO 2103
- Molecular Biology BCH 4713
- BIO 3304 General Microbiology
- BIO 3103 Genetics I OR
- BIO 4133 Human Genetics
- BIO 3504 Comparative Anatomy
- BIO 4413 Immunology
- Animal Physiology BIO 4514

General Electives

Number of credit hours needed to bring the total of credit hours to 124. Consult advisor.

#### Total hours needed for major: 124

#### **Pre-Pharmacy Requirements**

The pre-pharmacy program is intended for students who wish to attend the School of Pharmacy at the University of Mississippi. No degree will be granted from Mississippi State University, and there are thus no university or college requirements. The courses listed below will satisfy the requirements for the School of Pharmacy at the University of Mississippi. Most pharmacy schools have similar requirements. However, students who wish to attend other pharmacy schools should check the specific requirements for that school.

# **Required Courses**

CH	1213	Chemistry I <sup>1</sup>
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- CH 1211 Chemistry I Lab 1
- CH 1223 Chemistry II<sup>2</sup>
- CH 1221 Chemistry II Lab<sup>2</sup>

CH 4513	Organic Chemistry <sup>3</sup>
CH 4511	Organic Chemistry Lab I <sup>3</sup>
CH 4523	Organic Chemistry II <sup>4</sup>
CH 4521	Organic Chemistry Lab I <sup>4</sup>
BCH 4603	General Biochemistry I
BCH 4713	Molecular Biology
BIO 1134	Biology I
BIO 1144	Biology II
BIO 4514	Animal Physiology
BIO 3304	General Microbiology
BIO 4405	Pathogenic Microbiology
BIO 4413	Immunology
BIO 3103	Genetics I or BIO 4133 Human Genetics
PHI 2123	Medical Ethics
EN 1103	English Composition I
EN 1113	English Composition II
ST 2113	Intro to Statistics
MA 1713	Calculus I
PH 1113	General Physics I

- PH 1123 General Physics II
- 1003 Fundamentals of Public Speaking CO
- EC 2123 Microeconomics

# **ELECTIVES (15 hours):**

Social and Behavioral Science Electives (6 hours):

At MSU EC 2113 Macroeconomics is a pre-requisite for the required course EC 2123 (see above), and EC 2113 will count as one social science elective. In addition to EC 2113 one course from either Psychology, Sociology, Political Science, or Anthropology is required.

Humanities and Fine Arts Electives (9 hours):

At least 3 credit hours required in each of the two main areas.

Humanities Electives should be chosen from the areas: English Literature, Foreign Language, History, Religion or Philosophy

#### General Electives

To bring the total number of credit hours up to 92

- CH 1213 and CH 1211 can be replaced by CH 1234
- 2 CH 1223 and CH 1221 can be replaced by CH 1244
- 3 CH 4513 and CH 4511 can be replaced by CH 4554
- 4 CH 4523 and CH 4521 can be replaced by CH 4564

#### **B.A. in Chemistry**

#### **General Education and College Requirements**

English Composition (6 hours)

- 1103 English Comp I OR EN
- EN 1163 Accelerated Comp I
- 1113 English Comp II OR EN
- 1173 Accelerated Comp II EN

Foreign Language (9 hours)

3 semesters one Foreign Language (see advisor)

Humanities (18 hours)

- 3 hours Literature - see General Education courses
- 3 hours History - see General Education courses
- Philosophy see A&S Core 3 hours
- 9 hours Electives (Must be from 2 different areas) See A&S Core

MA	1313	College Algebra

Fine Arts (3 hours)

See A&S requirements

Natural Sciences (9-12 hours)

See Major Core - Consult advisor for specifics

Social Sciences (18 hours)

6 hours See A&S requirements 12 hours Social Sciences Electives - See advisor\*

# Major Core

- Student should check for prerequisites for all courses. See advisor.
- CH 1141 Professional Chemistry: Paths
  - CH 1234 Integrated Chemistry I1
- CH 1244 Integrated Chemistry II<sup>2</sup>

Biology I Biology II Cell Biology OR

- CH 2141 Professional Chemistry: Tools
- 2311 Analytical Chemistry Lab CH
- CH 2313 Analytical Chemistry I
- 3141 Professional Chemistry: Literature CH
- 3213 Inorganic Chemistry **O**R CH CH 4213 Adv Inorganic Chemistry
- CH 4141
- Professional Chemistry: Research CH 4554 Integrated Organic Chemistry I3
- CH 4564 Integrated Organic Chemistry II4
- CH 4711 Senior Seminar
- 7 hours Chemistry Electives - See advisor\*\*
- MA 1723 Calculus II
- PH 1113 General Physics I OR
- PH 2213 Physics I
- PH 1123 General Physics II OR
- 2223 PH Physics II
- 1133 General Physics III OR PH
- 2233 PH Physics III

#### Oral Communication Requirement

Satisfied by successful completion of CH 1141, 2141, 3141, 4141 and 4711.

Writing Requirement

Satisfied by successful completion of CH 3141, 4141 and 4711.

#### Computer Literacy

Satisfied by successful completion of CH 1141, 2141, 2314, 3141, 4141, and 4711.

#### **Technical Electives**

8 hours Advisor approved courses

#### General Electives

Number of credit hours needed to bring the total number of credit hours to 124. Consult advisor.

#### Total hours needed for major: 124

Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed.

- Advisor approved chemistry courses 3000-level and above
- CH 1234 can be replaced by CH 1213 and CH 1211
- CH 1244 can be replaced by CH 1223 and CH 1221
- CH 4554 can be replaced by CH 4513 and CH 4511
- CH 4564 can be replaced by CH 4523 and CH 4521

# Department of COMMUNICATION (CO)

#### Major Advisor: John Forde Office: 130 McComas Hall

The Bachelor of Arts degree in Communication is offered. The department offers concentrations in Broadcasting, Communication Studies, Journalism, Public Relations, and Theatre. Students may choose more than one concentration. Minors are available in all areas. In addition, the department offers numerous courses online throughout the year. Contact specific advisors for additional information.

#### BROADCASTING

The Broadcasting concentration prepares students for work in radio, television, multi-media and other areas. Graduates work in front of and behind the camera, from anchorperson to camera technician. Broadcasting graduates also find positions in extension service, university relations, government and industry.

#### **COMMUNICATION STUDIES**

The career track for this area is aimed at positions in corporate and public communication offices. Students preparing for graduate school or teaching in Communication and other areas often choose the Communication Studies curriculum.

#### JOURNALISM

In addition to filling positions for newspapers, magazines, and Web publications in the state and around the country, graduates of the Journalism concentration obtain news-related jobs in universities, business, and industrial relations.

#### **PUBLIC RELATIONS**

The Public Relations concentration prepares students for a variety of professional positions. In addition to work with public relations and advertising agencies, graduates are employed by newspapers and broadcasting organizations, banks, churches, hospitals, insurance companies, businesses and corporations, charitable and political groups, and state and federal governments.

#### THEATRE

Students choosing the Theatre concentration find positions with regional and repertory companies, community theatres (both on stage and off stage), and professional theatres in educational institutions, broadcasting, and film.

#### **Communication Minors**

Minors in each of the concentration areas (Broadcasting, Communication Studies, Journalism, Public Relations, and Theatre) are available. Because of the differences between and among the disciplines in the department, students considering a minor are advised to meet with the department head, John Forde, prior to making a decision regarding a minor. The Department of Communication endeavors to work with individual students so that the minor field combines appropriately with his/ her major field of study. Students with majors in business, agriculture, social sciences and the humanities are especially encouraged to consider a minor in one of the related areas.

#### Awards and Professional Societies

Students in any of the departmental concentration areas with superior averages after completing certain courses may qualify for membership in the Theta Alpha Chapter of Lambda Pi Eta, the official honor society of the National Communication Association. Students in Theatre may be tapped for Alpha Psi Omega honorary after completing certain work in theatrical productions.

Numerous scholarships are available in the Department of Communication. See the department's Web site for a complete list of available scholarships. Applicants may pick up necessary forms in the department office or by contacting the Scholarship Committee Chair, P.O. Box PF, Mississippi State, MS 39762.

Professional societies are available for students in most of the concentration areas. The Public Relations Student Society of America, the Public Relations Association of Mississippi, and Southern Public Relations Federation provide pre-professional experience and contacts for students of Public Relations. Blackfriars is available to students of Theatre. The Student Broadcasting Association services students in the Broadcasting concentration; this group is directly involved in the production of several television programs.

#### **Programs of Study**

Students who major in Communication select from several areas of concentration: Broadcasting, Communication Studies, Journalism, Public Relations, or Theatre. The total major consists of 45 semester hours in Communication courses: 12 hours of the departmental core; and 33-37 hours of additional specified work in the area of concentration. In addition, students complete the Arts & Sciences core curriculum and electives for a total of 124 semester hours leading to the B. A. Degree.

1. A minimum grade of C in all Communication courses (or approved substitutes) is required. Students earning a grade lower than C in a Communication course must retake that course.

2. Incoming freshmen must earn a score of 20 or higher on the ACT Enhanced English sub-scale before entering the major. Students who believe that the ACT does not accurately assess their language ability and who can present evidence of above average language skills (excellent English grades, extensive writing samples, etc.) will be given the opportunity to satisfactorily complete a screening test and gain admission to the major.

3. No transfer student, either from another college or within the university, will be accepted who has not earned a minimum 2.0 GPA on all college work attempted prior to entering the major.

Prospective students are reminded that Communication is a language intensive discipline. Students with only minimal oral and written language competency should expect to be at a competitive disadvantage in classes as well as in careers after graduation. Transfer students with less than a C in English composition courses may have difficulty with the advanced writing courses required in this major.

General E	ducation	and College Requirements		
		n (6 hours)		
EN	1103	English Comp I OR		
EN	1163	Accelerated Comp I English Comp II OR Accelerated Comp II		
EN	1113	English Comp II OR		
Oral Comr		n Requirement		
CO	1003	Fundamentals of Public Speaking		
Foreign La	0 0			
3 s	emesters	one Foreign Language (see advisor)		
Humanitie	s (18 hou	rs)		
3 h	ours	English Literature - see General Education courses		
	ours	History - see General Education courses		
	ours	Philosophy - see General Education courses		
· · ·	ours	Humanities Elective*		
Math (6 ho	,			
	1313			
MA ST	A 1323 2113	Trigonometry OR Statistics		
	2110	Statistics		
Fine Arts (	,			
	1503			
		cceptable Fine Arts other than Theatre course prior CO major )		
	0			
Natural Sc	hours	Physical Science w/Lab**		
	hours	Life Science w/Lab***		
	hours	Natural Science Elective		
Social Sciences (18 hours)*+				
	Y 1013	General Psychology		
	1003			
		World Geography		
CO	1223	Intro. to Communication Theory		
	1403	Intro. to Mass Media*++		
6 h	ours	Electives		
Major Co	e			
Studen	t should	check for prerequisites for all courses. Consult advi-		

advisor or course descriptions in catalog.

- CO 1003 Fund. of Public Speaking
- 1223 Intro. to Communication Theory OR CO
- CO 1403 Intro. to Mass Media
- \* Must be selected from 2 different areas. Not required to be selected from core listing; may have to be taken at Upper Division level to meet 31 hours A&S UD requirement.
- CH, GG, or PH; see General Education courses.
- \*\*\* BIO, EPP, or PO; see General Education courses.

\*+ Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Not required to be selected from core listing; may have to be taken at Upper Division level to meet 31 hours A&S UD requirement. Only one Economics allowed.

\*++ CO 1223 or CO 1403 will count as 3 additional Social Science hours to reach 12 hour elective total. The course not counted as a Social Science will be required additionally in the major.

#### Choose one or more of the following concentrations:

#### Broadcasting Concentration (BCST)

- CO 2333 TV Production
- 2413 Intro. to Newswriting and Reporting CO
- News Writing for Electronic Media OR CO 3313
- CO 3343 Writing for the Media
- CO 3333 Advanced Television Production
- CO 3833 Interviewing in Communication
- Mass Media Law CO 4313
- CO 4323 Mass Media and Society
- CO 4373 **TV** Practicum
- CO Elective Upper Division suggested 3 hours
- Upper Division CO electives see advisor 6 hours
- 13-16 hours General Electives\*

# Total hours needed for major: 124

May need to be taken at Upper Division level to meet A&S UD requirement.

## **Communication Studies Concentration (CMGT)**

CO 2213 CO 2253 CO 4203 CO 4213 CO 4223 CO 4243 CO 4253 CO 4313 CO 4323 12 hours	Small Group Communication Interpersonal Communication Nonverbal Communication Political Communication Advanced Communication Theory Rhetorical Theory Elements of Persuasion Mass Media Law OR Mass Media and Society Upper Division CO Electives - see advisor
10-13 hours	General Electives*

#### Total hours needed for major: 124

May need to be taken at Upper Division level to meet A&S UD requirement.

# Journalism Concentration (JOUR)

- Intro. to Newswriting and Reporting CO 2413 2423 News Editing, Typography and Makeup CO 3403 Photographic Communication
- CO Feature Writing CO 3423
- 3443 CO
- Advanced Newswriting
- CO 4313 Mass Media Law
- 4403 Journalism Ethics CO
- CO Elective Upper Division suggested 3 hours
- 9 hours Upper Division CO Electives - see advisor
- 13-16 hours General Electives\*

#### Total hours needed for major: 124

May need to be taken at Upper Division level to meet A&S UD requirement.

#### **Public Relations Concentration (PREL)**

- 2333 CO TV Production OR 3403 Photographic Communication OR CO Digital Communication I CO 3713 Intro. to Newswriting and Reporting CO 2413 3803 Principles of Public Relations CO Public Relations Case Problems CO 3813 Public Relations Writing CO 3853 CO 3863 Public Relations Production 4253 Elements of Persuasion CO CO 4313 Mass Media Law OR
- Mass Media and Society CO 4323
- CO 4803 Research in Public Relations and Advertising
- CO 4813 Public Relations in Organizations
- 6 hours CO Upper-division Electives
- General Electives\* 7-10 hours

#### Total hours needed for major: 124

May need to be taken at Upper Division level to meet A&S UD requirement.

# **Theatre Concentration (THEA)**

- 2013 Voice and Articulation CO
- 2613 Intro. to Oral Interpretation CO
- CO 2503 Acting
- 2524 Stagecraft & Lighting CO
- CO 4504 History of Theatre
- CO 2544 Makeup and Costuming 4524
- Directing CO 4573
- Theatre Management CO CO 4533 Advanced Acting
- CO 4583 Playwriting
- CO 1523 Practicum
- 9-12 hours General Electives\*

#### Total hours needed for major: 124

May need to be taken at Upper Division level to meet A&S UD requirement.

# **ECONOMICS (EC)**

# Major Advisor: Tommy Henry; Office: 312 McCool Hall

Economics is the scientific study of how people and institutions make choices concerning the use of society's scarce resources. It is a broad social science that shares common interests with both the behavioral sciences (e.g. sociology and psychology) and the decision sciences (e.g. finance and management). The importance of economic analysis is recognized by being the only social science in which a Nobel Prize is awarded. Economics students receive training in the methods and uses of economic analysis as applied to households, businesses, and governments.

The study of economics offers students many career options. Economics majors are found pursuing careers in industry, trade, finance, law, government, and education. An economics major or minor also helps prepare the student for graduate professional training in business, public administration, and law. The flexibility of the economics major is reflected in relatively high starting salaries and lifetime earnings of economists. Undergraduates at Mississippi State may pursue an economics major through either the College of Arts & Sciences (B.A. degree) as described below or through the College of Business and Industry (B.B.A. degree). The business program in economics is described later in this Bulletin.

#### **Economics Major**

Students seeking the B.A. with a major in economics are required to complete all College of Arts & Sciences core and University general education requirements. Majors must also complete the program of study on this page, including 12 hours of advanced electives. Elective courses should be chosen with the advisor's approval and used to enhance the student's overall program. Although not required, economics majors may elect to pursue a minor in another discipline with the advisor's approval.

#### **Economics Minor**

A minor in economics is attained by selecting, in consultation with the economics minor advisor, at least 15 hours of economics course work. Three hours of courses from finance (FIN) or agricultural economics (AEC) may be applied to the economics minor with approval from the advisor. All economics minors must register with the economics minor advisor in the Department of Finance and Economics, 312 McCool Hall. Students with majors in business, engineering, agriculture, the social sciences, mathematics, and pre-law are especially encouraged to consider the economics minor.

#### **Advising and Honors Organization**

Academic advising and career counseling are available from the economics faculty for both majors and minors. Students interested in the study of economics should contact the Department of Finance and Economics, 312 McCool Hall. Any student who completes 12 credit hours of economics with at least a 3.0 GPA and has an overall GPA of 3.0 or higher is eligible for membership in Omicron Delta Epsilon, the international honor society in economics.

#### **General Education and College Requirements**

English Composition (6 hours)

EN 1103	English Comp I OR
EN 1163	Accelerated Comp I
EN 1113	English Comp II OR

- EN 1173 Accelerated Comp II
- Foreign Language (9 hours)

3 semesters one Foreign Language (see advisor)

	6 6 6 7
Humanities (18 h	ours)
3 hours	Literature - see General Education courses
3 hours	History - see General Education courses
9 hours	Humanities Elective*
3 hours	Philosophy Elective - see General Education
courses	
Math (6 hours)	
MA 161	3 Calculus for Business & Life Science I
ST 211	3 Stats for Behavioral Sciences
Fine Arts (3 hour	s)
3 hours	See A&S Core Requirements
Natural Sciences	(9-12 hours)
3-4 hours	Physical Science w/Lab**
3-4 hours	
3-4 hours	

Social Scien	ces (18 l	hours)#
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Social Belences (10 hours)			
	3 hours		Met in major requirement
	PS	1113	American Government
	AN	1103	Intro to Anthropology
	PSY	1013	General Psychology
	PS	1513	Comparative Government
	SO	1003	Intro to Sociology
Major	Core		
	EC	2113	Principles of Macroeconomics
	FC	2123	Principles of Microeconomics

EC	2123	Principles of Microeconomics
EC	3113	Intermediate Macroeconomics
EC	3123	Intermediate Microeconomics
EC	4643	Economic Forecasting & Analysis
12 hours		EC Upper Division Electives

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

Satisfied by successful completion of EC 3113 and EC 4643

Computer Literacy

BIS 1012 Intro to Business Information Systems OR TKT 1273 Computer Applications

General Electives (20 hours) See advisor

#### Total hours needed for major: 124

#### (31 hours must be 3000/4000 from A&S)

\* Must be selected from 2 different areas. Not required to be selected from core listing; may have to be taken at Upper Division level to meet 32 hours A&S UD requirement.

- CH, GG, or PH; see General Education courses
- \*\*\* BIO, EPP, or PO; see General Education courses.
- Consult advisor.

Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advise

# **Department of ENGLISH (EN)**

Major Advisors: Professor Richard Raymond (Head) Associate Professor Lara Dodds (M.A. program) Associate Professor Thomas Anderson (B.A. program) Office: 316 Lee Hall

The study of English not only gives students knowledge of language and literature but also helps to develop their ability to read perceptively, think critically, analyze problems, and write correctly and persuasively. For this reason, a major in English has traditionally been viewed as good training for careers in law, government, business, and publishing, as well as for careers in teaching and writing.

The department offers an undergraduate major (B.A.), a minor in English, and an M.A. The department also edits and publishes two distinguished journals. Mississippi Quarterly is a refereed scholarly journal dedicated to the life and culture of the American South, past and present. Jabberwock Review is a literary journal publishing stories, poems, and essays by writers across the country. Additionally, the department operates the university Writing Center to assist all MSU students with their writing

The Department of English awards several scholarships annually: the Howell H. Gwin Scholarships to an outstanding junior majoring in English and to two entering graduate students in English; the Helen W. Skelton Annual Scholarship to full-time English major maintaining at least a 3.0 GPA and demonstrating good character, leadership and financial need; the William H. Magruder Scholarship to an upper-division or graduate English major; the Roger LeMoyne Dabbs Memorial Scholarship to an English or Communication major; and the Eugene Butler Creative Writing Scholarship to an undergraduate or graduate student. The Department of English sponsors Xi Kappa Chapter of Sigma Tau Delta National English Honor Society; memberships are offered by invitation to scholastically qualified junior and senior undergraduate students and to second-year graduate students who are English majors. The Department of English also offers the Nolan Book Award competition for junior and senior English majors and sponsors several writing contests and awards.

In addition to two semesters of freshman composition, which the department recommends be taken at the 1163/73 or Honors level, English majors take EN 1111, 2213, 2223, 2243, 2253, 3414, and 4111, and at least 21 additional hours of English electives, of which 15 hours must be 4000 level. English electives include courses satisfying the following group requirements:

- Group I (one course): EN 4503, 4513, 4523, 4533, 4703, 4713 Group II (one course): EN 4643, 4653, 4723, 4733, 4863, 4883, 4663
- Group III (two courses): EN 4333, 4343, 4903, 4913, 4923, 4933 Group IV (one course): to be taken from Group I or Group II

EN 2203 does not count toward the requirements for the major.

English majors must take an Upper Division Arts and Sciences Humanities (HI, FL, PHI) or Study Abroad elective in fulfilling the Arts & Sciences B.A. common curriculum requirements.

1. English majors must maintain at least a 2.5 QPA in all upperdivision English courses. Students who fall below a 2.5 QPA must bring it up to 2.5 the next semester or drop the English major.

2. English majors must attain a C or better in all English courses at the 2000 level or above in order for those courses to count toward the requirements of the major.

3. English majors must take 15 hours at the 4000 level at MSU.

Students seeking secondary-school teaching certification should consult with an English Education advisor.

English minors take at least 18 hours of English electives with a grade of C or better beyond completion of the freshman composition requirement of their major. Of these hours, at least six must be at the 4000 level; these must be completed in residence. Students should consult the English major advisor to plan a minor program which will complement their major studies and career interests.

#### **General Education and College Requirements**

English Co • . •

Englis	n Com	ipositio	on (6 hours)
	EN	1103	English Comp I OR
	EN	1163	Accelerated Comp I
	EN	1113	English Comp II OR
	EN	1173	Accelerated Comp II
Foreig	n Lan	guage (	9 hours)
0	-	nesters	one Foreign Language (see advisor)
Humar		9 hours	
Indinia	3 hou	<b>`</b>	Philosophy Elective - see advisor
	6 hou		History Sequence - choose one of the following:
	0 1100	415	HI 1063 Early U.S. History
			HI 1073 Modern U.S. History
			HI 1163 World History Before 1500
			HI 1173 World History Since 1500
			HI 1213 Early Western World
			HI 1223 Modern Western World
Math (	6 hou	rs)	
		1313	College Algebra
	3 hou	irs abov	ve College Algebra
Fine A	rts (3	hours)	
	3 hou		See A&S requirements
Natura	1 Scie	nces (9	-12 hours)
i tatui a		ours	
		ours	Biological Science w/Lab**
	3-4 h		Natural Science Elective***
Social			hours)****
Social	6 hou		see A&S requirements
	12 hours		Social Sciences Electives
N.T			Social Sciences Electives
Major			
	3 hours 3 hours		Fourth semester in chosen Foreign Language
			Upper Division A&S Humanities (HI, FL, PHI) or Study Abroad Elective
	EN	1111	English Studies
		2213	
	FN	2223	English Literature II
	EN	2243	American Literature I
	EN	2243 2253	American Literature II
	EN		Critical Writing and Research in Lit Studies
	EN	4111	Portfolios and Reflective Writing
Upper	Divis	ion Rea	juirements (15 hours)
	3 hou		Pre-1660 English Lit Elective
	3 hou		Post-1660 English Lit Elective
	3 hou		American Lit Elective
	3 hours		American or contemporary Lit Elective

English	Vocational	Elective	(3 hours)	

	]	EN	3313	Writing	for the	Workplace
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English Lit Elective

EN	4323	Lit Criticism OR
EN	4353	20th Century Critical Theory
EN	4403	Linguistics
EN	3303	Creative Writing
EN	4223	Legal Writing
FN	4233	Composition Pedagogy OR

- omposition Pedagogy OR
- EN 4243 Writing Center Tutor Training

Elective (3 hours)

3 hours

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking OR

CO 1013 Introduction to Communication

General Electives (15 hours)

Consult advisor

#### Total hours needed for major: 124

(Must maintain a 2.5 GPA in upper-division English courses. Must make a grade of C or higher in all upper-division English courses. Must complete 31 upper division A&S hours. Must take 15 hours at the 4000 level in residence.)

CH. GG. or PH: see General Education courses.

\*\* BIO, EPP, or PO; see General Education courses.

\*\*\* Consult advisor.

\*\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor

#### Certificate in TESOL

The certificate in Teaching of English to Speakers of Other Languages (TESOL) is designed to provide students with the theoretical and practical knowledge needed to begin a career in English language teaching. The program requires 15 credit hours (5 courses) in linguistics and English language teaching methods that introduce students to basic methods of linguistic analysis and principles of communicative language teaching. Students who earn the certificate will be prepared to teach English as a foreign language in countries outside the United States and English as a second language in positions inside the United States that do not require a teacher's license.

The certificate program is open to undergraduate and graduate students in good standing who are currently enrolled at the university in any major.

The program requires a minimum of 15 hours with a grade of C or better in each course. Graduate students are required to attain a minimum GPA of 3.0 for their coursework.

Students must take the following courses in theoretical background: EN 4403/6403 Intro to Linguistics

Lit 1100/0100	maro to Emgaisties
EN 4463/6463	Studies in Second Language Acquisition
EN 4443/6443	English Syntax
Students must take	TWO of the following:
EN 4433/6433	Approaches to TESOL
EN 4453/6453	Methods in TESOL
EN 4493/6493	TESOL Practicum

# **Department of FOREIGN LANGUAGES (FL)**

Major Advisor: Professor Jack Jordan (Head) Associate Professor Edward Potter (M.A. program) Associate Professor Robert Harland (B.A. program) Office: 300 Lee Hall

Foreign language majors prepare for careers in government (State Department, foreign service, diplomatic corps, FBI, CIA, USIA, the military, immigration, etc), international business, the human services fields, teaching at all levels (secondary school, junior college, university), and other language-related jobs.

Programs of study leading to the Bachelor of Arts (B.A.), the joint Bachelor of Arts and Bachelor of Business Administration, and the Master of Arts (M.A.) in Foreign Languages are offered. A minor in one foreign language may be obtained upon satisfactory completion of 12 semester hours beyond the intermediate (III and IV) level courses. Education students desiring teacher certification must earn at least 27 semester hours in the language they plan to teach.

The Department sponsors three honor societies: Pi Delta Phi (French), Delta Phi Alpha (German), and Sigma Delta Pi (Spanish). Information about membership requirements may be obtained from the Head of the Department. The Department also sponsors language clubs which provide social and cultural activities for faculty and students.

The Bachelor of Arts in Foreign Languages is awarded upon the successful completion of a minimum of 123 semester hours, including the following areas: (The hours needed for graduation will depend upon the entry level of study into the major language; a minimum of eight, 3-credit hour courses in the chosen concentration at the 3000-level, or higher, is required.)

- 1. General Education Requirements
- 2. Bachelor of Arts Common Requirements
- Advanced Composition and Advanced Conversation in the respective concentrations.
- 4. A minimum of 42 semester hours in the target language (French, German, Spanish,). Note that degree requirements vary among the languages. It is the student's responsibility to meet the requirements of the chosen language concentration, as listed below. The normal sequence is FLF/G/S I, II, III, IV, Advanced Composition FLF/G/S, Advanced Conversation FLF/G/S, two semesters of Survey of Literature FLF/G/S, and at least 6 hours of upper-division electives in the primary language. A civilization course related to the primary language is strongly recommended.
- 5. Completion of the fourth semester course of a second foreign language (12-14 semester credit hours) is recommended. In addition to the concentrations, the Department offers courses in Chinese, Italian, Japanese, Latin and Russian.
- 6. Study abroad is highly recommended. Foreign Language majors interested in following this recommended course of study should notify the advisor as soon as possible, so that a plan of study can be developed in which courses are taken in proper sequence.

# B.A. in Foreign Languages

#### **General Education and College Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II
- Foreign Language (see major core)

Humanities (18 hours)

- FL 4143 Classical Mythology
- 3 hours Literature see University/A&S Core
- 3 hours History see University/Å&S Core
- 3 hours Philosophy Elective see advisor
- 6 hours Humanities Electives \*
- Math (6 hours)
  - MA 1313 College Algebra
  - MA 1323 Trigonometry OR
  - ST 2113 Intro to Statistics or higher math
- Fine Arts (3 hours)
- See A&S Requirements
- Natural Sciences (9-12)
  - 3-4 hoursPhysical Science w/Lab\*\*3-4 hoursBiological Science w/Lab\*\*\*
  - 3-4 hours Natural Science Elective\*\*\*\*
- Social Sciences (18 hours)
  - 6 hours See A&S requirements
  - 12 hours Social Sciences Electives \*+
- **Major Core** 
  - FL 1113 Foreign Language I
  - FL 1123 Foreign Language II
  - FL 2133 Foreign Language III
  - FL 2143 Foreign Language IV
  - FLF/FLG 3114 or FLS 3111 & FLS 3113
  - FLF/FLG 3124 or FLS 3121 & FLS 3233
  - 6 hours FL Electives (3000 or 4000 level)
- Oral Communication Requirement Satisfied by successful completion of FLF/FLG 3124 or FLS 3233.

- Writing Requirement
  - Satisfied by successful completion of FLF/FLG 3114 or FLS 3113.
- Computer Literacy

Consult advisor

General Elective (15 hours) - Consult advisor Study abroad and/or second language highly recommended.

#### Choose one of the following concentrations:

#### French (42 hour)

FLF 1113, 1123, 2133 and 2143 or equivalents (in Major Core)FLF 3114Advanced Composition (in Major Core)FLF 3124Advanced Conversation (in Major Core)FLF 3513 or 3523 Survey of Literature (both recommended)19 hoursFrench electives numbered 3000 and above

#### German (43 hours)

FLG 1113, 1123, 2133 and 2143 or equivalents (in Major Core)

- FLG 3114 Advanced Composition (in Major Core) OR
- FLG 3124 Advanced Conversation (in Major Core)
- FLG 3143 or 3153 Civilization
- FLG 4503 or 4523 Literature
- EN 2273 or EN 2283 World Literature
- History course (3 hours) focusing on Central European History; See advisor.
- 15 hours German electives numbered 3000 and above

# Spanish (43 hours)

FLS 1113, 1123, 2133 and 2143 or equivalents (in Major Core)

- FLS 3113 Advanced Composition (in Major Core)
- FLS 3233 Advanced Conversation (in Major Core)
- FLS 3121 Advanced Conversation Practicum
- FLS 3143 Hispanic Civilization
- FLS 3513 and 3523 Survey of Literature
- 15 hours Spanish electives numbered 3000 and above

#### Total hours needed for major: 123

- \* Must be from 2 different areas. See A&S Requirements
- \*\* CH, GG, or PH; see A&S Requirements.
- \*\*\* BIO, EPP, or PO; see A&S Requirements.
- \*\*\*\* Consult advisor.
- $*_+$  Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics and one Communication allowed. See advisor.
- \*++ Consult advisor for substitute.

#### International Business Program

A Five-Year Double Degree Program: B.A. in Foreign Languages & B.B.A. in Business Administration Office: 102 McCool Hall

Major Advisor - Business Administration: Associate Professor Rezek Major Advisors - Foreign Languages: Professor Jordan; Associate Professor Lestrade; Assistant Professor Potter 300 Lee Hall

The International Business Program provides students with an academic background and work experience to help ensure success in the marketplace. Students receive a double degree at graduation reflecting the dual concentration in Business: B.B.A (with an international focus and a specific discipline such as Marketing or Finance); and in the Arts: B.A. (language and cultural proficiency). This is additional to the first two years of study developing abilities in writing, math, sciences, and computer literacy.

The hallmarks of this program include a work internship and an outside the country academic experience of a full summer or one semester duration (generally taken the last of the 4th year or beginning of the 5th year). The internship is ideally reflective of the student's specific business discipline and the study abroad is reflective of the student's language proficiency area. The student who selects to combine the work and abroad experience must petition the IB Director for approval. Minimum acceptable levels are 1). WORK: 10 continuous weeks of international tasks and responsibilities, 2) ABROAD: 6 continuous weeks in one location for cultural immersion.

The total number of semester credit hours (SCH) will be 154 for most students. The program has five main components:

- (1) a core of basic skills, including courses in writing, mathematics, sciences, and communication (30 SCH);
- (2) a core of humanities and social science courses selected to fit the special needs of international business major, emphasizing both the history and culture of other societies and the ways these societies relate to our own (27 SCH);
- (3) intensive training to develop proficiency in one foreign language and its associated cultures and literatures (35);
- (4) a thorough grounding in business techniques and practices, including 33 SCH of general business courses, up to 12 SCH of international business courses, and 15 SCH in one of six functional/discipline emphasis in business (accounting, finance, information systems\*, economics, management, marketing\*, or risk management, insurance and financial planning\*).
- (5) a one-semester internship program with an international business (4 SCH).

Students interested in following this recommended course of study should notify the Department Head of Foreign Languages and the Director of International Business Academic Programs. Students must have the Director's written approval to join the International Business Program. Students must meet all graduation requirements for the College of Business and the College of Arts & Sciences. This includes having no Ds in upper level courses or in upper level Foreign Language courses. International Business students must have an overall and previous semester GPA of 2.67 to be eligible for internship and study abroad.

\* Information Systems, Insurance, & Marketing functional emphasis areas will need an additional 3 credits in their program; for those taking the CPA exam, other coursework will be required.

# **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR
  - EN Accelerated Comp I 1163
  - 1113 English Comp II OR EN
  - EN 1173 Accelerated Comp II
- Mathematics (9 hours)
  - MA 1313 College Algebra
  - Calculus for Business and Life Sciences I MA 1613
  - Introduction to Statistics OR ST 2113
  - BQA 2113 Business Statistical Methods I
- Science (7 hours)

Life Science and Lab (BIO prefix)

Physical Science and Lab (CH, GG, OR PH prefix)

- Humanities (6 hours)
  - EN 2273 World Literature OR
  - EN 2283 World Literature II
  - HI 1173 World History After 1500 OR
  - 1223 HI Modern Western World
- Fine Arts (3 hours)

Choose from the following:

- Architectural Appreciation
- ARC 1013 ARC 2313 History of Architecture I
- ART 1013 History of Art I
- ART 1023 History of Art II
- ART 1113 Art Appreciation
- ART 3143 Italian Renaissance Art History
- History and Appreciation of Music Introduction to Theatre MU 1113
- CO 1503
- PE 1323 History and Appreciation of Dance
- Social/Behavioral Sciences (6 hours)
  - GR 1123 Introduction to World Geography
  - AN 1143 Cultural Anthropology

# **College of Arts and Sciences Core**

PHI 3013 Business Ethics

1313 Intro to International Relations OR PS Comparative Government PS 1513 3000+ Upper-level History Elective (see advisor) 3000+ Upper-level Social Science Elective (see advisor) HI SO FLF/G/S 1113 French/German/Spanish I FLF/G/S 1123 French/German/Spanish II FLF/G/S 2133 French/German/Spanish III FLF/G/S 2143 French/German/Spanish IV FLF/G/S 3114 or FLS 3113 & 3111 Advanced Foreign Lang I FLF/G/S 3124 or FLS 3233 & 3121 Advanced Foreign Lang II FLF/G/S 3143 Civilization FLF/G/S 3313 Business French/German/Spanish I FLF/G/S 3323 Business French/German/Spanish II FLF/G/S 3523 Survey of French/German/Spanish Lit

Foreign Language Elective - (see FL advisor for options)

#### **College of Business Core**

ACC	2013	Principles of Financial Accounting
	2023	Principles of Managerial Accounting
	2023	Principles of Macroeconomics
EC	2123	Principles of Microeconomics
BL	2413	Legal Environment of Business
BIS	3233	Intro to Management Info Systems
FIN	3123	Financial Management
MKT	3013	Principles of Marketing
MGT	3114	Principles of Management and Production
BUS	4853	Business Policy
Commu	nicatior	n Requirement (3 hours)
CO	1003	Fundamentals of Public Speaking OR
CO	1013	Introduction to Communication
puter Li	teracy F	Requirement

BIS 1012 Intro to Business Information Systems Writing Requirement

MGT 3213 Organizational Communications

#### **Major Core**

Oral

Com

- IB 1001 Introduction to International Business
- IB 3900 Internship Work
- 4903 Internship/ Academic Report IB
- International Business Electives- 9-12 hours:
  - ACC 4053 International Accounting
  - BL 4273 International Business Law
  - 3513 Comparative Economic Policy EC
  - EC 4323 International Economics
  - FIN 4923 International Financial Management
  - 3913 IB Principles of International Business
  - MGT 4613 Cross Cultural Management
  - MKT 3323 International Logistics
  - MKT 3933 International Marketing
  - MKT 4033 International Transportation
  - MKT 4313 Physical Distribution Management
  - MKT 4333 International Supply Chain Management

(Students focusing in BIS & INS must select 12 hours from the above list; all others must select 9 hours.)

#### **Business Functional Emphasis**

15 hours	Major Electives (Choose from ACC, BIS, EC,
	FIN, MGT, MKT, or INS) See Advisor
	for options.
3 hours	Free Electives

#### Total hours needed for major: 154

(Must have 32 upper division A&S hours)

To be selected with the advice and approval of advisor

# **GENDER STUDIES MINOR**

#### Advisor: Dr. Nicole Rader; 231 Etheredge Hall

Gender Studies is an interdisciplinary field that examines the complex interaction of gender with race, class, sexuality and nationality. Gender is a psychological and cultural construction of fundamental importance to people everywhere. It is a central aspect of personal and social identity, and a criterion for social stratification and differential political treatment. In addition to the field's examination of the historical contributions and concerns of women, gender studies also explores research in men's lives and masculinity. Having such a deep understanding of gender and gender biases enhances the abilities of students to succeed in a variety of fields and professions.

Undergraduate students would receive a Gender Studies minor by completing 18 credits of course work from a variety of fields distributed as follows; only nine credits from any one department may count toward the minor.

Required Course: SO/AN/GS 1173 Introduction to Gender Studies

Additional core courses (6 hours)

COE 4743 Gender Issues in Counseling

EN/GS 3513 Women and Literature HI 4273

Women in American History

PHI 4313 Feminist Interpre of West Social & Polit Phil

3033 Gender and Politics PS

PSY 3203 Psychology of Gender Differences

SO 4403 Sociology of Gender

SO/CRM 3343 Gender, Crime and Justice

Electives (9 hours)

See Gender Studies Advisor for list of approved electives.

# **GENERAL LIBERAL ARTS (GLA)**

Advisor: Mark Goodman Office: 106 McComas Hall

Students who prefer to specialize in more than one field of study may earn a B.A. degree in General Liberal Arts. Requirements for this degree include all of the following: satisfactory completion of the University General Education and College Core curriculum; satisfactory completion of the College of Arts & Sciences B.A. requirements; approval of the proposed G.L.A. program; satisfactory completion of 12 hours of upper-division courses (courses numbered 3000 and above) in each of three fields of study, all with a grade of C or better. The three fields may all be within the College of Arts & Sciences, or one of the three may be within another school/college of the University if that field is related to the student's educational or career goals. To insure an orderly progression of work toward the degree, interested students should meet with the program's advisor as early as possible. Furthermore, admittance into the program requires approval of the GLA Committee and the Associate Dean of the College of Arts & Sciences. General Liberal Arts is not suitable for students who are uncertain about their choice of a major; these students should see the Undecided listing in this section.

#### **General Education and College Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- English Comp II OR EN 1113
- EN 1173 Accelerated Comp II

Foreign Language (9 hours)

3 semesters one Foreign Language (see advisor)

Humanities (6 hours		
3 hours	Literature - see Major Core	
3 hours	History - see A&S requirements	
3 hours	Philosophy Elective - consult advisor	
9 hours	Humanities Electives - consult advisor	
Math (6 hours)		
MA 1313	College Algebra	
3 hours	Above College Algebra	
Fine Arts (3 hours)		
3 hours	See A&S requirements	
Natural Sciences (9-12 hours)		
3-4 hours	Physical Science w/Lab*	
3-4 hours	Biological Science w/Lab**	
3-4 hours	Natural Science Elective***	
Social Sciences (18 hours)****		
6 hours	See A&S requirements	
12 hours	Social Sciences Electives	

#### **Major Core**

GLA 4001 Senior Project

Oral Communication Requirement (3 hours) Consult advisor for approved courses

Computer Requirement - consult advisor for approved courses

Writing Requirement - consult advisor for approved courses Electives

7 or more hours to equal 124

#### Total hours needed for major: 124

CH, GG, or PH; see General Education courses. \*\*

BIO, EPP, or PO; see General Education courses. \*\*\*

Consult advisor.

\*\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See adviso

# **GENERAL SCIENCE (GSC)**

#### Major Advisor: Professor Christopher P. Dewey Office: 210 Hilbun Hall

For various reasons, a student may not require the intensive preparation that is typical of a professional curriculum. The general science curriculum is tailored for his/her needs. Flexibility is the key characteristic of the curriculum. The general science program is designed to give students a broad general education and at the same time teach them the fundamentals of science. By judiciously choosing his/her course of study, a student may use the general science curriculum in many ways. For example, by concentrating on biological science or chemistry the student may prepare for medical or dental school, and with appropriate choice of electives preparation for clinical and other laboratory positions in such fields as public health and marine biology is possible.

If the student is interested in interdisciplinary studies related to environmental science, the general science curriculum is suitable. Any one of the physical or biological sciences may be emphasized. The curriculum, however, involves courses from several sciences, and from other fields concerned with the environment. Persons trained in this option should be in demand in the health industry, science laboratories, federal, state, and local governmental agencies, and in industries involved with earth resources.

Successful completion of the University and curriculum requirements will result in the awarding of a B.S. degree in General Science.

The following requirements apply to all general science students:

- 1. The B.S. Common Curriculum must be satisfied.
- 2. A minimum of 60 credit hours in science, of which at least 30 must be in one science, is required.

3. Normally, science courses must include: BIO 1504, BIO 3103, CH 1213 & 2211. CH 1223 & 2221, CH 4513 & 4511, CH

- 4523 & 4521, PH 1113, & PH 1123, GG 1113 & GG 1111.
- 4. Electives must be approved by the faculty advisor.

5. A total of 124 credit hours is required.

#### **General Education and College Requirements**

English Composition (6 hours)			
EN 1103	English Comp I OR		
	Accelerated Comp I		
EN 1113	8F		
EN 1173	Accelerated Comp II		
Foreign Language (6 hours)			
2 semesters	one Foreign Language (see advisor)		
Humanities (6 hours)			
3 hours	Literature - see University/A&S Core		
3 hours	History - see University/A&S Core		
Mathematics (6 hours)			
MA 1313	College Algebra		
3 hours	MA course above College Algebra		
Fine Arts (3 hours)			
See A&S requirements			
Natural Sciences (9-12 hours)			

See major courses - consult advisor for specifics

Social Sciences (6 hours)\*

See A&S requirements

#### **Major Core**

Student should check for prerequisites for all courses. Consult advisor. Minimum of 60 hours in science, of which at least 30 must be in one science

- GG 1113 Earth Science I
- Earth Science I Lab GG 1111
- CH 1211 Invest in Chemistry I Lab
- Chemistry I Invest in Chemistry II Lab CH 1213 1221
- CH
- CH 1223 Chemistry II
- CH 4511 Organic Chemistry I Lab
- Organic Chemistry I 4513 CH
- CH4521 Organic Chemistry II Lab
- Organic Chemistry II General Physics I 4523 CH
- PH 1113
- PH 1123 General Physics II
- BIO 1144 Biology II
- BIO 3103 Genetics

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement - Consult advisor and choose from the following:

- BIO 3013 Professional Writing for Biologists
  - CH 4103 Chemical Literature
  - EN 3303 Creative Writing
  - 3513 Technical Writing GE
  - GG 4333 Geowriting

Computer Literacy

Consult advisor for options

General Electives (13 hours) Consult Advisor

#### Total hours needed for major: 124

(31 hours must be A&S upper division)

Must be from 2 different areas and must be selected from University/A&S Core requirements.

# Department of GEOSCIENCES (GG) (GR)

Major Advisor: Dr. Darrell Schmitz Office: 108 Hilbun

B.S., M.S. and Ph.D. degrees in Geoscience are offered with emphasis in sub-disciplines described below. Minors are offered at both B.S. and M.S. levels in Geoscience.

The Department of Geosciences strives for an integrated, interdisciplinary study of the whole Earth at both the bachelor and master of science levels. Course offerings are grouped into six areas of emphasis: 1) Professional Geology - physical, biological, and chemical aspects of the Earth; 2) Geography - distribution of physical features and human interaction with the Earth; 3) Environmental Geoscience - conservation and management of Earth resources and remediation of natural and human hazards; 4) Broadcast Meteorology/Climatology - radio/television weathercasting; 5) Professional Meteorology/Climatology - atmospheric processes and climatic variability; and 6) Geographical Information Systems - spatial analysis and topological relationships of geographic data. A general program of study is built upon a foundation of natural and social sciences, humanities, and computer applications. The Geoscience curriculum provides fundamental training for future employment in the petroleum and environmental industries; education; state and federal government agencies; environmental consulting; meteorological/climatological consulting; weathercasting on radio and television; and ad-vanced studies in graduate school.

Within the six areas of emphasis outlined above, a student may further focus interests in a variety of areas including: water resources, hydrogeology and environmental clean-up and monitoring, petroleum exploration and services, construction and urbanization involving geological applications, geophysics and geochemistry, sedimentary geology and paleontology, Quaternary geology and karst processes, paleomagnetism, Geographic Information Systems or analysis and prediction of weather and climate. A minimum of 40 credit hours in geoscience courses is required for the geoscience degree. A grade of C or higher is

required on all departmental courses to satisfy graduation requirements. Students in the professional geology concentration are required to take the Association of State Board of Geologists Fundamentals of Geology (ASBOG-FG) exam.

A minor in geoscience consists of a minimum of 14 credit hours in courses numbered 2000 and above, in addition to the first year courses. The following are examples of variations within a geoscience minor. A minor with a Geology emphasis should include physical (GG 1113/1111) and historical geology (GG 1123/1121) plus 14 hours 2000 and above for a total of 22 hours; for an Environmental Geoscience emphasis, physical and historical geology with laboratory plus introduction to environmental geology (GG 3133) and other course work 2000 and above for a total of 22 hours; for emphasis in Geography, cultural geography (GR 2013), world geography (GR 1123) and other course work 2000 and above; and Broadcast Meteorology/climatology, physical geography (GR 1114) and either introduction to environmental geology (GG 3133) or conservation of natural resources (GR 3113) and other course work 2000 and above for a total of 21 hours; for emphasis in Geographic Information Systems, physical geography (GR 1114) or physical geology (GG 1113/1111), maps and remote sensing (GR 2313), Principles of GIS (GR 4303) and other course work 2000 and above for a total of 22 hours. Minors in Geoscience are also available at the M.S. level.

Three educational enhancement awards and five scholarships are available to students majoring in Geoscience, namely the F.F. Mellen, Forrest W. Pace, and Summer Geology Educational Enhancement awards, and the Gordon W. Gulmon, the John H. Richards, the Sistrunk Endowed, the Worthey Endowed, and the Dunn Memorial Scholarships. The three Educational Enhancement Awards provide financial assistance to those enrolled in field geology camp during the summer. The five Scholarships are awarded to students for academic excellence. All are restricted to students at junior or senior rank, with the exception of the Sistrunk Endowed Scholarship and the Worthey Endowed Scholarships.

The Department of Geosciences encourages involvement in Sigma Gamma Epsilon, a nationally recognized honorary Earth Science society. Requirements for acceptance include a grade-point average of at least 3.00 in 12 or more hours of geoscience and a cumulative average of 2.67

The Department of Geosciences participates with the National Weather Association (NWA) and the American Meteorological Society (AMS) in training individuals for the respective "Weathercaster Seals of Approval". The Office of the State Climatologist and the MSU Climatology Laboratory are housed in the Department and are strongly involved in programs for all students with interests in broadcast meteorology and climatology.

#### DISTANCE LEARNING PROGRAMS

The Department of Geosciences offers four distance learning programs listed below. Each program utilizes recorded lectures and the Internet for course instruction.

Broadcast Meteorology Program. A three-year, 17 course, 52 credit hour program of study that can lead to a B.S. degree in Geosciences. Primarily for individuals in television weather.

Operational Meteorology Program. A three-year, 17 course, 52 credit hour program of study that can lead to a B.S. degree in Geosciences. Enrollment is restricted to members of the United States Armed Forces.

Teachers In Geoscience Program. A two-year, 12 course, 36 credit hour program of study that leads to a M.S. degree in Geosciences. Primarily for K-12 teachers. An additional two-year, 10 course, 30 credit hour program of advance course work is available.

Applied Meteorology Program. A two-year, 12 course 36 credit hour program of study that can lead to a M.S. degree in Geosciences. Primarily for individuals with meteorological, environmental, or hazardsrelated careers.

#### **GEOSCIENCES** Core

#### **General Education and College Requirements**

English Composition (6 hours)

sii Con	ipositio	(0 nours)
EN	1103	English Comp I OR
EN	1163	Accelerated Comp I
EN	1113	English Comp II OR

EN 1173 Accelerated Comp II

Foreign Language (6 hours)

2 semesters one Foreign Language (see advisor)

Humanities (6 hours)

3 hours Literature - see General Education courses History - see General Education courses 3 hours

Mathematics (6 hours)

Specified under concentration areas

Fine Arts (3 hours)

CO 1503 Intro to Theatre (for Broadcast Meteorology) See A&S Core requirements (for other concentrations)

Natural Sciences (9-12 hours)

Specified under concentration areas

Social Sciences (6 hours)

GR 1123 World Geography

CO 1403 Mass Media (for Broadcast Meteorology) 3 hours see Gen. Ed./A&S Core (other concentrations)

- **Major Core**
- **Basic Courses** 
  - GG 1113 Earth Science and
  - GG 1111 Earth Science Lab OR
  - GR 1114 Physical Geography w/Lab

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

#### Choose one of the following concentrations:

#### Professional Geology Concentration (GEOL)

Mathematics

- MA 1713 Calculus I MA 1723 Calculus II Natural Sciences CH 1213 Chemistry I Investigations in CH I CH 1211 CH 1223 Chemistry II 1221 Investigations in CH II CH Physics I PH 1113 PH 1123 Physics II Physics III OR Applied Geophysics PH 1133 4233 GG **Concentration Requirements** Earth Sciences II Lab GG 1121 GG 1123 Survey of Earth Sciences II GG 3133 Intro to Environmental Geology GG 3613 Water Resources\* Mineralogy GG 4114 GG 4123 Petrology Practicum in Paleontology Principles of Sedimentary Deposits I Structural Geology GG 4201 4304 GG GG4413 GG 4333 Geowriting\*\* Principles of Sedimentary Deposits II 4443 GG GG 4503 Geomorphology
  - GR 2313 Maps and Remote Sensing
  - Intro to Statistical Inference OR 3123 ST
  - GR 4633
  - Statistical Climatology\* Summer Field Camp\*\*\* 6 hours
  - Choose one of the following:
    - Principles of Paleobiology GG 4203
    - Micropaleontology GG 4113
    - GG 4133 Principles of Paleoecology
  - Choose two of the following:
    - Planetary Geology Intro to Oceanography GG 1133
    - GG 3603
    - Coastal Environments GG 4523
    - GR 1603 Intro to Meteorology

  - Choose three of the following:
    - GG 4063 Dev of Fossil Fuel Resources
    - 4153 Engineering Geology GG 4433 Subsurface Methods GG
    - Physical Hydrogeology GG 4613
    - GR 4303 Principles of GIS

General Electives - 3 hours

#### Total hours needed for major: 124

- Fulfills Computer Literacy Requirement.
- \*\* Fulfills Computer Literacy Requirement and Writing Requirement
- \*\*\* From an approved university. See advisor.

#### **Environmental Geoscience Concentration (ENGS)**

Mathematics MA 1313 College Algebra MA 1323 Trigonometry Natural Sciences 6-8 hours Science with lab (CH, PH, BIO) Science without lab (CH, PH, BIO) 3 hours **Concentration Requirements** GG 3603 Intro to Oceanography 3613 Water Resources\* GG GG 4333 Geowriting\*\* Intro to Meteorology Statistical Climatology\* GR 1603 GR 4633 18 hours 4000 level departmental courses Choose one of the following: Planetary Geology GG 1133 Intro to Environmental Geology GG 3133 GG 4523 Coastal Environments GR 2313 Maps and Remote Sensing Conservation of Natural Resources GR 3113 Natural Hazards GR 4813 General Electives 39 hours Consult advisor

- Total hours needed for major: 124
- Fulfills Computer Literacy Requirement.

\*\* Fulfills Computer Literacy Requirement and Writing Requirement

### **Geography Concentration (GPHY)**

Mathematic	s			
MA	1313	College Algebra		
MA	1323	Trigonometry		
Natural Scie	ences			
6-91	nours	Science with lab (CH, PH, BIO)		
3 ho	urs	Science without lab (CH, PH, BIO)		
Concentratio	on Requ	irements		
GG	4333	Geowriting*		
GR	2013 2313 4103	Cultural Geography		
GR	2313	Maps and Remote Sensing		
GR	4103	Geography of Tourism		
GR	4203	Geography of North America		
GR	4303	Principles of GIS		
6 ho	urs	4000 level departmental courses		
Choose	four of	the following:		
GG		Planetary Geology		
GG	3133	Intro to Environmental Geology		
GG	3603 3613 4523	Intro to Oceanography		
GG	3613	Water Resources**		
GG	4523	Coastal Environments		
GR	1603	Intro to Meteorology		
GR	3113	Conservation of Natural Resources		
GR	4813	Natural Hazards		
Choose	one of t	he following:		
	4213	Geography of Latin America		
	4223	Geography of Europe		
	4233	Geography of Asia		
GR	4243	Geography of Russia		
GR	4253	Geography of Africa		
GR	4253 4263	Geography of the South		
GR		Geography of Mississippi		
General Ele	General Electives			
36 hours		Consult Advisor		

- Fulfills Computer Literacy Requirement.
- \*\* Fulfills Computer Literacy Requirement and Writing Requirement.

# **Broadcast Meteorology Concentration (BMP)**

Mathematics

Wathematics					
MA	1713	Calculus I			
MA	1723	Calculus II			
Natural Sciences					
CH	1043	Survey of Chemistry I			
PH	1113	General Physics I w/ lab			
PH	1123	General Physics II w/ lab			
Concentratio	on Requ	lirements			
GG	3613	Water Resources*			
GR	1603	Intro to Meteorology			
GR	4402	Weather Analysis I			
GR	4412	Weather Analysis II			
GR	4422	Weather Forecasting I			
GR	4432	Weather Forecasting II			
GR	4613	Applied Climatology			
GR	4623	Physical Meteorology			
GR	4633	Statistical Climatology*			
GR	4733	Synoptic Meteorology			
	4753	Satellite and Radar Meteorology			
GR	4813	Natural Hazards			
GR	4823	Dynamic Meteorology I			
GR	4933	Dynamic Meteorology II			
GR	4963	Mesoscale Meteorology			
GR	4502	Practicum in Broadcast Meteorology I			
	4512				
	4522				
	4532				
	2013				
	3313				
	2333				
CO	3333	Advanced Television Production			
Choose	two of t	the following:			
GG	1133	Planetary Geology			
GG		Intro to Environmental Geology			
	3603	Intro to Oceanography			
	4523	Coastal Environments			
	3113	Conservation of Natural Resources			
GR	4203	Geography of North America			

General Electives 8 hours

Consult Advisor

# Total hours needed for major: 124

Fulfills Computer Literacy Requirement.

\*\* Fulfills Writing Requirement.

# **Professional Meteorology Concentration (PMET)**

Mathematics

	MA	1713	Calculus I	
	MA	1723	Calculus II	
	MA	2733	Calculus III	
	MA	3253	Differential Equations	
Natura	l Scie	nces		
	CH	1213	Chemistry I	
	CH	1211	Investigations in CH I	
	PH	2213	Physics I	
	PH	2223	Physics II w/ lab	
Concentration Requirements				
	GG	4333	Geowriting**	
	GR	1603	Intro to Meteorology	
	GR	4402	Weather Analysis I	
	GR	4412	Weather Analysis II	
	GR	4422	Weather Forecasting I	
	GR	4432	Weather Forecasting II	
	GR	4613	Applied Climatology	
	GR	4623	Physical Meteorology	

GR	4633	Statistical Climatology*
GR	4733	Synoptic Meteorology
GR	4753	Satellite and Radar Meteorology
	4823	Dynamic Meteorology I
GR	4933	Dynamic Meteorology II
GR	4963	Mesoscale Meteorology
Choose	two of t	the following:
GG	1133	Planetary Geology
GG	3133	Intro to Environmental Geology
GG	3603	Intro to Oceanography
GG	3613	Water Resources
GG	4523	Coastal Environments
GR	4813	Natural Hazards
GR	3113	Conservation of Natural Resources
GR	4203	Geography of North America
Specified El	ectives	(20-23 hours) - See advisor
		AMS (Broadcast Meteorology)
GR	4502	Practicum in Broadcast Meteorology I
GR	4512	
GR	4522	Practicum in Broadcast Meteorology III
GR	4532	Practicum in Broadcast Meteorology IV
GG	3613	Water Resources
GR	4813	Natural Hazards
CO	2333	TV Production
CO	3333	Advanced Television Production
		GIS
GR	2313	Maps and Remote Sensing
	3303	Survey of Geospatial Tech
GR	3313	Intro to Geodatabases
GR	4303	Principles of GIS
	4313	Advanced GIS
GR	4333	Remote Sensing of the Physical Envir.
GR	4323	Carographic Sciences

# ROTC

- AS 1012 The Air Force Today I AS 1022 The Air Force Today II AS 2012 The Development of Air Power I AS 2022 The Development of Air Power II AS 3013 Air Force Leadership Studies I AS 2022 Air Force Leadership Studies I
- AS 3023 Air Force Leadership Studies II
- Prep for Active Duty I Prep for Active Duty II AS 4013
- AS 4023

#### General Electives

\*

Consult advisor 1-4 hours

#### Total hours needed for major: 124

- Fulfills Computer Literacy Requirement. \*\* Fulfills Writing Requirement.

#### **Geographic Information Systems (GIS) Concentration**

Mathematics MA 1313 College Algebra MA 1323 Trigonometry
MA 1323 Trigonometry
Natural Sciences
6-9 hours Science with lab (CH, PH, BIO)
3 hours Science <i>without</i> lab (CH, PH, BIO)
Concentration Requirements
GR 1603 Intro to Meteorology
GR 2313 Maps & Remote Sensing
GR 3303 Survey of Geospatial Tech
GR 3113 Conservation of Nat. Resources
GR 3311 Geospatial Applications
GR 3313 Intro to Geodatabases
GR 4303 Principles of GIS
GR 4313 Advanced GIS
GR 4323 Cartographic Sciences
GR 4333 Remote Sensing of the Phy. Envir.

GR 12 ho CSE ECE	1284 4423	GIS Senior Research 4000-level departmental courses Intro to Computer Programming Introduction to Remote Sensing
	3123	Intro to Statistical Inference he following:
	1133	Planetary Geology
GG	3133	Environmental Geology
GG	3603	Intro to Oceanography
GG	3613	Water Resources*
GG	4523	Coastal Environments
		Natural Hazards
Choose t	hree of	the following:
GR	4633	Statistical Climatology*
WFA	4253	Applied Spatial Tech to Wildlife Mgt.
ABE	3513	GPS and GIS in Ag. Engineering
ST	4213	Nonparametric Methods
PSS	4373	Geospatial Ag Econ Mgt.
PSS	4411	Remote Sensing Seminar
FO	4313	Spatial Tech in Natural Resources
FO	4452	Remote Sensing Applications
General Elec	tives	
4-5 h	ours	Consult advisor
	T. 4.	1 h

#### Total hours needed for major: 124

\* Fulfills Computer Literacy Requirement.

\*\* Fulfills Computer Literacy Requirement and Writing Requirement.

# **Department of HISTORY (HI)**

#### Major Advisor: Dr. Anne Marshall Office: 213 Allen Hall

Among the humanities disciplines, history is unique in the emphasis it places on interpreting human experience over place and time. Historians study the evolution of human beings and societies, emphasizing the importance of people's choices, values, and actions. History provides indispensable background and the social and political context for other academic disciplines and branches of knowledge.

Specialization in history on the undergraduate level has direct professional application in the field of secondary education and provides excellent preparation for careers in law, the ministry, communication, journalism, government service, the military, and business. The department maintains a close working relationship with other departments on campus, making it possible for students who desire to do so to pursue double majors, joining history with geography, English, political science, business, computer science, or other fields.

To earn a Bachelor of Arts degree with a major in history, a student must pass a minimum of 39 semester hours in history with a 2.50 average in those courses. All undergraduates majoring in history must complete two of the following basic sequences: HI 1063/1073; HI 1163/1173; HI 1213/1223; HI 1313/1323. Along with these basic sequences, students are required to take a minimum of two upper division courses from Category I, two upper division courses from Category II, two upper division courses from any Category.

For information on which courses fit into particular categories, please contact an advisor. At the beginning of their junior year majors must enroll in and pass with a grade of "C" or better, a course in Historiography and Historical Method (HI 3903). Fifteen hours of the upper division work (3000 and 4000 level courses) must be taken at Mississippi State. For a minor in history, a student must take a minimum of 18 semester hours of history including one of the basic sequences listed above plus twelve additional credit hours in history courses numbered 3000 and above including at least one at the 4000 level. Students interested in a major or minor in history should consult one of the advisors listed.

The Department of History offers work leading to both the M.A. and Ph.D. degrees. The prerequisite for admission to a graduate program in history is a minimum of 18 hours of undergraduate history courses. Students desiring to pursue graduate studies should consult the Graduate Coordinator.

Mississippi State has a chapter of Phi Alpha Theta, the international history honorary society. Those interested in the eligibility requirements should consult with Professor Matthew Lavine. **General Education and College Requirements** English Composition (6 hours) 1103 English Comp I OR EN EN 1163 Accelerated Comp I EN 1113 English Comp II OR EN 1173 Accelerated Comp II Foreign Language (9 hours) 3 semesters one Foreign Language - see advisor Humanities (18 hours) Literature - see General Education courses 3 hours 3 hours History - see major Philosophy Elective - see A&S requirements 3 hours 9 hours Humanities Elective - see A&S core Must be from 2 different areas. Can be upper division hours; 6 hours may be HI courses; 3 hours must be from another area. Math (6 hours) MA 1313 College Algebra MA 1323 Trigonometry OR ST 2113 Intro to Statistics or higher math Fine Arts (3 hours) See A&S requirements Natural Sciences (9-12 hours) 3-4 hours Physical Science w/Lab\* 3-4 hours Biological Science w/Lab\*\* Natural Science Elective\*\*\* 3-4 hours Social Sciences (18 hours)\*\*\*\* 6 hours See A&S requirements 12 hours Social Sciences Electives **Major Core** Must choose two of the following sequences: HI 1163, HI 1173 World History HI 1213. HI 1223 Western World HI 1063, HI 1073 U.S. History HI 1313, HI 1323 East Asian Civ 6 hours Category I History U/D Electives 6 hours Category II History U/D Electives Category III History U/D Electives 6 hours U/D Electives 6 hours Oral Communication Requirement CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Writing Requirement HI 3903 Historiography and Historical Method Computer Literacy BIS 1012 Intro to Business Information Systems OR TKT 1273 **Computer Applications** General Electives+ 12 hours Consult advisor

# Total hours needed for major: 124

(31 hours must be A&S 3000 or above)

- CH, GG, or PH; see General Education courses.
- \*\* BIO, EPP, or PO; see General Education courses

\*\*\* Consult advisor.

- \*\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. Can be upper division hours. See advisor.
- 13 hours of general electives required if BIS 1012 is chosen for computer requirement.

# INTERDISCIPLINARY STUDIES (BSIS)

The Bachelor of Science in Interdisciplinary Studies is a universitywide degree coordinated through the College of Arts & Sciences by the Interdisciplinary Studies Committee. This multi-discipline academic program is appropriate for students motivated by specific interests not recognized in traditional majors and is not intended to compete with existing programs. All University requirements, including 31 hours of upper division course work and a year's residence, must be met for graduation.

The Bachelor of Science in Interdisciplinary Studies is intended to allow students maximum flexibility to custom-design a curriculum to meet their personal and career goals. Such a program of study must assure depth of study as well as breadth. Therefore, it must insure that students take at least 36 upper-division hours in the areas they have chosen for emphasis and that they select a minimum of 12 hours in each of three areas or 18 hours in two. Emphasis areas must be selected from at least two colleges. General Education requirement (45 hours) must be met in addition to a general studies core of 12 hours. A total of 122 semester hours is required for graduation, along with an MSU and cumulative GPA of 2.0.

To insure coherence in the program, the student must construct and explain in writing the rationale for the interdisciplinary studies program's direct relationship to the student's personal and career goals. Each student will be required to meet with advisors in the academic disciplines who will agree to sponsor the student in drawing up the proposed curriculum, formulating the rationale, and presenting the case in writing to the Interdisciplinary Studies Committee. This should be done prior to the senior year.

The Interdisciplinary Studies Committee will review applications, and if approved, the student may proceed with the curriculum. The Committee will meet during the fall, spring and summer semesters, and students must make written application by September 1, February 1 or May 1. Application for a degree must be submitted to the Office of the Registrar. For further information, contact:

> College of Arts & Sciences 224 Allen Hall, Mail Stop 9706 Mississippi State, MS 39762 (662) 325-2646

# **Department of MATHEMATICS (MA)** and STATISTICS (ST)

Department Head: Mohsen Razzaghi Associate Head and Graduate Coordinator: Corlis Johnson Undergraduate Coordinator: Len Miller Associate Undergraduate Coordinator for Advising: Robert Banik Office: 410 Allen Hall

The Department of Mathematics and Statistics offers a Bachelor of Arts degree and a Bachelor of Science degree. Both degrees are 124 hours. The department also offers undergraduate minors in mathematics and statistics which are described below.

Candidates for the Bachelor of Arts degree are required to complete a minimum of 36 hours of mathematics. Candidates for the Bachelor of Science degree are required to take a minimum of 42 hours of mathematics. Required courses for each degree are listed below. Students must also satisfy the General Education requirements and College Core requirements, including speech, computer literacy and writing requirements.

A minor in mathematics consists of MA 1713, MA 1723, MA 2733, MA 2743, MA 3113, MA 3253, one additional math course at the 3000 level and one additional 4000-level math course. A minor in statistics consists of MA/ST 3123, ST 4111, either ST 4213 or ST 4313, either MA/ST 4523 or MA/ST 4543, and both ST 4243 and ST 4253. Please notice that MA 2743 and MA 3113 are prerequisites for ST 4243 and ST 4253.

Mathematics courses below Calculus I, MA 1713, do not count toward a degree in mathematics. Entering freshmen who plan to major in mathematics but do not meet the prerequisites for MA 1713 are encouraged to take the necessary courses during the summer in order to avoid adding one or two semesters to their degree. Otherwise, students who wish to major in mathematics but who do not meet the prerequisites of MA 1713 should join the undeclared major until they are ready to take Calculus I. At that time, they will be assigned an advisor in the Department of Mathematics and Statistics.

For all degree programs, including minors, a student must have an overall C average and a C average in the math classes which count toward the degree. Moreover, students pursuing a B.A. or B.S. degree in mathematics must have at least a GPA of 2.5 in Calculus I-IV, Linear Algebra and Differential Equations (MA 1713-2743, MA 3113 and MA 3253). Students who fail to meet this requirement must withdraw from the B.A. and B.S. degree programs in Mathematics, subject to appeal to the department's undergraduate coordinator.

Regarding graduate study, the Department of Mathematics and Statistics offers a Master of Science in Mathematics, Master of Science in

Statistics, and a Doctor of Philosophy in Mathematical Sciences. Major areas of study for the Doctor of Philosophy in Mathematical Sciences include applied and computational mathematics, ordinary and partial differential equations, functional analysis and operator theory, functional equations, graph theory, topology and statistics. Please see the graduate coordinator for more details.

#### **B. A. in Mathematics**

#### **General Education and College Requirements**

Er

English Composition (6 hours)			
EN	1103	English Comp I OR	
EN	1163	Accelerated Comp I	
EN	1113	English Comp II OR	
EN	1173	Accelerated Comp II	
Foreign Lan	guage (9	9 hours)	
3 ser	nesters	one Foreign Language - see advisor	
Humanities	(18 hou	rs)	
3 hou	urs	Literature - see University/A&S Core	
3 hou	urs	History - see University/A&S Core	
3 hou		Philosophy - see University/A&S Core	
9 hours from at least 2 different areas of Humanities			
Math (6 hours)			
See major Core			
Fine Arts (3 hours)			
See A&S Requirements			
Natural Sciences (9-11 hours)			
BIO	1134	Biology I OR	
BIO	1144	Biology II	
aı	nd		
CH	1213	Chemistry I	
CH	1223	Chemistry II	
	1211	Investigations in Chemistry I	
-	R		
DLI	2212	Dhysics I	

2213 Physics I PH PH 2223 Physics II

Social Sciences Electives (18 hours)

Courses must spread over at least 4 disciplines with a max of one Economics and a max of 2 in each remaining discipline; 6 hours need to be from A&S requirements.

#### Major Core

Students should check for prerequisites for all courses and consult their advisor.

MA	1713	Calculus I
MA	1723	Calculus II
MA	2733	Calculus III
MA	2743	Calculus IV
MA	3053	Foundations of Math
MA	3113	Intro to Linear Algebra
MA	3163	Intro to Modern Algebra
MA	3253	Differential Equations I
MA	4633	Advanced Calculus I
3 hou	urs	Math Elective - 3000+
3 ho	urs	Math Elective - 4000
nal Comm	miantio	n Dogwiromont

- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking

# Writing Requirement

- MA 4213 Senior Seminar in Math
- Computer Literacy (3 hours)
- CSE 1213 Fortran OR
  - CSE 1233 Programming with C

General Electives

16-28 hours Consult advisor

# Total hours needed for major: 124

(31 hours must be 3000/4000 from A&S)

#### B.S. in Mathematics

	B.S. III Mathematics
General Education	n and College Requirements
English Composition	on (6 hours)
EN 1103	
	Accelerated Comp I
EN 1113 EN 1173	English Comp II OR Accelerated Comp II
	L.
Foreign Language	one Foreign Language - see advisor
Humanities (6 hour 3 hours	Literature - see University/A&S Core
3 hours	History - see University/A&S Core
Math (6 hours)	
See major (	Core
Fine Arts (3 hours)	
	equirements
	5-18 hours) - Choose one of three options.
Option 1	
PH 2213	
	Physics II
PH 2233 CH 1213	
CH 1213 CH 1223	
CH 1211	Investigations in Chemistry I
Option 2	
PH 2213	
PH 2223 PH 2233	
	Physics III se two of the following:
BIO 1134	Biology I
BIO 1144	Biology II
BIO 3103	Genetics I
Option 3	Biology I
BIO 1134 BIO 1144	
BIO 3103	
CH 1213	
CH 1223	
CH 1211	Investigations in Chemistry I
Social Sciences (6)	
	equirements
Major Core	
their advisor.	d check for prerequisites for all courses and consult
MA 1713	Calculus I
MA 1723	
MA 2733	
MA 2743	Calculus IV
MA 3053 MA 3113	Foundations of Math Intro to Linear Algebra
MA 3163	
MA 3253	Differential Equations I
MA 4313	5
MA 4633 MA 4643	
3 hours	Math Elective (3000+)
3 hours	Math Elective (4000)
Oral Communication	on Requirement
CO 1003	Fundamentals of Public Speaking
Writing Requireme	
MA 4213	Senior Seminar in Math
Computer Literacy	
CSE 1213	Fortran OR
CSE 1233	Programming with C
General Electives	Compute advisor
	Consult advisor
Tot	al hours needed for major: 124
(31 h	ours must be 3000/4000 from A&S)

#### STATISTICS (ST)

Major Advisor: Associate Professor Janice DuBien Office: 448 Allen Hall

Courses in statistics are designed to satisfy two objectives. The first objective is to provide graduate training for those students wishing to pursue a career as professional statisticians. Both graduate and undergraduate courses are available for this purpose. The second is to provide minors for students from other disciplines. A minor in statistics consists of MA/ST 3123, ST 4111, either ST 4213 or ST 4313, either MA/ST 4523 or MA/ST 4543, and both ST 4243 and ST 4253. Please notice that MA 2743 and MA 3113 are prerequisites for ST 4243 and ST 4253.

Graduate study is offered in the Department of Mathematics and Statistics leading to the degree of Master of Science in Mathematics, Master of Science in Statistics, and a Doctor of Philosophy in Mathematical Sciences. Many applied statistics courses are offered which are suitable for a minor in statistics at the master's or doctoral level. Specific course requirements for the graduate minor in statistics may be obtained from the Graduate Coordinator of the Department of Mathematics and Statistics.

Admission to the master's program in statistics is open to graduates in all disciplines. The program of study is a blend of both statistical theory and statistical methods. In addition, there is ample flexibility in the non-thesis option to allow a graduate student with special interests in an area of statistical application to minor in that particular applied field. The department awards a limited number of teaching assistantships. For further details, consult the Graduate Coordinator of the Department of Mathematics and Statistics.

# MUSIC (MU)

#### Major Advisors: Dr. Michael Brown or Dr. Jackie Edwards-Henry Office: Music Building A

The Department of Music offers a Bachelor of Arts in Music degree in a liberal arts tradition of music study. This degree is designed to provide foundation coursework to apply to a variety of interdisciplinary careers including music, in preparation for graduate study or for selfimprovement.

The department also offers a minor in Music. The minor includes 18 or 19 hours of music history and theory courses, piano, applied study, and participation in ensembles and recitals. All coursework for the minor in Music must be completed at the MSU Starkville campus with a grade of C or better. Consult the major advisor for specific course requirements.

#### **General Education and College Requirements**

English Composition (6 hours)

EN 1103	English Composition OR			
EN 1163	8			
EN 1103 EN 1113				
EN 1113 EN 1173	0 1			
	I I I I I I I I I I I I I I I I I I I			
Foreign Languages	(9 hours)			
3 semesters	Foreign Language - see advisor			
Humanities (18 hou	urs)			
3 hours	Literature Elective - see A&S requirements			
3 hours	History Elective - see A&S requirements			
3 hours	Philosophy Elective - see A&S requirements			
6 hours	Must be from 2 areas - EN, HI, PHI or REL			
3 hours	Met in Major Core			
Mathematics (6 hours)				
MA 1313	College Algebra			
3 hours	Math higher than MA 1313			
Natural Sciences (9-12 hours)				
3-4 hours	Physical Sciences w/lab (CH, GG, PH)*			
3-4 hours				
3-4 hours	Natural Science Elective**			
Fine Arts (3 hours)				
MU 2323	Music History III			
Social Science (18 hours)				

See A&S requirements 6 hours Must be from 3 areas 9 hours AN, CO, EC, GR, PS, PSY or SO 3 hours Met in Major Core **Major Core** MU 1162 Music History I MU 2322 Music History II MU 1213 Music Theory I MU 1321 Ear Training I Music Theory II MU 1413 MU 1521 Ear Training II MU 2613 Music Theory III 2721 Ear Training III MU Music Theory IV MU 2813 2921 MU Ear Training IV 3412 Conducting MU MU 2111 Piano Class MU 2121 Piano Class MU 3111 Piano Class MU 3121 Piano Class OR MU 3112 Piano Class MU 3122 Piano Class Oral Communication Requirement CO 1003 Fund of Public Speaking Computer Literacy Requirement Achieved through the Music Theory sequence (MU 1213, 1413, 2613 and 2813) Writing Requirement EDF 3413 Writing for Thinking See advisor for other approved courses. Applied Study (12 hours) 6 semesters of study at 2 hours per semester: 2 semesters of 1000-level courses 2 semesters of 2000-level courses 2 semesters of 3000-level courses must be completed on the same instrument At least 1 semester of 2000-level and 2 semesters of 3000-level work must be completed at MSU. Ensembles (4 hours) 4 semesters of ensembles must be completed at MSU, two of which must be the designated major ensembles. Other Requirements Piano Proficiency Exam Upper Division Proficiency Exam MU 1010 Recital Hour - must enroll each semester Recital or Project Music Electives (11 hours) 5 hours Music Electives Met in College Core 6 hours Total hours needed for major: 122

# Department of PHILOSOPHY and RELIGION

#### PHILOSOPHY Major (PR)

Major Advisor: Robert Thompson Office: 2nd Floor Etheredge Hall http://www.philosophyandreligion.msstate.edu

Philosophy is the study of the basic concepts-such as reality, truth, and goodness-which underlie the more specialized pursuits of science, art, education, religion, etc. Although students often study philosophy for its own sake, the general perspective it provides, and the rational skills it develops, are of immense practical value in any profession.

The baccalaureate degree in philosophy is the accepted major for those planning to enter graduate school in philosophy. It is, however, an excellent pre-law and pre-seminary degree and, because of its general nature, philosophy is highly appropriate as a double major with any other concentrated field of study.

The standard program leading to the Bachelor of Arts degree in philosophy has a major requirement of 30 hours, including Introduction to Philosophy, Introduction to Logic, Introduction to Ethics, History of Philosophy, Parts I and II, and Seminar in Philosophy. The final 12 hours, including six that must be PHI courses, are to be selected in consultation with, and with approval by, the major advisor.

The department also offers a minor in philosophy, with the requirements being 15 hours of PHI courses.

Students considering either a major or minor in philosophy should meet with one of the department's advisors as early in their careers as possible.

#### **General Education and College Requirements**

General Ed	ucation	and College Requirements		
English Cor	npositio	n (6 hours)		
EN	1103	English Comp I OR		
EN	1163	Accelerated Comp I		
	1113			
EN	1173	Accelerated Comp II		
Foreign Lar	0 0			
3 set	mesters	one Foreign Language - see advisor		
Humanities	(18 hou	rs)		
3 ho		Literature - see University/A&S Core		
3 ho		History - see University/A&S Core		
	urs	Philosophy Elective - see major		
9 ho	urs	Humanities Elective - see major		
	``	Must be from 2 different areas- see A&S Core		
Math (6 hou		Caller Alasha		
	1313			
MA ST	1323 2113	Trigonometry OR Intro to Statistics or higher math		
~ -		muo to Statistics of higher math		
Fine Arts (3	,	ity/A 8-S Decuirour outo		
		ity/A&S Requirements		
Natural Scie				
	nours			
	hours hours	Biological Sciences w/lab (BIO, EPP, PO)* Natural Science Elective**		
Social Scier				
6 ho	urs ours	See A&S requirements Social Sciences Electives		
		Social Sciences Electives		
Major Cor				
	1103			
PHI	1113	Intro to Logic		
	1123 3023			
	3023			
	ours	PHI Electives		
Oral Communication Requirement				
CO		1		
Writing Requirement				
PHI 3133		Seminar in PHI		
Computer L	iteracy -	- choose one of the following:		
-	1273			
	1012	Intro to Bus. Computer Systems		
	1213	Computer Programming with Fortran		
	1022			

- CSE 1233 Computer Programming with C
- CSE 1273 Computer Programming with Java
- General Electives (19 hours) Consult advisor

#### Total hours needed for major: 124

- (31 hours must be 3000/4000 from A&S)
- See University/A&S Core
- \*\* Consult advisor

\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor

#### **Religion Concentration (REL)**

#### Program Coordinator and Advisor: Albert Bisson Office: 2nd Floor Etheredge Hall

Religion refers to the basic human impulse to seek coherence in life, and to experience a sacred reality that guides and orders human existence. As an academic discipline the study of religion involves consideration of those writings, customs, and rituals that have historically served to form and distinguish religious groups. It includes examination of primitive religions and sectarian developments as well as study of the major world religions of both the east and west.

The Department of Philosophy and Religion offers a concentration in religion leading to the Bachelor of Arts degree in philosophy. This degree is an accepted major for entering graduate school, or to prepare for a career in a professional ministry or in teaching. The religion concentration has a special pastoral track for students who wish to prepare for graduate seminary studies. The broad historical and cultural orientation of the philosophy degree with a religion concentration makes it an excellent preparation for any career. It is highly appropriate as a double major, or as a minor in association with another field of study.

The major with the concentration in religion has a requirement of 30 hours. Of these, nine hours are required in philosophy. The philosophy component may be satisfied by taking either a) Introduction to Philosophy, Introduction to Logic, and Seminar in Philosophy, or b) History of Western Philosophy I and II, and Seminar in Philosophy. The remaining 21 hours must include Introduction to Religion, World Religions I and II, six hours of REL courses, and six hours of REL and PHI courses which are to be selected in consultation with, approved by, the Religion advisor.

The Department also offers a minor in Religion, with the requirement being 15 hours of any REL courses.

#### **General Education and College Requirements**

#### See Philosophy Requirements above

#### **Concentration** Core

Concentration		5	
REL 11	103	Intro to Religion	
REL 32	213	World Religions I	
REL 32	223	World Religions II	
Choose one	e of th	ne following combinations:	
PHI 11	103	Intro to Philosophy	
PHI 11	113	Intro to Logic	
OI	r		
PHI 30	023	History of W. Philosophy I	
PHI 30	033	History of W. Philosophy II	
Electives			
12 hour	s	<b>REL/PHI Electives</b>	
Oral Communication Requirement			
CO 10	003	Fundamentals of Public Speaking	
Writing Requirement			
PHI 31	133	Seminar in Philosophy	
Computer Literacy - choose one of the following			
TKT 12	273	Computer Applications	

- BIS 1012 Intro to Bus. Computer Systems
- Computer Programming with Fortran CSE 1213
- Computer Programming with C CSE 1233
- CSE 1273 Computer Programming with Java

General Electives (19 hours) - Consult advisor

#### Total hours needed for major: 124

#### (31 hours must be 3000/4000 level from A&S)

See University/A&S Core

Consult advisor.

Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor

# **OCCUPATIONAL THERAPY CURRICULUM (BIOT)**

#### Major Advisor: Mary Celeste Reese Office: 117 Harned Hall

Mississippi State University does not provide training in occupational therapy but does offer the background work necessary to transfer to a professional school. In their admission requirements professional schools differ, some requiring two years of pre-professional study, some

three and others four. Sixteen hours of observation are also required. Upon successful completion of the pre-professional and professional work, students are awarded the M.S. degree by the professional school. Students wishing to apply to the University of Mississippi Medical Center should do so by January 15 preceding the September they wish to enter. The University of Mississippi Medical Center only accepts Mississippi residents. Consult with your advisor for an appropriate schedule.

# PHYSICAL THERAPY CURRICULUM (BIOP)

#### Major Advisors: Mary Celeste Reese/John Lamberth Office: 117 Harned Hall/235 McCarthy Gym

Mississippi State University does not provide training in physical therapy but does offer the background work necessary to transfer to a professional school. In their admission requirements professional schools differ, some requiring two years of pre-professional study, some three, and others four. The courses listed below satisfy the requirements of the Mississippi Medical Center in Jackson, where most Mississippi State University students pursue their professional training. Forty hours of observation are also required. Upon successful completion of the pre-professional and professional work, students are awarded the Ph.D. degree by the professional school. Students wishing to apply to the University of Mississippi Medical Center should do so by January preceding the September they wish to enter. The University of Mississippi Medical Center only accepts Mississippi residents.

Admission requirements:

- 1. provide evidence of observation in a minimum of two physical therapy clinical departments or practices for a total of 40 hours (additional hours and sites are recommended)
- 2. have a baccalaureate degree
- 3. submit an official report of GRE scores. The report must include verbal, quantitative and analytical scores
- 4. return all application materials to the Office of Student Records and Registrar by the admissions deadline, and
- 5. complete the following prerequisite course requirements:
  - two physics courses with labs
  - two biological sciences courses with labs
  - two chemistry courses with labs
  - statistics course (mathematics, psychology or education)
  - advanced physical or biological science course
- 6. a minimum grade point average of 3.0 on a 4.0 scale

# Department of PHYSICS and ASTRONOMY (PH)

#### Major Advisors: Torsten Clay, Mark Novotny, and Jeffry Winger Office: 125 Hilbun Hall

Physics plays a basic role in all science and engineering disciplines. Physics is concerned with the study of the structure of matter, the nature of radiation, and the interaction of radiation and matter. Among the major branches are optical, laser, atomic, nuclear, molecular particle, condensed matter, bio-, astro-, plasma and computational physics. The B.S. program in physics provides an excellent, broadly based course of study with electives that allow the student to pursue his/her special interests in other subjects. The B.S. degree provides the necessary training for either employment in industry or government, or continued study at the graduate level.

The department also has a Physics/Pre-Medical curriculum for those students who wish to compete for admission to medical and dental schools. An applied physics curriculum is available for those who wish to work in research and development or pursue graduate work in applied physics, engineering physics or some branch of engineering. In addition, the department offers the Master of Science in physics and the Ph.D. in applied physics. Information may be obtained by writing the Department of Physics and Astronomy, P.O. Box 5167, Mississippi State, MS 39762. www.msstate.edu/Dept/Physics/

A minor in physics requires 12 hours of physics at the 3000 level or above. These courses should be selected in consultation with a physics advisor

The following is a recommended physics B.S. curriculum. Requirements for graduation are 124 hours with a GPA of at least 2.0. In addition, the student is required to maintain at least a C average in all physics courses

#### **General Education and College Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- Accelerated Comp I EN 1163
- EN English Comp II OR 1113
- EN 1173 Accelerated Comp II
- Foreign Language (6 hours)

2 semesters one Foreign Language - see advisor

- Humanities (6 hours)
  - 3 hours Literature - see University/A&S Core History - see University/A&S Core 3 hours

Math

- See Major Core
- Fine Arts (3 hours)

See A&S Requirements

Natural Sciences

See Major Core

Social Sciences (6 hours)

See A&S requirements

#### Major Core

Some substitutions for required courses are possible for double majors. Student should check prerequisites for all courses. Consult advisor.

- PH 1063 Descriptive Astronomy
- Physics I PH 2213 PH 2223
- Physics II PH
- 2233 Physic III PH 3613
- Modern Physics PH Elec Circuits 4113
- PH 4143 Inter Lab
- PH 4213
- Inter Mechanics I PH 4323 Elec Fields I
- PH 4413 Thermal Physics
- PH 4513 Inter Optics
- PH 4152 Mod Physics Lab
- PH 4713
- Intro Quantum Mechanics
- Physics Electives 6 hours; 3 hours must be above 3000 and 3 hours must be from:
  - PH 4223 Inter Mechanics II
  - 4333 PH Elec Fields II
  - Applications of Quantum Mechanics PH 4723

# Required Math and Science Courses

- Chemistry I CH 1213
- 1211 Investigations in Chemistry I (Lab) CH
- CH 1223 Chemistry II
- Investigations in Chemistry II (Lab) 1221 CH
- MA 1713 Calculus I
- MA 1723 Calculus II
- MA 2733 Calculus III 2743
- MA Calculus IV
- MA 3113 Intro to Linear Algebra
- MA 3253 Differential Equations I MA 3353
- Differential Equations II
- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking
- Writing Requirement
  - GE 3513 Tech Writing
- Computer Literacy choose one of the following:
  - CSE 1233 Comp Prog with C (recommended)
    - CSE 1213 Comp Prog with Fortran
    - CSE 1284 Intro to Comp Programming
- Science and Math Electives
  - 9 hours Consult advisor

# General Electives

Consult advisor 6 hours

#### Total hours needed for major: 124

(31 hours must be 3000/4000 from A&S)

# **Physics/Pre-Medical Curriculum**

For this curriculum the required courses for the physics major are reduced by 9 hours of physics (two physics electives and PH 4413) and 3 hours of math (MA 3353). The recommended use of these 12 hours and 15 elective hours follows (check with Pre-medical advisor):

CH 4513 Organic Chemistry I CH 4511 Organic Chemistry I Lab CH 4523 Organic Chemistry II CH 4521 Organic Chemistry II Lab BCH 4013 Principles of Biochemistry BIO 1134 Biology I BIO 1144 **Biology II** 8 hours chosen from BIO 3304, BIO 3504, BIO 4504, BIO 4514

For this curriculum the required physics courses for the physics major are reduced by 6 hours of physics electives. The recommended use of these 6 hours and 15 elective hours follows:

~	onours	una 15	cleetive nours follows.
	PH	4333	Elec Fields II OR
	ECE	3323	Electromagnetics II
	18 ho	urs	Technical electives; consult advisor
	10 110	uis	rechinear ciccuves, consult advi

# **Department of POLITICAL SCIENCE** and PUBLIC ADMINISTRATION (PS) (PPA)

#### Undergraduate Coordinator: Dr. Rick Travis Office: 195 Bowen Hall

The Department of Political Science and Public Administration offers a Bachelor of Arts degree (B.A.) for individuals who have an interest in politics and who seek careers in the law, in federal, state, or local government (either administrative or elective), in the diplomatic service, with international organizations, in the business world, or in teaching. The Department also offers a Master of Arts degree in Political Science (M.A.), a National Association of Public Affairs and Administration Accredited graduate professional degree in Public Administration (M.P.P.A.) and a Ph.D. in Public Policy and Administration which prepare men and women for careers in the public service. Interested students should consult the undergraduate or graduate coordinator.

Students pursuing the B.A. degree in Political Science are required to complete PS 1113, PS 4464, EC 1033 or EC 2113, and three of the following introductory Political Science courses: PS 1313, PS 1513, PS 2403 and PS 2703 or PS 2713. They must also complete a minimum of seven upper-division elective courses in Political Science (totaling at least 21 credits); of these seven courses, at least one must be completed in each of three of the four subfields of the discipline as displayed in the "Part III: Description of Courses" portion of this Bulletin (American Politics, International Politics, Political Theory, and Comparative Politics).

Political Science majors who wish to teach social studies in Mississippi may become certified by combining the Political Science major with appropriate courses in the College of Education; in Mississippi, it is not necessary to major in secondary education in order to become certified to teach. At the same time, majors in secondary education who plan to become social science teachers should consider a second major, or a minor in Political Science.

Students not majoring in Political Science may wish to select a minor. A minor consists of a minimum of 18 hours of course work in Political science at least nine of which must be at the 3000 level or above. Interested nonmajors should speak with the undergraduate coordinator to formulate a suitable program of study.

The John C. Stennis Scholarship in Political Science is awarded each spring to at least two graduating high school seniors and/or communitycollege graduates who are Mississippi residents, and who plan to major in Political Science at Mississippi State University. These scholarships carry a stipend of \$2,000 per year for four years or until graduation, whichever comes sooner.\* The Stennis Scholarships are awarded to aca-demically outstanding students who demonstrate the desire and potential to become actively involved as leaders in the political and governmental affairs of the community, state, or nation. For further information, consult the Head of the Department of Political Science and Public Administration, P.O. Box PC, Mississippi State, MS 39762 or telephone (662) 325-2711; high school counselors should also be able to provide application forms.

**Applied Physics Curriculum** 

The Morris W. H. "Bill" Collins Scholarship may be awarded to one African American political science major who is a resident of Mississippi, who has earned 15 credits in Political Science at Mississippi State University, and who demonstrates potential for making contributions in some area of public service. This scholarship carries a stipend of \$1,500 per year for two years or until graduation, whichever comes first. Students may be nominated by faculty for the Collins Scholarship or make application on their own. For further information, consult the Head of the Department of Political Science, P.O. Box PC, Mississippi State, MS 39762 or telephone (662) 325-2711.

The Haley Barbour Scholarship is awarded each spring to one Political Science major, with two years of college remaining, who evidences a determination to become involved in the political life of the nation. The Barbour Scholarship carries a stipend of \$1,500 per year for a maximum of two years, typically the recipient's junior and senior years. Political Science majors may be nominated by faculty for the Barbour Scholarship or make application on their own. For further information and application forms, consult the Head of the Department of Political Science and Public Administration, P.O. Box PC, Mississippi State, MS 39762 or telephone (662) 325-2711.

The following is a typical course of study for Political Science majors, but students should consult with their advisors in order to develop a program which is best for them. For more information contact: Dr. Rick Travis at (662) 325-7866 or travis@pspa.msstate.edu.

\* Transfer students receive the stipend for two years or until graduation, which ever comes sooner.

#### **General Education and College Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- Accelerated Comp I EN 1163
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II
- Foreign Language (9 hours)

3 semesters one Foreign Language - see advisor

Humanities (18 hours)

3 hours	Literature - see	General	Education	course

- 3 hours History - see General Education courses
- Philosophy Elective Consult advisor 3 hours
- 9 hours Humanities Electives

Must be from 2 different areas - see A&S Core

Mathematics (6 hours)

- MA 1313 College Algebra
- 3 hours above college algebra
- Fine Arts (3 hours)

See A&S Core List

- Natural Sciences (9-12 hours)
  - 3-4 hours Physical Sciences w/lab (CH, GG, PH)\*
  - Biological Sciences w/lab (BIO, EPP, PO)\* 3-4 hours
  - Natural Science Elective\*\* 3-4 hours
- Social Sciences (18 hours)\*\*\*
  - See General Education courses 6 hours
  - 12 hours Social Sciences Electives
- **Major Core** 
  - 1113 American Government\*\*\*\* PS
- Introductory PS Courses (9 hours)

Choose 3 of the following (one counts as a Social Science req):

- 1313 Introduction to International Relations

- Introduction to Public Policy OR
- PS 2713 Introduction to Engineering and Public Policy
- PS Upper Division Electives (21 hours)
- (See advisors for selection)\*+

Oral Communication Requirement

- 1003 Fundamentals of Public Speaking OR CO
- CO 1013 Introduction to Communication

Writing Requirement

- PS 4464 Political Analysis
- Computer Literacy
  - 4464 Political Analysis PS
- General Electives (18 hours)

Total hours needed for major: 124

#### (31 hours must be A&S upper division)

- See General Education courses
- \*\* Consult advisor

\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics - EC 1033 or EC 2113, can be chosen. See advisor.

\*\*\*\* Also counts as Social Science Requirement.

\*+ Must have at least one course from 3 of 4 areas as listed under the Political Science and Public Administration Department in the bulletin's Description of Courses: American Politics, International Politics, Political Theory, Comparative Politics. Only one directed individual study course and only one honors thesis course my be included.

# PRE-PROFESSIONAL PROGRAMS

#### **PRE-LAW concentration (LAW)**

Faculty Advisors Mr. Whit Waide; Office: 199 Bowen Hall Dr. Matthew W. Little; Office: 316 Lee Hall

Most directors of law school admissions indicate that a wide variety of majors from various colleges are appropriate for admission to their law school. Since there is no formal pre-law curriculum, a course of study is designed to prepare students for law school in conjunction with the student's formal major. Essentially, it will provide students contemplating a career in law with a broad-based program of study that focuses on improvement of the student's skills in oral communication, writing, and analytical reasoning.

Students interested in careers in law are encouraged to speak with a Pre-Law advisor and to participate in various law-related programs such as law school visitations, the Pre-Law Society, and Distinguished Jurist Day. Your Pre-Law advisor will provide guidance on the law school admissions test (LSAT), law school application process, and on selecting the best law school for you. LSAT and law school applications are available in room 190 Bowen Hall. For additional information contact Mr. Waide at (662) 325-7860 or wwaide@pspa.msstate.edu.

There is no set curriculum but the following are suggested basic courses for a person interested in law school. See your pre-law advisor for additional course suggestions based on your career interest and major.

BL	2413	Legal Environment of Business
EN	4223	Principles of Legal Writing
LSI	K 2013	Speed Reading
PH	I 1113	Introduction to Logic
PS	3063	Constitutional Powers
PS	3073	Civil Liberties
PS	4183	Judicial Process
PS	Y 3213	Psychology of Abnormal Behavior
PS	Y 4353	Psychology and the Law
SO	3603	Criminological Theory

# **PRE-MEDICAL and PRE-DENTAL concentration** (MED) (DENT)

Dir. of Advising Mary Celeste Reese; Office: 117 Harned Hall Undergraduate Coordinator: Deb Mlsna, 1115 Hand Lab Professor Kenneth Willeford; Office: 445 Dorman Hall

Preference is given to persons who have completed four years of study, majored in a specific discipline, and earned a bachelor's degree. The curriculum for admission to professional school includes one academic year each of English, biological science, inorganic chemistry, organic chemistry, mathematics, physics and advanced science. The Pre-Medical advisors can provide detailed information about requirements of various schools.

#### PRE-NURSING concentration (BION)

Major Advisor: Mary Celeste Reese Office: 117 Harned Hall

UMC and MUW have slightly different admission requirements, so course selection will vary during the sophomore year depending upon which professional school the student plans to attend. Students should consult the advisor for details. A minimum grade of C and a minimum

PS

- PS Comparative Government 1513
- Introduction to Political Theory PS 2403
- PS 2703

composite score of 21 on the ACT is required for admission. Application for professional school is normally made during the fall preceding the year admission is desired. Consult your advisor for developing an appropriate schedule of classes.

#### **PRE-OPTOMETRY concentration (BIOO)**

Major Advisor: Mary Celeste Reese Office: 117 Harned Hall

Requirements for admission to the various optometry schools differ. Students should check the specific requirements of the professional schools to which they plan to apply. Pre-Optometry students should plan to take the Optometry College Admission Test (OCAT) during the sophomore or junior year. Consult your advisor for developing an appropriate schedule of classes.

#### **PRE-PHARMACY** requirements (CHPH)

Major Advisors: Undergraduate Coordinator Deb Mlsna Professors Keith Mead and Peter Rabideau Office: 1115 Hand Lab

The pre-pharmacy program is intended for students who wish to attend the School of Pharmacy at the University of Mississippi. No degree will be granted from Mississippi State University, and there are thus no university or college requirements. The courses listed below will satisfy the requirements for the School of Pharmacy at the University of Mississippi. Most pharmacy schools have similar requirements. However, students who wish to attend other pharmacy schools should check the specific requirements for that school.

#### **Required Courses**

Kequiteu Co	Juises	
CH	1213	Chemistry I
	1211	
CH	1223	Chemistry II
CH	1221	Chemistry II Lab
	4513	
CH	4511	Organic Chemistry Lab I
CH	4523	Organic Chemistry II
CH	4521	Organic Chemistry Lab I
BCH	4603	General Biochemistry I
BCH	4713	Molecular Biology
BIO	1134	Biology I
BIO	1144	Biology II
BIO	4514	Animal Physiology
BIO	3304	General Microbiology
BIO	4405	Pathogenic Microbiology
BIO	4413	Immunology
BIO	3103	Genetics I or BIO 4133 Human Genetics
PHI	2123	Medical Ethics
EN	1103	English Composition I
	1113	
ST	2113	Intro to Statistics
MA	1713	Calculus I
PH	1113	General Physics I
	1123	
CO	1003	Fundamentals of Public Speaking
EC	2123	Microeconomics
ELECTIVE	S (15 h	ours):

Social and Behavioral Science Electives (6 hours):

At MSU EC 2113 Macroeconomics is a pre-requisite for the required course EC 2123 (see above), and EC 2113 will count as one social science elective. In addition to EC 2113 one course from either Psychology, Sociology, Political Science, or Anthropology is required.

Humanities and Fine Arts Electives (9 hours):

At least 3 credit hours required in each of the two main areas.

Humanities Electives should be chosen from the areas: English Literature, Foreign Language, History, Religion or Philosophy

General Electives

To bring the total number of credit hours up to 92

# **Department of PSYCHOLOGY (PSY)**

Major Advisor: Professor Stephen Klein Office: 110 Magruder

Mississippi State University offers majors leading to the B.A. or B.S. degree, and the M.S. and Ph.D. degrees. Undergraduate students wishing to major in psychology must have a minimum 2.0 GPA on all college work attempted prior to entering the major. Transfer students also must have a minimum 2.0 GPA to be admitted to the psychology major. Students must earn a grade of C or higher in all PSY courses applied toward the psychology major requirements.

The Bachelor of Arts and Bachelor of Science degree programs in psychology are designed to provide training either for immediate employment or for advanced training in psychology or related fields. Many careers in psychology require advanced study beyond the bachelor's degree, but there are also career opportunities at the bachelor's level. The B.A. program requires a minimum of 120 hours. The B.S. program requires a minimum of 124 hours. Either program will prepare students for immediate employment or for advanced training; the difference is in the specific requirements for the degree. (See curriculum listings below.)

A bachelor's degree in psychology prepares graduates to pursue:

- · master's or doctoral study in psychology, such as clinical or counseling psychology, cognitive psychology, social psychology, experimental psychology, forensic psychology, etc.
- graduate school in related areas such as guidance, counseling, educational psychology, rehabilitation, social work, criminology, law school, management, marketing, etc.
- · admission to medical, nursing, or physical therapy school with a psychology major and all necessary science courses.
- immediate employment in private business or government (e.g., working with the mentally ill or the mentally challenged, social work, personnel work, quality control jobs, management training, marketing research, sales, etc.).

#### **B.A. in Psychology**

The Bachelor of Arts degree program in psychology trains students in the field of psychology while providing exposure to a broad range of courses in the humanities and social sciences. Foreign language proficiency at the third-semester level is required.

#### **General Education and College Requirements**

English Composition (6 hours)

- ΕN 1103 English Comp I OR
- ΕN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- Accelerated Comp II EN 1173
- Foreign Language (9 hours)

3 semesters one Foreign Language - see advisor

- Humanities (18 hours)
  - 3 hours Literature - see University/A&S Core
  - History see University/A&S Core 3 hours
  - 3 hours Philosophy Elective - Consult advisor
  - 9 hours Humanities Elective

Must be	from 7	2 different areas	600 /	8.8	Core
wiust be	1  fom  2	z annerent areas	- see A	1025	Core

Mathematics (6 hours)

- MA 1313 College Algebra
  - MA 1323 Trigonometry OR
- 2113 ST Intro to Statistics (or higher math)

Fine Arts (3 hours)

See A&S Core List

Natural Sciences (9-12 hours)	
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- 3-4 hours Physical Sciences w/lab (CH, GG, PH)\*
- 3-4 hours Biological Sciences w/lab (BIO, EPP, PO)\*

Natural Science Elective\*\* 3-4 hours

Social Sciences (18 hours)\*\*\*

PSY 1013	General Psychology
3 hours	Advanced PSY course
12 hours	See A&S Requirements

#### Major Core

PSY 1021 Careers in Psychology PSY 3104 Intro Psychological Statistics

91

PSY 3314 Experimental Psychology Choose two of the following: PSY 3213 Psy of Abnormal Behavior PSY 3623 PSY 3803 Social Psychology Developmental Psychology PSY 4203 Theories Personality Choose one of the following: PSY 3343 Psychology of Learning PSY 3713 Cognitive Psychology Choose one of the following: PSY 4403 Biological Psychology PSY 4423 Sensation and Perception 3 hours Choose one unused course from the groups above 12 hours PSY Upper Division Electives+ Oral Communication Requirement CO 1003 Fundamentals of Public Speaking Writing Requirement Satisfied by successful completion of PSY 3314 Computer Literacy Satisfied by successful completion of PSY 3314 General Electives Consult advisor Total hours needed for major: 120

(30 hours must be A&S upper division work)

See General Education courses.

\*\* Consult advisor

\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours (6 hours from the Social Science core and 12 hours of SS electives). Only one Economics allowed. See advisor.

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#### B.S. in Psychology

The Bachelor of Science degree program in psychology allows students to specialize somewhat in their training while still ensuring adequate exposure to the humanities and social sciences. Foreign language proficiency at the second-semester level is required. Students in the B.S. program must complete a six-course theme in an area of their choice. A theme may be a selected set of courses relating to an identifiable interest in psychology, or it may be a minor in another department, or it may be an existing concentration or certificate, such as criminal justice, gerontology, etc. Courses used to meet other requirements in the psychology major, with the exception of the additional science requirement (see below) cannot also be used in the theme. Students' themes are worked out with their advisors and require careful advanced planning. All themes must be approved by the advisor and the department head at the time that student enters the B.S. program. If changes in themes are needed, they may be made subsequently with the advisor's approval.

If the theme does not include nine credits from approved natural and social science departments, then there is an additional science requirement of nine total credits coming from one or more of these departments that must be taken as electives; these cannot be credits already used to meet other requirements for the psychology major, including the General Education requirements and the College of Arts & Sciences common curriculum requirements. Approved natural and social science departments (and applicable course prefixes) are BIO, CH, PH, GG, AN, GR, PS, PSY and SO. Most themes in psychology already contain sufficient natural or social sciences to satisfy this requirement without further coursework.

# **General Education and College Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II

Foreign Language (6 hours)

2 semesters one Foreign Language - see advisor Humanities (6 hours)

> 3 hours Literature - see General Education courses 3 hours History - see General Education courses

Mathematics (6 hours) MA 1313 College Algebra MA 1323 Trigonometry OR 2113 Intro to Statistics (or higher math) ST Fine Arts (3 hours) See A&S Core List Natural Sciences (9-12 hours) Physical Sciences w/lab (CH, GG, PH)\* 3-4 hours 3-4 hours Biological Sciences w/lab (BIO, EPP, PO)\* 3-4 hours Natural Science Elective\*\* Social Sciences Electives (6 hours)\*\*\* General Psychology See Gen. Ed./A&S Core PSY 1013 3 hours **Major Core** PSY 1021 Careers in Psychology PSY 3104 Intro Psychological Statistics PSY 3314 Experimental Psychology PSY 4403 **Biological Psychology** Choose two of the following: PSY 3213 Psy of Abnormal Behavior PSY 3623 PSY 3803 Social Psychology Developmental Psychology PSY 4203 Theories Personality Choose one of the following: PSY 3343 Psychology of Learning PSY 3713 Cognitive Psychology Choose one of the following: PSY 4423 Sensation and Perception PSY 4223 Drug Use and Abuse 3 hours Choose one unused course from the groups above 12 hours PSY Upper Division Electives + Theme Electives (18 hours) Consult advisor for details Additional Science Requirement Consult advisor for details

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking Writing Requirement

Satisfied by successful completion of PSY 3314 Computer Literacy

Satisfied by successful completion of PSY 3314

General Electives Consult advisor

#### Total hours needed for major: 124

(31 hours must be A&S 3000/4000 work)

See General Education courses

\*\* Consult advisor.

\*\*\* Must be from 2 different areas.

PSY Upper Division courses should be chosen from: PSY 3003, PSY 3023, PSY 3073, PSY 3203, PSY 3353, PSY 3353, PSY 3353, PSY 3413, PSY 3503, PSY 4000 (for 3 credits; taken only once), PSY 4123, PSY 4323, PSY 4333, PSY 4343, PSY 4353, PSY 4364, PSY 4523, PSY 4645, PSY 4523, PSY 4673, PSY 4733, PSY 4743, PSY 4753, PSY 4753,

For the 18-hour minor is Psychology, at least nine hours must come from the list of core PSY courses, while the remainder may come from the list of PSY electives. Students should consult a PSY major advisor to plan a minor program that will complement their major studies and career interests.

For a Psychology concentration in the B.S.I.S program of study, at least half of the classes (six hours for the 12-hour concentration or nine hours for the 18-hour concentration) must come from the list of core PSY courses while the remainder may come from the list of PSY electives. All of these must be upper-division courses. Students should see the undergraduate coordinator in the Psychology Department to plan a concentration that will complement their career interests.

# Department of SOCIOLOGY (SO) (SW) (CRM)

# SOCIAL WORK (SW)

#### Program Director: Adele Crudden Office: 299 Bowen Hall

The Social Work Program at Mississippi State University is accredited by the Council on Social Work Education. Social work is a challenging and rewarding profession with the primary goal of enhancing individual functioning and promoting human rights and social and economic justice. The Bachelor of Social Work graduate is prepared to pursue graduate social work education or to work as a generalist social work practitioner in a variety of practice settings. These include, but are not limited to the following: child welfare service agencies, family services, medical hospitals, mental health clinics, public health clinics, home health agencies, nursing homes, industries, juvenile and family court, shelters for battered women and children, neighborhood and community services.

The Social Work curriculum is grounded in a liberal arts perspective. This liberal arts perspective enhances the person-in-environment focus of generalist social work practice. A student may declare social work as a major at any time in his or her academic career. There is a formal admission process into the program. Some upper division courses are restricted to students who have been admitted to the program. To be eligible for admission to the social work program students must:

- 1. Have a cumulative GPA of 2.0:
- Complete the following social work courses with a minimum grade of "C": SW 2303 Social Welfare Policy I, SW 3003 Populations at Risk, and SW 3013 Human Behavior in the Social Environment I;
- 3. Complete SW 2213 Intro to Social Work (including 3 hrs of service learning experience) with a minimum grade of B;
- 4. Complete an "Application for Admission"; and
- 5. Complete an application with three reference letters and participate in a personal interview with Social Work Admissions Committee.

The following liberal arts courses must be completed prior to petition for admission to the major: EN 1103 or EN 1163; EN 1113 or EN 1173; MA 1313 or MA 1303; BIO 1004; SO 1003; PS 1113; PSY 1013; EC 2113.

Before enrolling in any social work classes, it is the responsibility of the student to consult with their social work advisor regarding any prerequisites for social work classes.

The criteria for remaining in the program include:

- 1. Maintain an overall GPA of 2.0, with a 2.5 GPA for all social work courses.
- 2. Must earn a minimum of a "C" in each social work course.
- 3. Continue to demonstrate an aptitude for a social work career.
- 4. Adhere to all academic expectations of the university and the social work program.
- 5. Adhere to the National Association of Social Workers Code of Ethics.

#### **General Education and College Requirements**

English Composition (6 hours)

- 1103 English Comp I OR EN
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II
- Foreign Language (6 hours)

2 semesters one Foreign Language - see advisor

- Humanities (18 hours)\*
  - 3 hours Literature - see General Education courses
  - History see General Education courses 3 hours
  - Introduction to Philosophy OR PHI 1103
  - PHI 1113 Introduction to Logic
  - Literature Elective 3 hours
  - History Elective 3 hours
  - 3 hours Humanities Elective
- Mathematics (6 hours)
  - MA 1313 College Algebra OR
  - MA 1303 Quantitative Algebra
  - ST 2113 Stats for Behavioral Sciences
- Fine Arts (3 hours)
  - See A&S Core List

Natural Sciences (9-1
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- BIO 1004 Anatomy and Physiology
  - Physical Sciences w/lab (CH, GG, PH)\*\* 3-4 hours
  - 3-4 hours Natural Science Elective\*
- Social Sciences (18 hours)

SO	1003	Intro to Sociology
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PS 1113 American	Government
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- SW 3003 Populations at Risk
- PSY 1013 General Psychology
- EC 2113 Prin of Macroeconomics
- AN 1103 Intro to Anthropology OR
- AN 1143 Intro to Cultural Anthropology
- **Major Core** 
  - (See advisor for course sequencing)
    - SW 2303 Social Welfare Policy I
    - SW 2313 Intro SW/Social Welfare
    - Social Welfare Policy II\*\*\* SW 2323
    - SW 3013 Human Behavior & Social Environment\*\*\*
    - SW 3023 Human Behavior & Social Environment II\*\*\*
    - SW 4613 Child Welfare Service
    - Research Methods in Social Work\*\*\* SW 3213
    - SW Social Work with the Aged OR 4623
    - SW 4633 Social Work in Health Care OR
    - Social Work Services in Schools OR SW 4643
    - SW 4533 Substance Abuse and Addictions in SW Services

Students must successfully complete a formal admissions process prior to taking the following courses:

SW 3513 SW Practice I\*\*\*

- SW Practice II\*\*\* SW 3523
- SW with Communities & Organizations SW 3533
- Field Work includes full-time placement for one semester in a super-

vised agency setting.

- SW 4916 Field Work Practicum\*\*\*
- SW 4926 SW Field Work Practicum II \*\*\*

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

- SW 4713 SW Senior Seminar\*\*\*
- Computer Literacy

TKT 1273 **Computer Applications** 

General Electives

Consult advisor 2 hours

#### Total hours needed for major: 124

#### (31 hours must be A&S 3000/4000 level)

- Consult advisor
- See General Education courses.
- \*\*\* Course has prerequisite. Check course description in back of this catalog or consult advisor.

# SOCIOLOGY (SO)

Undergraduate Advisor: Shannon Lane Graduate Advisor: Lynne Cossman Office: 207 Bowen Hall

The following degree programs are offered: Bachelor of Arts, Master of Science, and Doctor of Philosophy.

Sociology is the scientific study of social life. With an interest in understanding human behavior, sociologists study such phenomena as deviant behavior, social organization, stratification, population, community, social institutions, race and ethnic relations, social problems, theory and methods of research.

Sociology majors are well prepared to enter many rewarding positions in the work force right out of college or further graduate training in law, business, community planning, architecture, medicine, politics or academics. Opportunities for employment include, but are not restricted to entry-level positions in administration, advertising, banking, counseling (family planning, career, substance abuse, etc.), health services, journalism, group and recreation work, marketing and market research, sales, non-profit organizations, teaching, criminal justice, social services and social research. In addition, sociology provides training that other liberal arts majors do not, such as the core elements of human interaction and relationships, and basic training for research analyst positions (in statistics and research methods, which include computer applications, for example).

Students are eligible for membership in the Mississippi Alpha chapter of Alpha Kappa Delta, the International Sociology Honor Society. To be considered for membership, a student must be an officially declared sociology major or demonstrate a serious interest in sociology, must be at least a junior, have at least a 3.00 overall GPA, and must have maintained a 3.00 GPA in sociology courses.

To earn a Bachelor of Arts degree with a major in sociology, a student is required to take 36 hours of sociology.

#### Sociology Major with a Specialization Course Requirements

The sociology major consists of a sequence of five levels of courses ranging from introductory to the more advanced and capstone courses. Students are expected to complete courses in the lower levels before taking courses in the more advanced levels. For example, students should complete Level 1 courses before completing Level II courses, etc. The lower level courses are prerequisites for the advanced level courses.

**Selecting a specialization**. There are two types of courses to complete at Level IV, specialization and elective courses. With the assistance of their advisor, students will select the specialization that best fits with their post-graduate plans. Each specialization is described below.

**Population and Environment Specialization**. Students planning to pursue a career in some aspect of business or in some government agencies may want to consider selection this specialization since these courses will focus on information and skills needed in the economic sector of society.

**Family and Gender Studies Specialization**. Students planning to work in private or government agencies that provide personal or social services to various populations in society will want to consider this specialization. The topics covered and the skills developed in theses courses will provide much needed background information and understanding for working with persons and groups.

Socio-Economic Development Specialization. This specialization was developed for students that anticipate working in the area of socioeconomic development at the community, state or national levels. The knowledge and background necessary to work effectively in various private and public organizations/agencies that focus on social and/or economic development is provided. Courses in this area focus on knowledge of the social forces and processes operating in specific environments that may facilitate or inhibit development and foster the ability to analyze relevant information and data.

**General Sociology Specialization**. Often students wish to obtain a more traditional liberal arts major by selecting courses that interest them personally. This specialization is the logical choice for these students.

#### Sociology Minor

To earn a minor in sociology, a student must take 18 hours of undergraduate sociology courses. SO 1003, 2203, and 3213 are required. The other three SO courses must be the 2000 level or above and include at least one 4000 level SO course.

Students who wish to major or minor in the department should plan their programs with the departmental major advisor as soon as possible after entering the University and should consult with their advisor before each registration period. Programs are arranged individually to combine the most varied advantages consistent with the student's interest and purposes. Persons interested in secondary school teaching may elect sufficient courses in the College of Education to satisfy certification requirements for teaching social studies.

#### **General Education and College Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR
  - EN 1163 Accelerated Comp I
  - EN 1113 English Comp II OR
  - EN 1173 Accelerated Comp II
- Foreign Language (9 hours)

3 semesters one Foreign Language - see advisor

Humanities (18 hours)

- 3 hours Literature see General Education courses
- 3 hours History see General Education courses
- 3 hours Philosophy see advisor
- 9 hours Humanities Electives
  - Must be from 2 different areas see A&S Core

Mathematics (6 hours)

- MA 1313 College Algebra
- ST 3123 Statistics

- Fine Arts (3 hours)
- See A&S Core List
- Natural Sciences (9-12 hours)
  - 3-4 hours Physical Sciences w/lab (CH, GG, PH)\*
  - 3-4 hours Biological Sciences w/lab (BIO, EPP, PO)\*
  - 3-4 hours Natural Science Elective\*\*

Social Sciences (18 hours)\*\*\*

- SO 1003 Intro to Sociology PS 1113 American Government
- EC 2113 Macroeconomics OR
- EC 2123 Microeconomics
- 3 hours See General Education courses
- 6 hours Social Science courses

Major Core - Courses in the major are sequenced by level.

- Level I: Intro to the discipline see social sciences requirement
- Level II: Sociology Substantive Core (6 hours)
  - SO 2203 Cultural/Racial Minorities
  - Choose one of the following:
    - SO 3003 Social Inequality
    - SO 3013 Society and the Individual
    - SO 3053 Organizations in Modern Society
- Level III: Tools and Skills (6 hours)
- SO 3103 Social Theory
  - SO 3213 Intro Social Research

Level IV Courses : Specialization and Elective Courses (21 hours)

**Specialization**: Take any three courses in one of the Specializations A-D below for a total of 9 hours.

- A. Population & Environment
  - SO 4113 Social Organization & Change
  - SO 4123 Poverty Analysis
  - SO 4173 Environment & Society
  - SO 4303 Urban Sociology
  - SO 4403 Sociology of Gender
  - SO 4703 Population Problems & Processes
- B. Family and Gender Studies
  - SO 3323 Contemporary Woman
  - SO 4203 Family in the U.S.
  - SO 4223 Comparative Family
  - SO 4403 Sociology of Gender
  - SW 4613 Child Welfare
- SO 4703 Population Problems & Processes
- C. Socio-Economic Development
  - SO 3303 Rural Sociology
  - SO 4123 Poverty Analysis
  - SO 4173 Environment & Society
  - SO 4303 Urban Sociology
  - SO 4703 Population Problems & Processes
  - SO 4733 Community: Organization & Relationships
- D. General Sociology

Select any three 3000 or 4000 level sociology courses, including any not listed above. At least of two of these courses must be 4000 level.

**Electives:** Select four 3000 or 4000 level sociology courses (12 hours). Students are encouraged to take additional courses in their specializations, if offered before the student graduates.

Level V: Capstone (3 hours)

- SO 4803 Social Research Practice
- Research paper in area of specialization expected.

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

Satisfied by completion of SO 3103 Social Theory

Computer Literacy

Satisfied by completion of SO 3213 Intro to Social Research General Electives (18 hours) Consult advisor

#### Total hours needed for major: 123

#### (31 hours must be 3000/4000 from A&S)

- \* See General Education courses
- \*\* Consult advisor.

\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor.

\*\*\*\* Students are encouraged to take additional courses in their specialization if offered before the student graduates.

#### **CRIMINOLOGY (CRM)**

#### Major Advisor: Nicole Rader Office: 295 Bowen Hall

The following degree program is offered: Bachelor of Arts.

Criminology, as a field, explores the nature and causes of crime. Criminology also examines the impact crime has on society and how in turn society responds to the social problem of crime. The Bachelor's degree in Criminology will emphasize the study of types, patterns and trends in criminal behavior; the social etiology of crime; and the social response to crime and its effect on society. The program will also train students to analyze crime data, test explanations of crime and victimization, and critically evaluate crime theory and policy.

The Criminology program is appropriate for students wishing to pursue career paths in all justice related fields including: law enforcement; probation and parole; community based prevention and control programs; court based programs; and corrections. Because our program provides for a broad knowledge of the nature and trends of crime and an understanding of crime control policy along with methodological and critical thinking skills, our students will be prepared to assume positions of leadership across a range of career paths in crime and justice related professions, as well as be prepared for post-graduate studies in Sociology, Criminology, and Law and Legal Studies.

The BA in Criminology is a 36 credit hour major. All students will complete 18 hours in required course work: CRM 1003; CRM 2003; CRM 3603; SO 3213; SO 4803; and CRM 4803. Students will then be required to take a minimum of six hours in each of three sub-areas of the program. The sub-areas are: Criminal Behavior and Motivation; Social Dimensions of Crime; And Crime Control Policy and Practice.

Senior Internships will also be available as an elective. Internships will be available at various crime and justice related agencies. To do an internship a student must have completed 24 hours of coursework within the criminology major and have earned a minimum of a 2.5 GPA in said coursework. Students will meet with the Criminology Program Coordinator to discuss the selection of an appropriate internship site. Students will be expected to have a minimum of 150 contact hours with the sponsoring internship agency, as well as meet specific course assignments. Students would register for CRM 3310 Senior Internship as six credit hour course.

A senior thesis option is available for students who have completed a minimum of 24 hours of coursework within criminology and have at least a 3.0 GPA in said coursework. Students who qualify and have an interest in the senior thesis option will work individually with a faculty member to produce a research paper on approved topic in criminology. The thesis option is elective and designed for students wishing to pursue graduate school in criminology or a related field. Students would register for CRM 4000 Directed Individual Study: Senior Thesis as six credit hour course.

#### **General Education and College Requirements**

English Composition (6 hours)

- 1103 English Comp I OR EN
- EN 1163 Accelerated Comp I
- English Comp II OR EN 1113
- EN 1173 Accelerated Comp II
- Foreign Languages (9 hours)

3 Semesters one Foreign Language - see advisor

Humanities (18 hours)

- 3 hours Literature - see General Education Courses
- History see General Education Courses 3 hours
- Philosophy see General Education Courses 3 hours
- 9 hours Humanities Electives

Must be from 2 different areas - see A&S Core

Mathematics (6 hours)

MA 1313 College Algebra

3 hours Elective Mathematics higher than MA 1313 Fine Arts (3 hours)

See A&S Core

Natural Sciences (9-11 hours) Physical Sciences w/lab (CH, GG, PH) 3-4 hours see General Education Courses 3-4 hours Life Sciences w/lab (BIO, EPP, PO) see General Education Courses 3 hours Natural Science Elective

Social	Sciences
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SO 1003 Introduction to Sociology PS 1113 American Government PSY 1013 General Psychology 9 hours - see A&S Core

#### Major Core (18 hours)

CRM 1003	Crime and Justice in America
CRM 2003	Crime, Justice and Inequality
CRM 3603	Criminological Theories
SO 3213	
SO 4803	Social Research Practice
CRM 4803	Senior Seminar in Criminology
Major Electives (18	hours)
Criminal Behav	ior and Motivation Area (choose 6 hours)
CRM 3503	Violence in the U.S.
CRM 4233	Juvenile Delinquency
CRM 4243	Drugs, Crime and Control
CRM 4253	White Collar Crime and Elite Deviance
Social Dimensio	ons of Crime Area (choose 6 hours)
CRM 3343	Gender, Crime and Justice
CRM 3353	Race, Crime and Justice
CRM 3363	Globalization and Crime
CRM 4323	Victimology

Crime Control Policy and Practice Area (choose 6 hours)

- CRM 3103 Contemporary Issues in Criminal Justice
- CRM 3113 Community Crime Prevention and Policy
- CRM 4513 Correctional Systems
- CRM 4523 Law and Society
- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking OR
  - CO 1013 Introduction to Communication
- Writing Requirement

Satisfied by completion of CRM 3603 Criminological Theories Computer Literacy

Satisfied by completion of SO 3213 Intro to Social Research General Electives (15 hours)

Consult advisor

#### Total hours needed for major: 123

(31 hours must be 3000/4000 from A&S)

# College of Business

# SHARON L. OSWALD, Dean

# Kevin E. Rogers, Associate Dean for Instruction and Operations

Offices: Suite 114 McCool Hall Telephone: (662) 325-2580

# Office of Graduate Studies

Offices: Suite 200 McCool Hall Telephone: (662) 325-1891

Office of Business Outreach Office: Suite 200 McCool Hall Telephone: (662) 325-1891

Mailing Address: Box 5288, Mississippi State, MS 39762 http://www.business.msstate.edu

#### **HISTORICAL INFORMATION**

The College of Business, organized in 1915, is the oldest college of business in the state and one of the oldest in the South. In 1979, the Department of Accounting was designated as the School of Accountancy in answer to a need for attention to the unique requirements of the growing profession of accountancy. In 2007, the School of Accountancy was renamed the Richard C. Adkerson School of Accountancy.

This college permits students to major in any of the following programs: Accounting, Finance, Information Systems, Economics, Business Administration, BA-International Business/Foreign Languages (double degree), Management, Marketing, Marketing-Transportation, Real Estate Finance, Risk Management, Insurance and Financial Planning, and Marketing-Professional Golf Management. The College offers degree programs that lead to bachelor's, master's and doctoral degrees. Distance learning through interactive classrooms and Internet courses is another avenue available to pursue course work for College of Business students. Minors are available in most program areas.

#### MISSION

To be a nationally recognized and respected college of business equipped to focus on dynamic and collaborative learning, innovative and distinctive research, and valued outreach activities in the state and region.

#### ACCREDITATION

The undergraduate, masters, and doctoral business programs are accredited by AACSB International (The Association to Advance Collegiate Schools of Business). The Adkerson School of Accountancy is separately accredited at the undergraduate and masters levels by AACSB International.

#### ORGANIZATION

The administrative units of the College of Business consist of the Adkerson School of Accountancy and the Departments of Finance and Economics; Management and Information Systems; and Marketing, Quantitative Analysis, and Business Law. In addition to these units, the college includes the Office of the Graduate School in Business, the Office of Business Outreach and the College of Business Academic Advising Center. The administrators of these units are as follows:

Unit Name

eme	
Adkerson School	
of Accountancy 300 McCool Hall	Jim Scheiner, Direc 325-3710
Finance and Economics 312 McCool Hall	Mike Highfield, 325-2342
Mgt & Info Systems Dept 302 McCool Hall	Rodney Pearson, 325-3928
Mkt, Quan Analysis & BL 324 McCool Hall	Jason Lueg, Hea 325-3163
Graduate Studies 200 McCool Hall	Darrell Easley, D 325-1891
Office of Business Outreach	
200 McCool Hall	325-1891
Distance Learning	Cindy Smith, Direc
200 McCool Hall	325-1891

ctor Head , Head ad Director ctor

325-1890 Directors and managers of other academic and professional support units in the College of Business are: Unit Small Business Develop Ctr Research & Tech **Computing Services** 222 McCool Hall P. Koch Lutken Chair of Ins 312M McCool Hall International Business 308 McCool Hall PGA Golf Management 309 McCool Hall Center for Economic Educ. and Financial Literacy

COB Acad Advising Ctr

106 McCool Hall

Name

Vergie Bash, Acad. Coor.

Pam Jones, Acad. Coor.

Vickie Mann, Acad. Coor.

Natalie Hebert, Acad, Coor.

Hamp Beatty, Director 325-8684 Eric Hester, Manager 325-1545 Lloyd Wade, Acting Chair 325-2341 Jon Rezek, Director 325-1996 Jeff Adkerson, Director 325-3161

312 McCool Hall 325-2342

# SUPPORT SERVICES

COB Academic Advising Center Coordinator: Vergie Bash 106 McCool Hall: 325-1890

The College of Business (COB) Academic Advising Center provides centralized advising resources to students (current, prospective, and alumni), parents, faculty, and support staff. The Academic Advising Center maintains the official records of COB students (Accounting majors should see the Director of Accountancy). The Center represents the Dean on all academic paperwork such as transfer evaluations, off-campus requests, withdrawals, overload requests, degree audits, change of majors, and correspondence course approvals.

Unless otherwise noted, all undergraduate business majors are advised through the COB Academic Advising Center.

#### **Employment Service**

The College of Business endeavors, in cooperation with Career Center (located at 300 Montgomery Hall), to arrange the employment interviews for graduating seniors. Former graduates seeking employment or change of position are urged to keep the Career Center informed as to availability.

#### **Computing Facilities**

The College of Business is committed to providing experience and training on a variety of computer platforms that are commonly used in the modern business community. The main computing needs of the College are served by a large-scale local area network composed of more than 300 IBM compatible computers. These systems are linked through a Novell network to College-wide servers that provide access to educational software, administrative databases and research facilities.

The College uses electronic mail as one of its primary communication methods; many professors use e-mail to enhance the classroom experience. All students receive their own personal e-mail account.

COB is directly connected to the Internet, a world-wide network linking many educational, government, and commercial groups. In addition, a number of research databases are provided to aid in statistical analysis and other class projects. Lexis/Nexis, Compustat and CRSP are a few of the available databases.

The Ron J. and Carol M. Ponder Lab is a state of the art facility used by students for the completion of computer-related assignments. The Leo Seal Electronic Classroom is reserved by professors to illustrate computer-related concepts in the classroom. In addition, other more specialized computer labs exist, and presentation systems help to augment classroom demonstrations. The College of Business also offers a computer security analysis lab, used in classes to help prepare students for the decision making required of professionals in business today.

#### **Rules for Scheduling Classes**

The normal load for an undergraduate student in a regular semester is 15-18 credit hours. Mississippi State University has established undergraduate student course limits based on cumulative and MSU grade point averages. (See Item III, A-7 Student Load in the Introduction Section.)

#### Admission

All new freshmen desiring to major in business will be admitted to into their chosen major in the College of Business at Mississippi State University. Transfer students wishing to major in business must meet a minimum grade point average requirement. Freshmen must have a minimum 2.0 overall, sophomores must have a minimum 2.25 overall, and juniors must have a minimum 2.5 overall grade point average. Current MSU students wishing to change majors to business must also meet minimum grade point averages on courses taken at MSU. Freshmen must have a minimum 2.0 overall, sophomores must have a minimum 2.25 overall, and juniors must have a minimum 2.5 grade point average at MSU.

**Junior Screen** – Students with between 50 and 75 applied hours of college credit towards the BBA degree must meet the following to continue in the College of Business: (i) a student must have a minimum 2.5 overall grade point average and a minimum 2.5 MSU grade point average; and (ii) a student must have earned a grade of "C" or better in the following seven courses (or equivalent): BIS 1012, ACC 2013, ACC 2023, EC 2113, EC 2123, BQA 2113, and BL 2413. Students not meeting these criteria will not be permitted to enroll in selected 3000 level or any 4000 level business classes. Questions about this policy can be referred to the Academic Advising Center.

# BACHELOR of BUSINESS ADMINISTRATION DEGREE PROGRAMS

#### **Graduation Requirements**

The admission/readmission requirements for the Bachelor of Business Administration degree are described in Part I, Section II of this catalog.

In addition to the University's minimum requirements, the following requirements must be met for students applying for graduation:

- · Pass 124-154 applicable hours
- · Take a minimum of 62 semester hours from a senior college
- · Take a minimum of 32 upper level business hours at MSU
- · Complete the last 32 hours in residence at MSU
- · Have at least a:
- 2.50 GPA on all upper level business courses attempted,
- 2.50 GPA on all major courses attempted,
- 2.00 GPA on all MSU course work attempted, and
- 2.00 GPA on all course work attempted.

• Have no more than two D's in upper level business courses. In excess of two D's will have to be repeated with a grade of C or better.

It is the student's responsibility to be sure that he/she has fulfilled the requirements of the particular curriculum before applying for a degree. Students must complete a graduation audit in the COB Academic Advising Center prior to graduation.

# COLLEGE-WIDE DEGREE COURSE REQUIREMENTS

The College of Business requires each student to take a planned and

coordinated Arts & Sciences foundation designed to increase cultural appreciation and to give a broad knowledge of world affairs. Each program also permits the election of additional courses, according to the interests of the individual student. The total number of credits earned in the Arts & Sciences foundation program and other non-business courses shall not be less than 52 semester hours.

# Richard C. Adkerson SCHOOL of ACCOUNTANCY

Director: Jim Scheiner Office: 300 McCool Hall, 325-3710

Academic Coordinator: Lanna Miller Office: 300A McCool Hall, 325-1631

The Richard C. Adkerson School of Accountancy is a professional school whose mission is to prepare students for successful careers in accountancy. Such career preparation includes a wide range of professional accounting activities, general education, and broad training in business administration. This program of study gives students the basic preparation for positions in all areas of accounting including, but not limited to, public, private, and governmental accounting. It also (1) requires students to take a planned and coordinated non-business program designed to increase their cultural appreciation and give them a broad knowledge of world affairs and (2) permits the election of additional non-business courses according to the indevidual student.

The accountancy program is accredited by the AACSB (The International Association for Management Education) as part of the overall accreditation of the College of Business as well as the separate and additional accreditation of accounting programs.

#### Certification

The Bachelor of Accountancy Degree (BACC) from the Adkerson School of Accountancy, Mississippi State University, is recognized by those states requiring the baccalaureate degree as a minimum, as fulfilling all the educational requirements for eligibility to sit for the Certified Public Accountant (CPA) examination. It is also recognized as meeting educational requirements to sit for the Certificate in Management Accountant (CMA) and the Certified Internal Auditor (CIA) examinations. Graduates are encouraged to seek professional certification in one or more areas by passing these examinations.

The American Institute of Certified Public Accountants (AICPA) which prepares and grades the CPA examination, has urged the requirement of five years of academic preparation and has reflected this in the CPA examination. Students who aspire to become certified public accountants should consider the Master of Professional Accountancy or Master of Taxation programs herein described, in addition to the BACC.

#### Admission

**Pre-Accountancy (PACC)** - All students desiring to major in accounting will be admitted into Pre-Accountancy in the Adkerson School of Accountancy at Mississippi State University. Admission to the University is equivalent to admission to Pre-Accountancy. International students need a 575 TOEFL score to be admitted to Pre-Accountancy.

**Bachelor of Accountancy (BACC)** Candidate - Requirements for admission as a candidate for the BACC degree are listed below. Students will not be allowed to take 4000-level accounting courses if they have not been admitted to the Adkerson School of Accountancy.

1. A student must complete 60 hours or more of college credit earned toward the BACC degree.

2. A student must complete the pre-accountancy core listed below with a 2.6 GPA on all college work attempted and a 2.6 GPA on the 18 hours of pre-accountancy core.

3. A student must complete Principles of Financial Accounting and Principles of Managerial Accounting with at least a B in each of the two courses.

#### Graduation

**Bachelor of Accountancy (BACC)** - Requirements for a BACC Degree from the Adkerson School of Accountancy are listed below. It is the student's responsibility to complete the requirements of the BACC curriculum before applying for a degree.

1. A student must be a BACC candidate and complete the required curriculum and a minimum of 124 semester hours.

2. A student must achieve at least a 2.5/4.00 GPA in upper-division business, economics, and statistics courses.

3. A student must achieve at least a 2.5/4.00 GPA in upper-division accounting subjects with at least a C in each accounting course. A student who makes less than a C in an upper-division accounting course must repeat that course the next regular semester that the student is enrolled and the course is offered. Students will be permitted to repeat an upper-division accounting course only once in an effort to make a C in the course. If they make less than a C in two attempts in a specific course, they will no longer be able to continue in the accounting program.

4. A student must achieve an overall and MSU GPA of at least 2.0 on a 4.0 scale.

#### **BACC Program of Study**

#### **General Education Requirements**

#### English Composition (6 hours)

- English Composition I or 1103 EN
- EN 1163 Accelerated Composition I
- EN 1113 English Composition II or
- EN 1173 Accelerated Composition II

#### Mathematics & Statistics (9 hours)

- MA 1313 College Algebra
- MA 1613 Calculus for Business and Life Sciences
- 3 hours See Major Requirements
- Natural Science (6 hours)
  - 2 courses with labs from General Education courses
- Humanities (6 hours)
- Refer to University Core
- Fine Arts (3 hours)
- Refer to University Core
- Social/Behavioral Sciences (6 hours)
  - American Government PS 1113
    - 3 hours See General Education (excluding: AEC and EC)

#### Accounting Major Requirements

- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking OR
  - CO 1013 Introduction to Communication
- Computer Literacy
  - BIS 1012 Introduction to Business Computer Systems
- International Elective 3 hours
  - (see Adkerson School of Accountancy for list)

#### Pre-Accounting Core

- ACC 2013 Principles of Financial Accounting\*
- ACC 2023 Principles of Managerial Accounting\*
- BQA 2113 Business Statistical Methods I
- 2113 Principles of Macroeconomics EC
- 2123 EC Principles of Microeconomics
- BL 2413 The Legal Environment of Business
- **Business Ethics**

#### PHI 3013 Business Ethics

- Writing/Communication Course Choose one of the following:
  - EN 3303 Creative Writing
  - Legal Writing EN 4223
  - Small Group Communication CO 2213

  - CO 2253 Fundamentals of Interpersonal Communication

#### Upper-level Business Courses

- MGT 3114 Principles of Management & Production
- MGT 3213 Organizational Communications I
- BQA 3123 Business Statistical Methods II
- BL 3223 The Law of Commercial Transactions
- MKT 3013 Principles of Marketing
- BIS 3233 Introduction to Management Information Systems
- FIN 3123 Financial Management
- BUS 4853 Business Policy

#### Upper-level Accounting Courses\*\*

- ACC 3003 Accounting Information Systems I
- ACC 3013 Cost Accounting
- ACC 3023 Intermediate Accounting I
- ACC 3033 Intermediate Accounting II
- ACC 3053 Accounting Information Systems II
- ACC 4013 Income Tax I

ACC 4033 Auditing Accounting Elective - Choose one of the following:

- Advanced Accounting ACC 4023 ACC 4043 Municipal & Governmental Accounting ACC 4053 International Accounting ACC 4063 Income Tax II
- Free Electives 10 hours Consult Advisor

# Total hours for degree: 124

A grade of B or better is required in these courses. A grade of C or better in required in ALL upper-level Accounting courses. \*\*

#### **Accounting Minor**

Students may obtain a minor in accounting by completing 15 hours of upper-level accounting courses with a C or better as follows:

ACC 3023 Intermediate Accounting I3
ACC 3033 Intermediate Accounting II3
ACC Electives

#### **Double Degree in Accounting and Another Field**

Combined curricula leading to a BACC degree and a degree in another field are available in the Adkerson School of Accountancy and the other colleges of Mississippi State University. Such curricula may be designed with a major in accounting combined with a major in any nonaccounting field. This program requires that a student satisfy the normal graduation requirements in the other major as well as meet the GPA and course requirements of the BACC Degree.

#### The BACC as a Second Baccalaureate Degree

The curriculum is available to students who hold a baccalaureate degree in any recognized field of study from a regionally accredited institution. The candidate's combined undergraduate program must include the same course and GPA requirements as required of anyone who receives the BACC degree. A minimum or 30 semester hours of upper division work must be earned in residence at Mississippi State University after the first degree has been conferred. Consult the Academic Coordinator, Richard C. Adkerson School of Accountancy, P.O. Drawer EF, Mississippi State, MS 39762 or email: sac@cobilan.msstate.edu for specific details.

#### MASTERS PROGRAMS IN ACCOUNTING

John Rigsby, Graduate Coordinator (MPA) Frances McNair, Graduate Coordinator (MTX) Departmental Office : McCool 300 662-325-3710

The Adkerson School of Accountancy offers two graduate programs in Accounting - Master of Professional Accountancy (MPA) and Master of Taxation (MTX). Additional information can be found in the Graduate Bulletin.

#### Admission

An applicant to the MPA program should hold a bachelor's degree from a fully recognized four-year institution of higher learning that enjoys unconditional accreditation by appropriate regional accrediting agencies. In addition, the applicant for the MPA degree must take the Graduate Management Admission Test (GMAT). Generally, regular admission to the MPA program requires a 510 GMAT score, a GPA of 3.0/4.0 over the last 60 hours of baccalaureate work and acceptable recommendation letters. When a student is deficient in one of the criteria cited, the student's application, nevertheless, may be considered for admission based on the strength of the materials contained in the student's application. However, reasonable minimum levels of performance must be achieved in both the applicant's GPA and GMAT scores.

#### Graduation

Master of Professional Accountancy (MPA) and Master of Taxation (MTX) - Requirements for an MPA or MTX degree from the Adkerson School of Accountancy are listed below.

1. A student must complete the required curriculum and a minimum

of 30 graduate semester hours.

2. A student must achieve an overall GPA of at least 3.0/4.0 on graduate work attempted with no more than 6 hours of "C" grades. 3. A student must pass an end-of-program final examination.

#### **MPA Program of Study**

Master of Professional Accountancy Program (MPA) - Candidates must complete 30 hours of course work at the graduate level. At least 21 of the 30 hours must be taken from courses offered exclusively for graduate credit (8000 level).

#### Required courses (15 hours):

ACC 6023 Adv Accounting (If not taken as an undergraduate)	3
ACC 6063 Income Tax II (If not taken as an undergraduate)	3
ACC 8013 Seminar in Fin Acc Theory	3
ACC 8023 Advanced Managerial Accounting	3
ACC 8033 Business Assurance Services.	3

#### Accounting Electives (6 hours):

ACC 6043 Municipal and Government & Accounting	3
ACC 6053 International Accounting	
ACC 8043 Fraud Examination.	
ACC 8053 Professional Accounting Policy and Research	
ACC 8063 Research in Tax Practice and Procedures	3
ACC 8073 Taxation of Corporations and Shareholders	
ACC 8093 Fed. Taxation of Partnerships, Corps, Trusts & Estate	
ACC 8103 Income Taxation of Natural Resources	3
ACC 8113 Advanced Individual Tax & Wealth Mgt	3

#### **Concentration in Systems**

In lieu of the above accounting electives, a student may elect a concentration in systems by taking the following three courses:

ACC 8043 Fraud Examination	3
BIS 8213 Advanced Systems Development and Administration	3
BIS 8313 Advanced Database Design Administration	3

#### Non-accounting Electives (9 hours)

Elect from Graduate non-accounting, business, and economic courses.

#### MTX Program of Study

Master of Taxation (MTX) Program - Candidates for the MTX degree must complete 30 hours of course work at the graduate level including a core of 15 hours of taxation, as described below. At least 21 of the 30 hours must be taken from courses offered exclusively for graduate credit (8000 level).

#### **Required Tax Courses (15 hours):**

ACC 8063 Research in Tax Practice and Procedures	3
ACC 8073 Taxation of Corporations & Shareholders	3
ACC 8093 Fed. Taxation of Partnerships, Corps, Trusts, &	Estates.3
ACC 8113 Advanced Individual Tax & Wealth Mgt	3
Elective - any 8000 level tax course	3
-	

# **Other Required Courses (6 hours)**

ACC 8013 Seminar in Financial Accounting Theory3
ACC 8033 Business Assurance Services

#### **Electives (9 hours)**

Graduate level Business or Accounting courses

Consult the Director, Adkerson School of Accountancy, P.O. Box EF, Mississippi State, Mississippi 39762 for further information or E-mail: sac@cobilan.msstate.edu.

# INTERNATIONAL BUSINESS PROGRAM

A Five-Year Double Degree Program: B.B.A. in Business Administration & B.A. in Foreign Languages

#### Office: 102 McCool Hall

Major Advisor - Business Administration: Associate Professor Rezek Major Advisors - Foreign Languages: Professor Jordan; Associate Professor Lestrade; Assistant Professor Potter 300 Lee Hall

The International Business Program provides students with an academic background and work experience to help ensure success in the marketplace. Students receive a double degree at graduation reflecting the dual concentration in Business: B.B.A (with an international focus and a specific discipline such as Marketing or Finance); and in the Arts: B.A. (language and cultural proficiency). This is additional to the first two years of study developing abilities in writing, math, sciences, and computer literacy.

The hallmarks of this program include a work internship and an outside the country academic experience of a full summer or one semester duration (generally taken the last of the 4th year or beginning of the 5th year). The internship is ideally reflective of the student's specific business discipline and the study abroad is reflective of the student's language proficiency area. The student who selects to combine the work and abroad experience must petition the IB Director for approval. Minimum acceptable levels are 1). WORK: 10 continuous weeks of international tasks and responsibilities, 2) ABROAD: 6 continuous weeks in one location for cultural immersion.

The total number of semester credit hours (SCH) will be 154 for most students. The program has five main components:

- (1) a core of basic skills, including courses in writing, mathematics, sciences, and communication (30 SCH);
- (2) a core of humanities and social science courses selected to fit the special needs of international business major, emphasizing both the history and culture of other societies and the ways these societies relate to our own (27 SCH);
- (3) intensive training to develop proficiency in one foreign language and its associated cultures and literatures (35);
- (4) a thorough grounding in business techniques and practices, including 33 SCH of general business courses, up to 12 SCH of international business courses, and 15 SCH in one of six functional/discipline emphasis in business (accounting, finance, information systems\*, economics, management, marketing\*, or risk management, insurance and financial planning\*).
- (5) a one-semester internship program with an international business (4 SCH).

Students interested in following this recommended course of study should notify the Department Head of Foreign Languages and the Director of International Business Academic Programs. Students must have the Director's written approval to join the International Business Program. Students must meet all graduation requirements for the College of Business and the College of Arts & Sciences. This includes having no Ds in upper level courses or in upper level Foreign Language courses. International Business students must have an overall and previous semester GPA of 2.67 to be eligible for internship and study abroad.

\* Information Systems, Insurance, & Marketing functional emphasis areas will need an additional 3 credits in their program; for those taking the CPA exam, other coursework will be required.

#### **General Education Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- Accelerated Comp II EN 1173

Mathematics (9 hours)

- MA 1313
  - College Algebra MA 1613 Calculus for Business and Life Sciences I
  - ST 2113 Introduction to Statistics OR
  - BQA 2113 Business Statistical Methods I
- Science (7 hours)

Life Science and Lab (BIO prefix)

Physical Science and Lab (CH, GG, OR PH prefix)

Humanities (6 hours)

- EN 2273 World Literature OR
- 2283 EN World Literature II
- HI 1173 World History After 1500 OR
- HI 1223 Modern Western World

Fine Arts (3 hours)

Choose from the following:

- ARC 1013 Architectural Appreciation
- ARC 2313 ART 1013 History of Architecture I
- History of Art I
- ART 1023 History of Art II ART 1113 Art Appreciation
- ART 3143
- Italian Renaissance Art History MU 1113 History and Appreciation of Music
- CO 1503 Introduction to Theatre
- PE 1323 History and Appreciation of Dance
- Social/Behavioral Sciences (6 hours)
  - GR 1123 Introduction to World Geography
  - AN 1143 Cultural Anthropology

#### **College of Arts and Sciences Core**

- PHI 3013 Business Ethics
  - 1313 Intro to International Relations OR PS
  - PS 1513 Comparative Government
  - 3000+ Upper-level History Elective (see advisor) HI
- 3000+ Upper-level Social Science Elective (see advisor) SO
- FLF/G/S 1113 French/German/Spanish I
- FLF/G/S 1123 French/German/Spanish II
- FLF/G/S 2133 French/German/Spanish III
- FLF/G/S 2143 French/German/Spanish IV
- FLF/G/S 3114 or FLS 3113 & 3111 Advanced Foreign Lang I
- FLF/G/S 3124 or FLS 3233 & 3121 Advanced Foreign Lang II
- FLF/G/S 3143 Civilization
- FLF/G/S 3313 Business French/German/Spanish I
- FLF/G/S 3323 Business French/German/Spanish II
- FLF/G/S 3523 Survey of French/German/Spanish Lit
- Foreign Language Elective (see FL advisor for options)

#### **College of Business Core**

- ACC 2013 Principles of Financial Accounting
- ACC 2023 Principles of Managerial Accounting
- EC 2113 Principles of Macroeconomics
- EC 2123 Principles of Microeconomics
- BL 2413 Legal Environment of Business
- 3233 Intro to Management Info Systems BIS
- FIN 3123 Financial Management
- MKT 3013 Principles of Marketing
- MGT 3114 Principles of Management and Production BUS 4853 Business Policy
- Oral Communication Requirement (3 hours)
  - - CO 1003 Fundamentals of Public Speaking OR
  - CO 1013 Introduction to Communication
- Computer Literacy Requirement

BIS 1012 Intro to Business Information Systems

Writing Requirement

MGT 3213 Organizational Communications

- **Major Core** 
  - IB 1001 Introduction to International Business
  - 3900 Internship Work IB

4903 Internship/ Academic Report IB

- International Business Electives- 9-12 hours:
  - ACC 4053 International Accounting
  - International Business Law 4273 BL
  - EC 3513 Comparative Economic Policy
  - EC 4323 International Economics
  - FIN 4923 International Financial Management
  - IB 3913 Principles of International Business
  - MGT 4613 Cross Cultural Management
  - MKT 3323 International Logistics
  - MKT 3933 International Marketing
  - MKT 4033 International Transportation
  - MKT 4313 Physical Distribution Management
  - International Supply Chain Management MKT 4333

(Students focusing in BIS & INS must select 12 hours from the above list; all others must select 9 hours.)

#### **Business Functional Emphasis**

Major Electives (Choose from ACC, BIS, EC, 15 hours FIN, MGT, MKT, or INS) See Advisor for options. 3 hours Free Electives

Total hours needed for major: 154

## Department of FINANCE and ECONOMICS

#### Offices: 312 McCool Hall

# **BUSINESS ECONOMICS Major (ECO)**

Economics is the scientific study of how people and institutions make choices concerning the use of society's scarce resources. Applied to business, economics is primarily concerned with the decision-making of households and firms within a market context. The importance of economic analysis is recognized by its being the only social science in which a Nobel Prize is awarded. The B.B.A. in economics provides the analytical skills and empirical background needed to understand the dynamic problems facing businesses in the ever-changing economic environment. Career opportunities available to an economics graduate include management, research, and instructional positions with corporations, banks, economic development agencies, trade organizations, governments, and educational institutions.

An economics major or minor also helps prepare the student for graduate professional training in business, public administration, and law. The flexibility of the economics major is reflected in relatively high starting salaries and lifetime earnings of economists. Undergraduates at Mississippi State University may pursue an economics major through either the College of Business (B.B.A degree) as described here or through the College of Arts and Sciences (B.A. degree) as described previously in this bulletin.

Students seeking the B.B.A. with a major in economics are required to complete all College of Business and university common core requirements. Majors are required to take MA 1613 Calculus for Business and Life Sciences I and are encouraged to take MA 1623 Calculus for Business and Life Sciences II. Elective courses should be chosen with the advisor's approval and used to enhance the student's overall program.

The economics faculty offers a minor in economics through the College of Arts and Sciences. This minor is open to any student regardless of major or college of enrollment. A minor in economics is attained by selecting, in consultation with the economics minor advisor, at least 15 hours of economics course work. Three hours of courses from finance (FIN) or agricultural economics (AEC) may be applied to the economics minor with approval from the advisor. All economics minors must register with the economics minor advisor in the Department of Finance and Economics, 312 McCool Hall. Students with majors in business, engineering, agriculture, the social sciences, mathematics, and pre-law are especially encouraged to consider the economics minor.

Academic advising and career counseling are available from the economics faculty for both majors and minors. Students interested in the study of economics should contact the Department of Finance and Economics, 312 McCool Hall. Any student who completes 12 credit hours of economics with at least a 3.0 GPA and has an overall GPA of 3.0 or higher is eligible for membership in Omicron Delta Epsilon, the international honor society in economics.

#### **General Education Requirements**

English Composition (6 hours)

	1	( )
EN	1103	English Comp I OR
EN	1163	Accelerated Comp I

- 1163 Accelerated Comp I
- EN 1113 English Comp II OR Accelerated Comp II
- EN 1173

Mathematics (9 hours)

- MA 1313 College Algebra
  - Calculus for Business and Life Sciences I MA 1613
- BQA 2113 Business Statistical Methods I

Science (6 hours)

2 Lab Sciences from General Education courses

Humanities (6 hours) See General Education courses Fine Arts (3 hours) See General Education courses Social/Behavioral Sciences (6 hours) PS 1113 American Government See General Educ courses excluding: AEC and EC 3 hours **College Core** BQA 3123 Business Statistical Methods II ACC 2013 Principles of Financial Accounting ACC 2023 Principles of Managerial Accounting Principles of Macroeconomics EC 2113 2123 EC Principles of Microeconomics Legal Environment of Business BL 2413 BIS 3233 Intro to Management Info Systems FIN 3113 Financial Systems FIN 3123 Financial Management MKT 3013 Principles of Marketing Principles of Management and Production MGT 3114 BUS 4853 **Business** Policy Oral Communication Requirement CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy Requirement BIS 1012 Intro to Business Information Systems Writing Requirement MGT 3213 Organizational Communications **Major Core** International Elective - Elect one of the following: EC 3513 Comparative Economic Policy 4303 International Economic Development EC EC 4323 International Economics Required Courses: EC 3113 Intermediate Macroeconomics EC 3123 Intermediate Microeconomics 4643 Economic Forecasting and Analysis EC Upper Division EC electives - 9 hours (see advisor for options)

Non-business electives - 12 hours (see advisor for options)

Free electives - 10 hours

#### Total hours needed for major: 124

#### **FINANCE Major (FINA)**

The Finance major requires 124 credit hours and leads to a Bachelor of Business Administration degree. For some specialization, students may choose from a list of electives. The degree plan allows students to supplement their studies with a variety of business and non-business electives. By carefully selecting these elective courses, students may develop a program of study that fits their interests and career preparation needs. In order to maximize the benefits of their degree, students are strongly encouraged to work closely with a faculty advisor in securing an internship and developing their personal program of study.

The career opportunities for Finance majors are varied and challenging. The program prepares graduates for decision-making positions in both the public and private sectors. Many graduates accept positions within the banking industry, including commercial banks and federal and state bank regulating agencies. Recent graduates have also found career opportunities as financial analysts and consultants with major corporations and private enterprises throughout the United States. Finance majors may pursue a wide variety of rewarding careers. MSU graduates can be found working as: Bank Examiners, Financial Managers, Bank Officers, Financial Planners, Management Consultants, Financial Analysts, Investment Managers, Credit Analysts, Loan Officers, and Pension Fund Managers. These career opportunities require an in-depth knowledge of finance and a solid foundation in analytical and communications skills. The opportunities for Finance majors are excellent; graduates, with the proper preparation, have only to choose which career path to follow.

Finance minors and double majors are available for both business and non-business majors. For specifics, see below.

#### **General Education Requirements**

English Composition (6 hours) 1103 English Comp I OR EN Accelerated Comp I EN 1163 EN 1113 English Comp II OR Accelerated Comp II EN 1173 Mathematics (9 hours) MA 1313 College Algebra MA 1613 Calculus for Business and Life Sciences I BQA 2113 Business Statistical Methods I Science (6 hours) 2 Lab Sciences from General Education courses Humanities (6 hours) See General Education courses Fine Arts (3 hours) See General Education courses Social/Behavioral Sciences (6 hours) American Government and PS 1113 3 hours from General Education courses excluding: AEC and EC **College Core** BQA 3123 ACC 2013 ACC 2023 Business Statistical Methods II Principles of Financial Accounting Principles of Managerial Accounting Principles of Macroeconomics 2113 EC EC 2123 Principles of Microeconomics Legal Environment of Business 2413 BL. Intro to Management Info Systems BIS 3233 FIN 3113 Financial Systems FIN 3123 Financial Management MKT 3013 Principles of Marketing MGT 3114 Principles of Management and Production BUS 4853 Business Policy Oral Communication Requirement Fundamentals of Public Speaking OR CO 1003 CO 1013 Introduction to Communication Computer Literacy Requirement BIS 1012 Intro to Business Information Systems Writing Requirement MGT 3213 Organizational Communications **Major Core** FIN 3723 Financial Markets FIN 4223 Intermediate Financial Management FIN 4423 Investments International Financial Management FIN 4923 FIN 4243 Senior Seminar in Finance Internship 1 hour

9 hours Major Electives - Choose from list\*

Non-business electives - 15 hours (see advisor for options) Free electives - 3 hours

# Total hours needed for major: 124

\* These courses are to be selected in consultation with your finance advisor. They may be taken along with Junior-Senior Core Courses. FIN 4233, FIN 4433, FIN 4733, FIN 3513, FIN 4723.

Double Major. Students with another B.B.A Major\* who desire a Double Major in Finance must take the following 18 hours beyond the 124 hours required for the first major. For additional depth, they may choose from the listed optional courses.

Required Courses for Double Major

FIN	3723	Financial Markets
FIN	4423	Investments
EIN	1222	Intermediate Eineneiel M

- Intermediate Financial Mgt FIN 4223
- FIN 4923 International Financial Mgt
- FIN 4723 Bank Management FIN 4243
- Senior Seminar in Finance
- Optional Finance Courses
  - ACC 3203 Financial Statement Analysis
  - FIN 4233 Working Capital Mgt
  - FIN 4733 Advanced Bank Mgt
  - FIN 4433 Security Analysis and Portfolio Mgt

\* Non-Business School Majors wishing to pursue a second degree in a Business Administration field, please consult the MSU Bulletin or the COB Advisement Center.

#### Minor Option for students with a Business School Major who desire to Minor in Finance. The following four courses are required:

FIN 3723 Financial Markets

- FIN 4423 Investments
- FIN 4223 Intermediate Financial Management
- International Financial Management FIN 4923

Minor Option for students with a Non-business School Major who desire to Minor in Finance. The following six courses are required:

- FIN 3113 Financial Systems
- Financial Management FIN 3123
- 3723 Financial Markets FIN
- FIN 4423 Investments
- FIN 4223 Intermediate Financial Management FIN 4923 International Financial Management

#### **REAL ESTATE FINANCE Major (REF)**

This major prepares the student for employment opportunities in real estate brokerage appraisal, mortgage loan divisions of commercial and federal banks, and mortgage banking firms, as well as self-employment in the real estate industry.

#### **General Education Requirements**

#### English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- EN 1113
- English Comp II OR EN 1173 Accelerated Comp II
- Mathematics (9 hours)
  - MA 1313 College Algebra
  - MA 1613 Calculus for Business and Life Sciences I
  - BOA 2113 Business Statistical Methods I
- Science (6 hours)

2 Lab Sciences from General Education courses

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

- Social/Behavioral Sciences (6 hours)
  - PS 1113 American Government and
  - 3 hours from General Education excluding: AEC and EC
- **College Core** 
  - BQA 3123 Business Statistical Methods II
  - ACC 2013 Principles of Financial Accounting
  - ACC 2023 Principles of Managerial Accounting
  - 2113 Principles of Macroeconomics EC
  - EC 2123 Principles of Microeconomics
  - BL 2413 Legal Environment of Business
  - BIS 3233 Intro to Management Info Systems
  - Financial Systems FIN 3113
  - FIN 3123 Financial Management
  - MKT 3013 Principles of Marketing
  - MGT 3114 Principles of Management and Production
  - BUS 4853 **Business Policy**
- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking OR
  - CO 1013 Introduction to Communication
- Computer Literacy Requirement
- BIS 1012 Intro to Business Information Systems
- Writing Requirement

MGT 3213 Organizational Communications

- **Major Core** 
  - 3 hours International Elective (see advisor for options) Principles of Real Estate REF 3333 REF 3433 Real Property Evaluation REF 4153 Real Estate Investment REF 4253 Mortgage Financing
  - REF 4333 Real Estate Law
  - Choose two of the following:
    - ACC 3203 Financial Statement Analysis
    - FIN 3723 Financial Markets
    - FIN 4223 Intermediate Financial Mgt
    - FIN 4423 Investments

MGT 3323 Entrepreneurship MKT 4113 Personal Selling INS 3203 Property and Casualty Insurance EC 4313 Regional Economics

Non-business electives - 15 hours See advisor for options

Free electives - 4 hours

#### Total hours needed for major: 124

Minor in Real Estate Finance will consist of the following courses

Required: REF 3333 Principles of Real Estate REF 3433 Real Property Evaluation\* REF 4333 Real Estate Law\* Choose two of the following: REF 4153 Real Estate Investment\* REF 4253 Mortgage Financing\*

EC 4313 Intro to Regional Economic Development\*

Total credits: minimum of 15 hours

Prerequisites will be enforced. See catalog for prerequisite listings

#### **RISK MANAGEMENT, INSURANCE** and FINANCIAL PLANNING Major (INS)

This program offers the student a broad study of subjects related to the career fields of Risk Management, Insurance and Financial Planning, with emphasis on the professional educational requirement of these career fields.

#### G

Gener	al Edu	ucation	Requirements
Englis	English Composition (6 hours)		
			English Comp I OR
	EN	1163	Accelerated Comp I
	EN	1113 1173	English Comp II OR Accelerated Comp II
Matha		(9 hou	
Wiatife		1313	
		1613	
	BQA	2113	Business Statistical Methods I
Scienc	e (6 h	ours)	
	2 Lat	o Scien	ces from General Education courses
Huma		6 hours	- /
	See (	General	Education courses
Fine A	· ·		
			Education courses
Social			ciences (6 hours)
			American Government and
~ "	3 hou		from General Education excluding: AEC and
Colleg			Dusiness Statistical Matheda II
		3123 2013	
	ACC	2023	Principles of Managerial Accounting
	EC	2113 2123	Principles of Macroeconomics
	EC	2123	Principles of Microeconomics
	BIS	2413 3233 3113	Legal Environment of Business Intro to Management Info Systems
	FIN	3113	Financial Systems
	FIN	3123	Financial Management
		5 3013 5 3114	
		4853	
Oral C	lommu	inicatio	n Requirement
	CO		Fundamentals of Public Speaking OR
	CO	1013	Introduction to Communication
Comp			Requirement
	BIS	1012	Intro to Business Information Systems
Writing Requirement			
	MGI	3213	Organizational Communications

FC

**Major Core** 

3 hours	International Elective (see advisor for options)	
INS 3103	Principles of Insurance	
INS 4503	Enterprise Risk Management	
Choose 3 of th	e following:	
INS 2003	Personal Money Management	
INS 3203	Property and Casualty Insurance	
INS 3303	Life and Health Insurance	
INS 3403	Financial Planning	
	Employee Benefits	
BL 3223	Law of Commercial Transactions	
BL 4233	Legal Theories of Risk Dist & Loss Allocation	
Choose 2 of the following:		
ACC 4013	Income Tax I	
FIN 3723	Financial Markets	
FIN 4423	Investments	
MKT 4113	Personal Selling	
REF 3333	Principles of Real Estate	
Non-business electives - 15 hours (see advisor for options)		

Free electives - 4 hours

Total hours needed for major: 124

# **BUSINESS ADMINISTRATION Major (BUAD)**

The curriculum in Business Administration is designed for students who desire a general rather than a specialized program in business. BUAD advisors are located in the COB Academic Advising Center. Students are encouraged to make appointments with advisors, as they are not always available on a walk-in basis.

Business Administration majors must complete 12 hours from one major area and 6 hours from two additional major areas selected from the list below, for a total of 24 hours.

Accounting	Information Systems
Insurance	Finance
Marketing	International Business
Real Estate	Legal Environ of Business
Management	Transportation
Economics	

#### **General Education Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- English Comp II OR EN 1113
- EN 1173 Accelerated Comp II

Mathematics (9 hours)

MA 1313 College Algebra

MA 1613 Calculus for Business and Life Sciences I

BQA 2113 Business Statistical Methods I

Science (6 hours)

2 Lab Sciences from General Education courses

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

Social/Behavioral Sciences (6 hours)

- PS 1113 American Government and
- 3 hours from General Education courses excluding: AEC and EC

**College Core** 

e core	
BQA 3123	Business Statistical Methods II
ACC 2013	Principles of Financial Accounting
ACC 2023	Principles of Managerial Accounting
EC 2113	Principles of Macroeconomics
EC 2123	Principles of Microeconomics
BL 2413	Legal Environment of Business
BIS 3233	Intro to Management Info Systems
FIN 3113	Financial Systems
FIN 3123	Financial Management
MKT 3013	Principles of Marketing
MGT 3114	Principles of Management and Production

BUS 4853 Business Policy

Oral Communication Requirement				
CO 1003 Fundamentals of Public Speaking OR				
CO 1013 Introduction to Communication				
Computer Literacy Requirement				
BIS 1012 Intro to Business Information Systems				
Writing Requirement				
MGT 3213 Organizational Communications				
Major Core				
3 hours International Elective (see advisor for options)				
Select three areas of concentration from the following prefixes:				
* Courses must be 3000-level or higher				
ACC, BIS, BL, EC, FIN, IB, INS, MGT, MKT, REF				
1st Major Area 12 hours				
2nd Major Area 6 hours				
3rd Major Area 6 hours				

Non-business electives - 13 hours

Free electives - 3 hours

#### Total hours needed for major: 124

#### **Business Administration Minor**

A minor in Business Administration will help non-business students prepare for entrance into the world of business. Students will become familiar with basic concepts and techniques necessary for analyzing business environments, making sound business decisions and planning one's career. Academic advising is available in the Academic Advising Center, 106 McCool Hall.

A minimum of 21 hours must be taken to obtain a BUAD minor. A minimum of 12 hours must be taken at MSU to receive the BUAD minor. Note that some choices require others as prerequisites.

- Elect SEVEN from:
  - BL 2413 ACC 2013 Legal Environment of Business
  - Principles of Financial Accounting
  - ACC 2023 Principles of Managerial Accounting
  - Principles of Macroeconomics 2113 2123 EC
  - EC Principles of Microeconomics
  - FIN 3123 Financial Management
  - MKT 3013 Principles of Marketing
  - MGT 3114
  - Principles of Management and Production Management Information Systems
  - BIS 3233
  - BQA 2113 Business Statistical Methods I
  - BQA 3123 Business Statistical Methods II
  - MGT 3413 Production Management

# Department of MANAGEMENT and INFORMATION SYSTEMS

#### Office: 302 McCool Hall

Students in the Department of Management and Information Systems may elect to major in either Management or Business Information Systems. Both majors offer excellent job opportunities and can help graduates to achieve their potential in business firms or other organizations.

#### **MANAGEMENT Major (MGT)**

Regardless of one's chosen career, future responsibilities will very likely require a knowledge of management concepts. While an organization can acquire more capital, and technology becomes more common and cost-effective, the only true sustainable source of competitive advantage for an organization is people, and how these resources are managed. Management adds value by encouraging employee involvement, creativity, motivation and loyalty. A student may choose to take electives emphasizing human resource management, general management, and entrepreneurship.

The following course of study is designed to prepare the student for careers in the field of Management.

**General Education Requirements** English Composition (6 hours) ΕN 1103 English Comp I OR EN 1163 Accelerated Comp I EN 1113 English Comp II OR EN 1173 Accelerated Comp II Mathematics (9 hours) College Algebra MA 1313 MA 1613 Calculus for Business and Life Sciences I BQA 2113 Business Statistical Methods I Science (6 hours) 2 Lab Sciences from General Education courses Humanities (6 hours) See General Education courses Fine Arts (3 hours) See General Education courses Social/Behavioral Sciences (6 hours) PS 1113 American Government and 3 hours from General Education excluding: AEC and EC **College Core** BQA 3123 Business Statistical Methods II ACC 2013 Principles of Financial Accounting ACC 2023 Principles of Managerial Accounting 2113 Principles of Macroeconomics EC Principles of Microeconomics EC 2123 2413 BL Legal Environment of Business Management Information Systems BIS 3233 FIN 3113 Financial Systems FIN 3123 Financial Management MKT 3013 Principles of Marketing MGT 3114 Principles of Management and Production BUS 4853 **Business Policy** Oral Communication Requirement CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy Requirement BIS 1012 Intro to Business Information Systems Writing Requirement MGT 3213 Organizational Communications **Major Core** 3 hours International Elective (see advisor for options) Entrepreneurship Introduction to Human Resource Mgt MGT 3323 MGT 3513 MGT 3813 Organizational Behavior MGT 4153 Management Seminar Choose any three MGT electives 3000-level or above: MGT 3333 Field Studies in Entrepreneurship MGT 3823 Socially Responsible Leadership MGT 4533 Advanced Human Resource Mgt MGT 4543 Compensation Management Staffing in Organizations MGT 4563 MGT 4613 Cross-Cultural Management Non-business electives - 15 hours (see advisor for options) Free electives - 4 hours Total hours needed for major: 124

# **BUSINESS INFORMATION SYSTEMS Major (BIS)**

Business, industrial, governmental, and military establishments are constantly seeking persons with the necessary aptitude, professional education, and experience for careers in the fast-growing field of computer information systems. Through the facilities of the academic departments and the computing center, students at Mississippi State University have a unique opportunity to acquire both professional education and experience in business and management information systems.

The purpose of the Business Information Systems major is to prepare students to solve business problems where the solution normally involves the use of a computer. Thus, the student must have a strong foundation in computer concepts, systems analysis and design, programming and quantitative skills. Since the student will be expected to solve business related

problems, he/she must have a broad background and understanding of the business environment including such topics as accounting, economics, law, management, production, marketing, finance, and communications.

A student chapter of the BIS club is active and provides students with the opportunity to keep abreast of current developments in the field of management information systems through professional speakers, social activities, and field trips.

**General Education Requirements** English Composition (6 hours) EN 1103 English Comp I OR EN 1163 Accelerated Comp I English Comp II OR EN 1113 EN Accelerated Comp II 1173 Mathematics (9 hours) MA 1313 College Algebra Calculus for Business and Life Sciences I MA 1613 BQA 2113 Business Statistical Methods I Science (6 hours) 2 Lab Sciences from General Education courses Humanities (6 hours) See General Education courses Fine Arts (3 hours) See General Education courses Social/Behavioral Sciences (6 hours) PS 1113 American Government and 3 hours from General Education excluding: AEC and EC **College Core** BQA 3123 Business Statistical Methods II ACC 2013 ACC 2023 Principles of Financial Accounting Principles of Managerial Accounting EC 2113 Principles of Macroeconomics EC 2123 Principles of Microeconomics Legal Environment of Business 2413 BL. BIS 3233 Management Information Systems FIN 3113 Financial Systems Financial Management FIN 3123 Principles of Marketing MKT 3013 MGT 3114 Principles of Management and Production BUS 4853 Business Policy Oral Communication Requirement (3 hours) CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy Requirement BIS 1012 Intro to Business Information Systems Writing Requirement MGT 3213 Organizational Communications Major Core 3 hours International Elective (see advisor for options) BIS 1733 Visual Basic Programming 1753 Intro to Business COBOL BIS 3523 Advanced Languages I BIS BIS 3753 Business Database Systems BIS 4753 Structured Systems Analysis & Design BIS 4763 Senior Seminar Choose two of the following: BIS 4113 Business Info. System Security BIS 4513 Microcomputers and Networks BIS 4523 Advanced Languages II BIS 4533 Management Support Systems Non-business electives - 12 hours (see advisor for options) Computer Science Engineering (CSE) electives 3 hours 9 hours Computer-related electives

Free electives - 4 hours

#### Total hours needed for major: 124

# Department of MARKETING, QUANTITATIVE ANALYSIS and BUSINESS LAW

#### Office: 324 McCool Hall

This department offers one major (Marketing) and two concentrations (Professional Golf Management and Transportation). In addition, the department offers marketing, quantitative analysis and business law courses to support other programs in the college and across campus.

# **MARKETING Major (MKT)**

Marketing consists of three significant interlocking activities: (1) understanding consumers along with their wants and unfilled needs; (2) developing improved products and services that meet the identified needs of consumers; and (3) communicating the benefits of the improved products and services through advertising, public relations, promotion and effective salesmanship. Courses offered within this unit prepare students to provide marketing leadership and assume a variety of career paths, including field sales, brand management, marketing communications, store management, procurement, logistics, and small business.

# **General Education Requirements**

#### English Composition (6 hours)

- EN 1103 English Comp I OR
  - 1163 Accelerated Comp I EN
  - EN 1113 English Comp II OR
  - EN 1173 Accelerated Comp II
- Mathematics (9 hours)
  - MA 1313 College Algebra
  - MA 1613 Calculus for Business and Life Sciences
  - BQA 2113 Business Statistical Methods I
- Science (6 hours)
  - 2 Lab Sciences from General Education courses

Humanities (6 hours)

- See General Education courses
- Fine Arts (3 hours)

See General Education courses

Social Sciences

PS 1113 American Government Introductory course in AN, PSY or SO 3 hours

#### **College** Core

	BQA	3123	Business Statistical Methods II
	ACC	2013	Principles of Financial Accounting
ACC 2023		2023	Principles of Managerial Accounting
	EC	2113	Principles of Macroeconomics
	EC	2123	Principles of Microeconomics
	BL	2413	Legal Environment of Business
	BIS	3233	Intro to Management Info Systems
	FIN	3113	Financial Systems
	FIN	3123	Financial Management
	MKT	3013	Principles of Marketing
	MGT	3114	Principles of Management and Production
	BUS	4853	Business Policy
Oral C	ommu	nication	n Requirement
			Fundamentals of Public Speaking OR
			Introduction to Communication
Compu	iter Li	teracy F	Requirement
1		2	Intro to Business Information Systems
Writing		iiremen	
			Organizational Communications
Major	Core		-
0	3 hou	rs	International Elective (see advisor for options)
			Personal Selling
			Consumer Behavior
		4533	

- MKT 4813 Marketing Management
- Choose three of the following:
  - MKT 3213 Retailing
  - MKT 4123 Advertising
  - MKT 4213 Internet Marketing
  - MKT 4613 Services Marketing

MKT 4143	Sales Management
MKT 3933	International Marketing
MKT 3323	International Logistics
MKT 4033	International Transportation
MKT 4313	Physical Distribution Management
MKT 4333	International Supply Chain Management

Non-business electives - 13 hours (see advisor for options)

Free electives - 6 hours (see advisor for options)

#### Total hours needed for major: 124

To be selected with the advice and approval of advisor \*\*

A Marketing minor is offered to both Business and Non-Business students. A minor in Market-ing is attained by taking the following courses: MKT 3013, MKT 4413, and four from MKT 3213, MKT 9333, MKT 4113, MKT 4123, MKT 4413, MKT 4513, MKT 4513, MKT 4513 or MKT 4513. Students interested in this minor should contact a Marketing advisor.

#### PGA Golf Management Concentration (PGM)

Director: Jeffrey W. Adkerson, PGA Office: 309 McCool Hall; Phone: (662) 325-3161

The PGA Golf Management Program is the second oldest PGA Golf Management Program program accredited by the Professional Golfers' Association of America (PGA). The Program prepares graduates for careers as Class A PGA Professionals at country clubs, resorts, and public golf facilities. A PGA Professional must have a broad assortment of marketing, management and other business-related abilities to be effective in the golf profession today. The PGA Golf Management Program is a demanding four and one half year curriculum.

The program leads to a bachelor's degree in business administration with a major in marketing. In addition to the requirements for a degree in marketing, students must complete courses in turf management, food management, landscape architecture, human resource management; and all PGA Golf Management requirements. Students must also complete a minimum of 16 months of co-op under the guidance of the MSU Cooperative Education Program. These work experiences are under the tutelage of Class A PGA Professionals throughout the country. Students are required to be continuously enrolled at MSU as full-time students or in the MSU Cooperative Education Program according to their co-op schedule. Those who complete the program thus earn a prestigious degree, upon eligible employment, membership in the PGA of America.

PGA Membership. Please see PGA Golf Management staff to discuss PGA Membership Requirements.

PGA Golf Management Graduation Requirements. Students must complete the last semester in school (not on co-op). They must also pass the PGA Playing Ability Test, complete 16 months of co-op, and complete three levels of the PGA Golf Management Program.

PGA Golf Management Admission Procedures. The PGA Golf Management Program has a limited enrollment. The current enrollment limit is 200; however, this number is subject to decrease based on the placement outlook and PGA Golf Management and Co-op budget constraints. The number of students admitted each year is determined by graduation and attrition of the previous year. Students are admitted once per year for entrance in the fall semester. The deadline for completed applications is May 1 each year.

#### **Entrance Requirements**

Freshmen:

· Meet MSU regular admission requirements

· Have a USGA Handicap of 8 or less

Transfer Students:

· 2.5 GPA with maximum of 62 applied semester hours

· Have a USGA Handicap of 8 or less

Non-Citizen:

· The MSU PGA Golf Management Program is sanctioned by PGA of America to educate and train graduates to become PGA Members. International students must complete and sign a non-citizen form as required by the PGA of America.

#### **Concentration Course Requirements**

PGA Golf Management students are required to take all courses listed under the General Education and College requirements for Marketing in addition to the following courses:

MKT 2211 PGM Level I Seminar

MKT 2221 Golf Professional Development I

MKT 2231	Golf Professional Development II
MKT 2241	Golf Professional Development III
MKT 2311	Golf Professional Development IV
MKT 2251	Golf Professional Development V
MKT 3213	Retailing
MKT 4413	Consumer Behavior
MKT 4533	Marketing Research
MKT 4233	Golf Merchandising Management
MGT 3513	Intro to Human Resource Mgt
FNH 3283	Foodservice Systems
PSS 4414	Turf Management
LA 3603	Design of the Golf Environment
3 hours	International Elective (see advisor for options)
Choose 3 of the	following:
MKT 4113	Personal Selling
MKT 4123	Advertising
MKT 4213	Internet Marketing
MKT 4613	Services Marketing
MKT 4143	Sales Management
1 11111 0000	

MKT 3933 International Marketing

Total hours needed for major: 124

#### **Co-op Work**

PGA Golf Management students must complete a minimum of 16 months of co-op work with Class A PGA professionals at country clubs, public golf courses, golf resorts, or other golf facilities. A 2.50 cumulative GPA on all work and on all work at MSU are required in order to participate in the PGA Golf Management co-op program.

#### **PGA Golf Management**

PGA Golf Management students will complete all PGA Golf Management requirements including testing, which will be conducted on the Mississippi State University campus by officials of the PGA. An initial lab fee and a semester lab fee is charged students each semester on campus to cover the PGA Golf Management seminars, tests, workshops and playing privileges at the MSU Golf Course. A typical schedule of classes and co-ops are as follows:

and co-ops are		SU Golf Course. A typical	
FRESHMAN YEAR			
Fall	Schoo	l - 16 hours	
Sprin	ig Schoo	l - 16 hours	
Sum	ner Co-op		
SOPHOMORI	EYEAR		
Fall	Schoo	l - 16 hours	
Sprin	ig Schoo	l - 16 hours	
Sum	ner Co-op		
JUNIOR YEA	R		
Fall	Co-op		
Sprin	ig Schoo	l - 16 hours	
Sum	ner Schoo	l - 12 hours	
SENIOR YEA	R		
Fall	Schoo	l - 16 hours	
Sprin	ig Co-op		
Sum	· · · · · · · · · · · · · · · · · · ·		
Fall	Schoo	l - 16 hours (Graduation)	

#### Supply Chain Management Concentration (SCM)

Supply chain management continues to play a major role in the national and international economy. As businesses continue to focus on logistics and transportation improvements, job opportunities for graduates in the supply chain management concentration increase. The curriculum in the supply chain management concentration will acquain the student with the issues, perspectives, and techniques associated with transportation and logistics theory and practice. It offers in-depth treatment of distribution, supply, warehousing, inventory control, and operations in the modes of transportation.

#### Concentration

3 hours	International Elective (see advisor for options)
MKT 3323	International Logistics
MKT 4033	International Transportation
MKT 4313	Physical Distribution Management

MKT 4333	International Supply Chain Management
MKT 4413	Consumer Behavior
MKT 4533	Marketing Research
MKT 4813	Marketing Management

Non-business electives - 13 hours (see advisor for options)

Free electives - 6 hours

#### Total hours needed for major: 124

#### THE B.B.A. as a DOUBLE DEGREE and as a SECOND BACCALAUREATE DEGREE

A double degree is available in the College of Business for students pursuing a primary degree in a non-business area or accounting field at MSU. These programs require that a student satisfy the normal graduation requirements in the non-COB area first, as well as the following work. The required graduation grade point average in upper business course work is 2.50. Students are not allowed more than two D's in upper level business courses. Students must apply for and confirm both degrees at the same time. Students must establish a double degree record in the COB Academic Advising Center in 106 McCool.

The second degree curriculum is available to students who hold a baccalaureate degree in any non-business or accounting field of study from a regionally accredited institution. The combination of the first degree and the following second degree program must include the current general education courses and the courses listed below. A minimum of 32 semester hours upper business work must be earned in residence at Mississippi State University after the first degree has been conferred. Students must establish a second degree record with the COB Academic Advising Center.

#### **Required Courses**

ACC 2013	Prin of Financial Accounting
ACC 2023	Prin of Managerial Accounting
BIS 1012	Intro Business Computer Systems
BIS 3233	Management Information Systems
BL 2413	Legal Environment of Business
BQA 2113	Business Statistical Methods I
BQA 3123	Business Statistical Methods II
EC 2113	Prin of Macroeconomics
EC 2123	Prin of Microeconomics
FIN 3113	Financial Systems
FIN 3123	Financial Management
MGT 3114	Principles of Management
MGT 3213	Organizational Communications
MKT 3013	Principles of Marketing
3 hours	International Elective
BUS 4853	Bus Policy (Graduating Semester only)
Major Courses	21+ hours

Total 69+ hours

#### PREPARATION for the STUDY of LAW

Major Advisors: Gloria Liddell and Pearson Liddell Office: 324 McCool Hall

Each year a number of graduates of the College of Business enter law school. Although there is no formal pre-law curriculum, most law schools advise pre-law students to seek a wide background of studies. The curriculum in the College is good preparation for the study of law because it offers the opportunity to study the arts, the humanities, science, and mathematics, in addition to business and economic disciplines which constitute the background for understanding the study of most legal problems. Because many areas of law practice deal with business, a background in business is very useful to the practicing attorney. Moreover, several business law course offerings are available to expose the student to introductory-level law courses. In addition, if a person should decide not to pursue a legal career, there are many opportunities available in business. A professor of business law—pre-law advisor—is available for providing information about the legal professional, assistance in choosing courses, and guidance concerning law school admissions.

#### GRADUATE PROGRAMS in BUSINESS ADMINISTRATION

#### Office: 200 McCool Hall

The College of Business offers five graduate programs in business administration, namely, the Master of Business Administration (MBA), The Master of Science in Information System (MSIS), Master of Professional Accountancy (MPA), Master of Taxation (MTX), and the Doctor of Philosophy in Business Administration (Ph.D.). An M.A. in Economics and a Ph.D. in Applied Economics are additional graduate programs offered in the College.

Admission requirements for graduate programs in business include an acceptable history of previous academic work and a satisfactory score on the Graduate Management Admission Test (GMAT). Required background for admission to graduate course-work includes a general knowledge of the functions of business, statistics, and proficiency in computer usage.

Details concerning these graduate programs can be found in the Graduate Bulletin. Students who are interested in pursuing any of these programs should communicate with the Director of Graduate Studies in Business, P. O. Box 5288, Mississippi State, MS 39762. For further information, call (662) 325-1891.

# NOTES

# College of Education

# RICHARD L. BLACKBOURN, Dean

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# **GENERAL INFORMATION**

The faculty of the College of Education is committed to fulfilling the following three major functions: (1) to provide undergraduate and graduate professional preparation for teachers, administrators, school service personnel, and others who assume education-related positions in settings other than schools; (2) to collaborate with school personnel, educational agencies, professional groups, and others interested in the evaluation and improvement of educational opportunities, programs, and services; and (3) to promote and conduct experimental and other research studies designed to improve educational practice and to advance educational theory.

In addition to being accredited by the National Council for Accreditation of Teacher Education and the Southern Association of Colleges and Schools, the College of Education is a member of the American Association of Colleges for Teacher Education. It is the objective of this College to provide excellence in education while at the same time exhibiting a friendly attitude toward students. The teacher education programs are approved by the Mississippi State Department of Education, thereby enabling graduates to satisfy the certification requirements for the State of Mississippi.

#### **ADMINISTRATIVE ORGANIZATION**

The College of Education consists of six departments: Counseling and Educational Psychology; Curriculum, Instruction, and Special Education; Kinesiology; Music; Leadership and Foundations; and Instructional Systems and Workforce Development.

**Counseling and Educational Psychology.** The Department of Counseling and Educational Psychology prepares individuals at the undergraduate and graduate levels to function in a variety of professional settings that include K-12 schools, community counseling centers, human services agencies, business settings, rehabilitation agencies, community colleges, four-year colleges, and universities. The department offers the Bachelor's degree, Master of Science degree, Educational Specialist Degree, the Doctor of Education, and the Doctor of Philosophy degree. Special areas of interest in the department are psychometry, educational psychology, school psychology, community counseling, college counseling, and student affairs administration in higher education.

**Curriculum, Instruction, and Special Education**. This department is responsible for instruction in all professional courses of a general nature and in professional courses that deal specifically with teaching in special education, elementary education, and in the secondary fields of English language arts, social studies, mathematics, science, foreign languages, and speech. In addition to organizing and administering the curricula for educating teachers in the fields of elementary education, special education, and secondary education, the department is responsible for the direction and immediate supervision of trainees in these fields.

Through the Department of Curriculum, Instruction, and Special Education, the Bachelor of Science, Master of Science, Master of Arts in Teaching, Educational Specialist, Doctor of Education, and Doctor of Philosophy degrees are offered. The department also offers areas of emphasis in elementary and secondary education for the Educational Specialist degree and in elementary and secondary education for the Doctor of Education and the Doctor of Philosophy degrees.

**Kinesiology**. This department offers the Bachelor of Science degree in Kinesiology with concentration areas in Health Fitness Studies, Clinical Exercise Physiology, Sport Studies, and Sport Pedagogy. Sport Pedagogy majors may also pursue an add-on teaching endorsement in Health Education by taking additional coursework. Master of Science in Kinesiology degree programs offer concentration areas in Exercise Science, Sport Administration, and Teaching/Coaching.

**Music**. This department offers the Bachelor's degree in Music Education, with concentrations in Vocal, Instrumental Piano, and Guitar Music Education. The Maroon Band and the University chorus, both of which are university-wide organizations, are integral parts of this department. The department also offers a Bachelor of Arts degree in Music for non-teaching majors. (See the Arts & Sciences section for details on the B.A. in Music degree.)

**Instructional Systems and Workforce Development**. Mississippi State University is a designated institution for the preparation of vocational-technical education personnel. State and federal funds are made available, through cooperation with the State Office of Vocational and Technical Education, for the partial support of the program.

It is the responsibility of the Department of Instructional Systems and Workforce Development to provide teacher/coordinator/administrator preparation in vocational areas including adult, business, industrial technology and information technology services.

The Master of Science degree is offered in Technology. The department also offers an area of emphasis in Technology for the Educational Specialist, Doctor of Education, and Doctor of Philosophy degrees. The Master of Science in Instructional Technology degree is offered. This computer-based instructional technology program of study meets the educational needs of persons who have personal and professional interests in planning for and utilizing technology.

**Leadership and Foundations**. The Leadership and Foundations department provides programs in Educational Leadership and Community College Leadership. Programs are designed to prepare administrators, supervisors, teachers, and other educational personnel for positions of leadership in: (1) school district offices; (2) elementary, middle, or secondary schools; and (3) community college administrative positions. The department offers the Master of Science degree, the MAT in Community College Teaching, the Educational Specialist degree, the Doctor of Education, and Doctor of Philosophy degrees.

#### SERVICES

The Learning Center. The Learning Center (TLC) is an academic support unit for students, staff, and faculty at Mississippi State University whose primary purpose is to help students achieve and maintain successful academic standing. Through courses and tutoring in TLC, students are encouraged to acquire valuable study habits by assistance with proven strategies that help them develop into more effective and efficient learners. Some specific areas of service are reading comprehension and rate, vocabulary development, spelling, grammar, composition, mathematics, conversational English, time management, note taking, assessment of current study habits and learning styles, as well as assistance with preparation for professional examinations. In addition, The Learning Center offers seminar courses which assist incoming freshmen and transfer students in orientation to the university.

The Learning Center has a state-of-the-art teaching computer laboratory, housed in the College of Education, as well as a general computer lab available to students, faculty and staff. With prior scheduling, technical assistance and short courses are provided in The Learning Center in relation to all materials, equipment, and technology needs. The Learning Center makes available and assists in the preparation of instructional resource materials and provides selected multimedia equipment for classroom use. For further information, see The Learning Center in Part I of this bulletin.

The Rehabilitation Research and Training Center on Blindness and Low Vision. The Rehabilitation Research and Training Center on Blindness and Low Vision is the only national center that focuses on increasing the employability of persons who are blind or severely visually impaired.

Office of Clinical/Field-Based Instruction, Licensure, and Outreach. Partner School Districts in Mississippi are used to provide practicum and teaching clinical laboratory experiences for those enrolled in the teacher education program. Such experiences are supervised jointly by the faculties of the K-12 schools and the faculty of the College of Education.

**Early Childhood Institute**. The mission of the Early Childhood Institute is to develop and provide research-based practices and policy recommendations that promote high quality early childhood development and learning for all young children in Mississippi. The Institute is committed to working local and state agencies to build community and school partnerships that support these efforts.

Center for Educational Partnerships. This Center's mission is to provide educational outreach services to the public schools of Mississippi. Services include, but are not limited to, curriculum development, technical consultation, and educational research. The Center provides assistance to public schools through the following units: Writing /Thinking Institute, Mississippi World Class Teaching Program, America Reads, The Program of Research and Evaluation for Public Schools (PREPS), and the Educational Design Institute.

The T.K. Martin Center for Technology and Disability. The T.K. Martin Center provides comprehensive, multi-disciplinary evaluations to remove limitations through the application of assistive technology, allowing individuals to participate in educational, vocational, and leisure activities to the fullest degree they choose.

#### REQUIREMENTS for Teacher Education Students

A four-phase admission procedure is designed to assure a logical progression through the total professional teacher education process.

Enrollment in the College of Education (Phase I - pertains to Teacher Education majors in the College of Education only): Phase I identifies students who have enrolled in Teacher Education programs prior to official admission into Teacher Education. This early identification ensures the necessary counseling, screening, and advisement is provided for students aspiring to become teachers. To enroll in the College of Education, students must be admitted to Mississippi State University; hold an appointment with an assigned advisor in the College of Education and become familiar with the current College of Education Undergraduate Handbook, curriculum check sheet, and the current university catalog; select a major within a department that has a basic teacher preparation program; and complete Phase I (enrollment in the College of Education) Admission Form for Teacher Education Majors with their faculty advisors. The student must meet with the advisor to complete the phase form. The faculty advisor is responsible for submitting this form to the office of the Dean of Education, Room 309 Allen Hall.

Admission to Teacher Education (Phase II - including Teacher Education majors in the College of Agriculture and Life Sciences and the College of Arts and Sciences): To be admitted to teacher education and enroll in upper level professional education courses, students must complete Phase II by achieving a minimum of 44 semester credit hours (this includes the 36 hour general education requirements and excludes remedial and intermediate courses) with a 2.5 GPA and a 2.5 overall GPA. (A minimum of 44 semester credit hours general education core with a 2.75 GPA is required for Elementary and Secondary Education candidates.) Students must also complete 6 semester credit hours of English composition, and 3 semester credit hours of mathematics (algebra or higher) with a "C" or better in each course; and either present an ACT score of 21 (SAT equivalent of 860) with no sub-score below 18 or obtain the minimum passing scores on the Praxis I Tests:

The student must also submit two letters of recommendation from educators and verification of 40 hours work experience with children or youth. Each experience must be substantiated by a letter of verification from the organization where the student worked or volunteered.

It is important that students keep the originals copies of their Praxis I test scores in a safe place since they will be required to show these original copies to their faculty advisor in order to be admitted into Teacher Education. Students should request that ETS send a copy of their scores to Mississippi State University (Code R1480). Students attending the Meridian campus should have their scores sent to both Mississippi State University (Code R1480) and the Meridian campus (Code R3336). Students are encouraged to take the PRAXIS I exam by the end of the second semester of their freshman year.

Students should begin the application to teacher education during preregistration or orientation. Confidential recommendations must be sent to the Dean of the College of Education, P. O. Box 9710, Mississippi State, MS 39762. The Dean's office will issue admission cards within five days after admission approval. All students must satisfy Phase II requirements before registering for upper level professional education courses. Students must also sign depositions and licensure advisories and complete a criminal background check prior to admission to Teacher Education. Students who have not been admitted to Teacher Education cannot register for restricted professional education courses. The student must meet with the advisor to complete the Phase II form. The faculty advisor is responsible for submitting the Phase II form to the Dean's office, 309 Allen Hall.

Admission to Teaching internship (Phase III - including Teacher Education majors in the College of Agriculture and Life Sciences and the College of Arts and Sciences): A student must complete Phase III by submitting an Application for Admission to Teaching Internship form, which can be found online at http://www.ocfbi.msstate.edu/teaching/index.php, to the Director of Clinical/Field-Based Instruction, Licensure, and Outreach one semester prior to teaching internship. To be eligible for teaching internship, the student must have been admitted to Teacher Education, must have taken and passed both the Principles of Learning and Teaching and the Content Area Praxis II exams, maintained an overall GPA of 2.5 or higher at the time of application, and have no grade below a C in major, concentration, and professional education courses. Final eligibility (2.5 GPA overall) is determined through screening at the end of the semester prior to the teaching internship. The student must also have completed all professional education and content major and concentration courses with a minimum grade of "C" prior to teaching internship. No coursework other than the 15 teaching internship/seminar hours can be taken during the teaching internship semester, without prior approval.

Students seeking a degree in Teacher Education and an educator license are expected to schedule teaching internship during the last semester of the senior year. Graduate students seeking admission to teacher education and teaching internship are expected to meet the same requirements as undergraduate students prior to their teaching internship experience. All student teacher placements and other communications with local schools are directed through the Office of Clinical/Field-Based Instruction and Licensure.

**Exit Requirements** (Phase IV): To be eligible for graduation, students in Teacher Education programs must have a "C" or better in all professional education courses, all courses in their majors and concentration areas, completed no more than half of their hours at a community college, satisfied residence requirements, and have a 2.0 overall GPA at Mississippi State University.

For more detailed information about teacher admission procedures, see the current College of Education Undergraduate Handbook. (www. educ.msstate.edu) Application forms are available in the student's academic department and in the office of the Dean of the College of Education (Allen 309).

#### **TEACHER EDUCATION POLICIES**

**"D" Policy**. Students in Teacher Education must make grades of C or better in all professional education courses, in all courses in their academic major and concentration areas, in freshman composition, and algebra (or higher math). All other majors should check with their advisors for the policy for non-teaching majors.

**Probation/Dismissal for Teacher Education Students**. After the completion of 60 hours, Teacher Education students (enrolled or admitted) whose overall GPAs fall below 2.50 will be placed on academic probation. This policy refers to transfer students as well. Teacher Education students whose GPAs are below 2.50 after a year of probation will be dismissed from teacher education. If their GPAs later improve to 2.5, they may re-enroll or reapply for admission.

#### **TEACHER LICENSURE**

In accordance with statutory provisions, the Mississippi Department of Education, Jackson, Mississippi, has adopted the rules and regulations on issuing and renewing teaching licenses which are set forth in Guidelines for Mississippi Educator Licensure, August 2001. The licensure program is applicable to all teacher licenses. Satisfactory completion of any teaching curriculum offered by the College of Education will enable the graduate to apply for a teaching license in Mississippi, but this institution can neither waive any licensure requirements nor authorize substitutions for mandatory courses. Mississippi State University has submitted and received approval for its programs. Consequently, students who plan to transfer from other universities or another college to the College of Education should consult with the Director of Clinical/Field-Based Instruction, Licensure, and Outreach or an advisor in the College of Education to ascertain the general education, professional education, and specialized education courses which must be completed to obtain a teaching license in the field or fields of their choice. Since teacher licenses are issued by the Mississippi Department of Education only and not by the teacher education institutions, applications for licensure and original test scores must be filed with the Mississippi Department of Education by the applicant. Information concerning teacher licensure can be obtained from the Office of Clinical/Field-Based Instruction, Licensure, and Outreach.

As part of securing a Mississippi teacher's license, students must pass the Principles of Learning and Teaching (PLT) test, the Specialty Area test and attained the required minimum scores. Students must request that ETS send a copy of their scores to Mississippi State University (Code R1480). Students attending the Meridian campus should have their scores sent to both Mississippi State University (Code R1480) and to the MSU Meridian campus (Code R3336). It is very important that students keep the originals of all their test scores in a safe place since they will need the originals of these scores when they apply for a Mississippi educator's license.

#### STUDENT CODE of CONDUCT VIOLATIONS

Any violations of the Mississippi State University Student Code of Conduct as delineated in the student handbook, The Bulldog, and at http://www.msstate.edu/dept/students/doas.htm, including academic misconduct, may place completion of the student's degree/licensure program in jeopardy.

#### CURRICULA

**Organization**. All curricula in the College of Education are organized on the lower- and upper-division basis. The lower division consists of the first two years and corresponds to the community college level. The upper division consists of the last two years, normally the junior and senior years.

**Selection of Teaching Fields.** Students who enroll in the teacher education program in the College of Education are expected to pursue a program of work which will enable them to qualify for a teaching license in the field of their choice.

**Degree Program Modifications**. Because of forthcoming changes in teacher licensure requirements, COE degree programs and concentrations in teacher education will be modified. Appropriate programmatic changes for graduation, licensure, and accreditation will be made as this process evolves. These teacher education program changes will become applicable as students are officially admitted to programs and/or as new graduation requirements are adopted. For updated degree program modifications, please check with your departmental office.

Sequence of Courses. Students should schedule their courses in consultation with their faculty advisor.

**Directed Individual Study Courses**. A directed individual study course is an experience designed to further the educational and/or career development of an individual that is equal to or greater than the equivalent hours for a regularly scheduled course. This experience should be used only in special circumstances as deemed appropriate by the faculty of record, student's advisor, and department head. Unless otherwise designated by the student's advisor and department head, the experience shall be limited to 3 credit hours of undergraduate work. Every student should make an agreement with the faculty of record to fulfill the course objectives and oucomes specified in the course syllabus. This policy applies to students entering MSU Fall 2001 and thereafter.

**Transfer from Community College**. Lower-division curricula (1000-2000 level) in the College of Education closely parallel the corresponding curricula offered in the community colleges of the state. Therefore, students majoring in a given area at a community college should be able to transfer to a like area in the College of Education and complete their last two years of college work without loss of time or credit.

**Fields of Training**. Baccalaureate programs are offered for the education of teachers in the following fields: elementary education, biology education, English education, foreign language education, mathematics education, physics education, chemistry education, social studies education, speech education, special education, music education, sport pedagogy, technology teacher education, and family/consumer sciences education.

Non-teaching bachelor's programs are offered in the following areas: educational psychology; kinesiology with concentrations in health fitness studies, sport studies, or clinical exercise physiology; industrial technology, information technology services, and music.

**Requirements for Graduation**. The requirements for graduation with a Bachelor of Science degree in the College of Education are a minimum of 124 semester hours and 256 quality points (or higher for some curricula).

#### **GRADUATE PROGRAMS in EDUCATION**

Master's Degrees. The following departments within the College of Education offer curricula leading to the degree of Master of Science in education: Counseling and Educational Psychology; Curriculum, Instruction, and Special Education; Kinesiology; Leadership and Foundations; Instructional Systems and Workforce Development. Students should check with specific departments for information on the concentrations offered by these departments. The Master of Arts in Teaching is offered for secondary teachers by the Department of Curriculum, Instruction, and Special Education and for Community College Teachers by the Department of Leadership and Foundations.

Educational Specialist Degree. The Educational Specialist degree is a planned program of a minimum of 30 semester hours above the Master's degree under the direction of a major advisor. It is designed to broaden leadership training by providing courses in other fields and disciplines supplementary to the basic core in the major field. It is offered with program emphases in Agricultural and Extension Education, Counselor Education, Elementary Education, School Administration, School Psychology, Secondary Education, Special Education, and Technology.

**Doctoral Degrees**. The Doctor of Education and Doctor of Philosophy degrees are offered with program emphases in School Administration, Counselor Education, School Counseling, Educational Psychology, Instructional Systems and Workforce Development, Elementary Education, Secondary Education, Curriculum and Instruction, Educational Leadership, and Community College Leadership. Minors may be taken in various related disciplines.

For more information on graduate programs in Education, see the Graduate Bulletin. A copy may be secured by writing to the Office of the Graduate School, PO. Box G, Mississippi State, Mississippi 39762.

#### College of Education Conceptual Framework

All programs in the College of Education at Mississippi State University use a conceptual framework involving four specific areas of study: General Studies, Professional/Pedagogical Studies, Content Specialty Studies, and Field and Clinical Experiences. Each of these areas of study builds upon the development of educators/professionals who are dedicated to the continual improvement of their own as well as their students' educational experiences at all academic levels.

Programs incorporate the essential characteristics of an effective educator/professional stated in the conceptual framework: knowledge, collaboration, reflection, and practice. Graduate programs additionally emphasize research and performance-based outcomes. Candidates' abilities to use technology and to work with diverse populations are important skills addressed in the Conceptual Framework and fostered in all undergraduate and graduate education programs in the College of Education.

# Department of COUNSELING and EDUCATIONAL PSYCHOLOGY

Department Head: Daniel Wong Office: 508 Allen Hall

The Department of Counseling and Educational Psychology prepares individuals at the undergraduate and graduate levels to function in a variety of professional settings that include K-12 schools, community counseling centers, human services agencies, business settings, rehabilitation agencies, community colleges, four-year colleges, and universities. The department offers the Bachelor's degree, Master of Science degree, the Educational Specialist degree, and the Doctor of Philosophy degree. Special areas of interest in the department are psychometry, educational psychology, school psychology, community counseling, school counseling, vocational rehabilitation counseling, college counseling, and student affairs in higher education.

1. Undergraduate Degree. The B.S. degree in Educational Psychology is a non-teaching option. This program provides students with a general background of psychological topics and principles as they relate to education. Additionally, students complete an emphasis or a minor. Students who enroll in this program pursue a diversity of careers. Some of the vocational areas for which this program can prepare students are as follows: child care centers, seminary, the armed services (ROTC students), business settings, mental health agencies, and graduate work in counselor education, educational psychology, and school psychology. Students majoring in Educational Psychology have to earn a grade of "C" or better on all courses in the 43 hour curriculum.

2. Graduate Degrees. The Department offers M.S., Ed.S., and Ph.D. degrees in Counselor Education with areas of emphasis in five concentrations: Community Counseling, Rehabilitation Counseling, School Counseling, College Counseling, and Student Affairs in Higher Education with a track in College Counseling and Student Affairs Administration. The department also offers M.S. and Ph.D. degrees in Educational Psychology and a Specialist degree in School Psychology. Preparation in Educational Psychology can be obtained in the concentration areas of School Psychometry and general Educational Psychology at the Master's (M.S.) level; School Psychology at the specialist (Ed.S.) level; and in the areas of general Educational Psychology (college teaching) and School Psychology at the doctoral (Ph.D.) level.

3. Student Retention Procedures: Professions engaged in protection of the public health and welfare charge their members with the responsibility of monitoring potential new members. Therefore, the Counselor Education and Educational Psychology faculty believe a component of their responsibility to their students, their professions, and the eventual consumers of services provided by graduates, is the necessity to monitor not only students' academic progress but also the personal characteristics of students that will affect their performance in therapy. These characteristics should be of a quality so as to NOT interfere with the students' professionalism or helping capacity. Accordingly, the department has adopted a policy outlining student retention procedures. This policy is printed in the Department of Counselor Education and Educational Psychology Graduate Program Handbook.

4. Financial Assistance for Graduate Students. Many students hold assistantships in the Department, the Division of Student Affairs, the Office of Housing and Residence Life, Social Science Research Center, College of Education, and the Rehabilitation Research and Training Center on Blindness and Low Vision.

# EDUCATIONAL PSYCHOLOGY Major (EPY) (Non-teaching Option)

Major Advisors: Anastasia Elder, David Morse, Linda Morse, Chih-Hsuan Wang Office: 508 Allen Hall

#### **General Education Requirements**

English	English Composition (6 hours)				
			English Comp I OR		
			Accelerated Comp I		
			English Comp II OR		
	EN	1173	Accelerated Comp II		
Mather	natics	(6 hour	rs)		
	MA	1313	College Algebra		
	3 hou	irs	Math above College Algebra excluding: MA 1413, 1423, 1433		
Scienc	e (6 ho	ours)			
	BIO	1123	Animal Biology with lab		
	3 hou	irs	Lab science from General Education courses		
Math/Science Elective (3 hours)					
	Math above OR		College Algebra excluding MA 1413, 1423, 1433		
	Science from		n General Education courses		
Humanities (6 hours)					
	3 hou	irs	History course		
	3 hou	irs	Literature course		
Fine Arts (3 hours)					
See General			Education courses		
Social Sciences (6 hours)					
	SO	1003	Intro to Sociology		
	3 hou	irs	General Education course excluding EPY prefixes		

#### **Major Core**

PSY 1013	General Psychology
EPY 2513	Human Growth & Development
EPY 3543	Adolescent Psychology
EPY 3503	Principles of Ed Psych
EPY 3553	Giftedness and Creativity
EPY 4033	Applied Learning Theory
EPY 4053	Psych & Educ of Mentally Retarded
EPY 4073	Personality Adjustment
EPY 4214	Psych & Ed Statistics
EPY 4313	Measurement & Evaluation
COE 4023	Intro to Counseling
EDX 3213	Psych & Ed of Excep Child
EPY 4513	Research Methods in EPY
PSY 3623	Social Psychology
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Human/Cultural Diversity Elective - choose one:

- SO 2203 Cultural and Racial Minorities
  - 3013 SO Society and the Individual
  - SO Contemporary. Social Problems 1103
  - SO 3323
  - Contemporary Woman Society and Religion 3333 SO

  - AN 2203 Cultural and Racial Minorities
  - AN 3113 Societies of the World

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Computer Literacy

See advisor for computer literacy requirements.

Writing Requirement

EPY 3513 Writing in the Behavioral Sciences

Additional Requirements 3 hours

History course 3 hours Literature course

General Electives\*

6-12 hours

\* In addition to the University and Major cores above, a choice of one emphasis of 18-24 hours (see below) and 6-12 hours of electives are required for the degree total to reach 124 hours.

#### **Selected Emphasis Areas**

#### Corrections

Required Courses	
CRM 3103	Contemporary Issues in Criminal Justice
SO 2203	Cultural and Racial Minorities
SO 3603	Criminology

- Criminology 3603
- Correctional Systems SO 4513 4233 Juvenile Delinquency SO

Electives - Choose two of the following:

- AN 4313 Human Identification
  - SO 3313 Deviant Behavior
  - SO 3503 Violence in the U.S.
  - PS4183 Judicial Process
  - PSY 4213 Psychology of Abnormal Behavior
  - Drug Use and Abuse PSY 4223
  - Child Welfare Services SW 4613

#### Total hours needed for major: 124

Additionally, students are encouraged to complete the 12 hours of field work (COR 3310 and COR 3320) in order to receive the corrections certificate.

#### Human Development Child and Family Studies

Required Courses

HS 2	803 Pro	enatal and	Infant	Develop	ment
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- 2813 HS Child Development I
- HS 3803 Child Care Procedures
- 4803 Art of Parenting (Jr. Standing) HS
- The Family: A Transactional Approach 4853 HS

Electives - Choose two of the following:

- Introduction to Gerontology HS 4403
- 3813 Child Development II HS
- HS 3823 Designing Child Programs

- Family Public Policy HS 4333
- 4843 Family Interaction HS
- 4863 Consumer Aspects of Aging HS
- HS 2283 Child Health and Nutrition

Total hours needed for major: 124

### **Counselor Education**

Required Courses

COE 3313 Rehabilitation Services COE 4903 Developmental Counseling and Mental Health COE 4013 Facilitative Skills Development COE 4743 Gender Issues in Counseling OR PSY 3203 Psychology of Gender Differences COE 4713 Issues in Aging OR PSY 4983 Psychology of Aging Electives - Choose one of the following: EPY 4113 Behavioral and Cognitive Interventions COE 4363 Introduction to Sign Language PSY 3213 Psychology of Abnormal Behavior PSY 4223 Drug Use and Abuse COE 4353 Adapt Tech and Disability 3 hours Special Topics elective+ Peer Counselors\* 3 hours COE 4513 Paraprofessionals in Student Affairs\*\*

Other relevant courses may be added with advisor approval.

#### Total hours needed for major: 124

+ Special Topics courses in a variety of subjects are offered periodically by the department and may satisfy this requirement. Consult advisor for approval of a Special Topics course.

Requires application and invitation to participate.

Residence Hall advisors only.

#### Kinesiology

Required Courses

- 1803 Health Trends and Topics ΚI
- ΚI 2213 Emergency Health Care
- PE 3133 Adaptive Physical Education
- Motor Development PE 3223
- 3304 Exercise Physiology EP
- PE 4233 Biomechanics

#### Total hours needed for major: 124

#### Psychology with Applied/Industrial/Human Resource

Required Courses

PSY 3353 Motivation

PSY	42.53	Industrial Psychology
		industriar i syenorogy

- MGT 3114 Principles of Management & Production
- Intro to Human Resources Management MGT 3513
- MGT 3213 Organizational Communications I

# Electives - Choose two of the following:

- MGT 3413 Production Management
- MGT 4543 Compensation Management
- MGT 4533 Advanced Human Resource Management
- MGT 4213 Organizational Communications II
- PSY 4123 Quant Techniques in Psy Using Computers

# Total hours needed for major: 124

# Department of CURRICULUM, INSTRUCTION, and SPECIAL EDUCATION

Interim Department Head: Devon Brenner Office: 310 Allen Hall

Please refer to Degree Program Modifications statement located under CURRICULA in the College of Education section of this catalog.

This department offers curricula in Elementary Education (early childhood, elementary, and middle school), Secondary Education (English, foreign language, mathematics, science, social studies, and speech), and Special Education.

# **ELEMENTARY EDUCATION Major (ELED)**

Major Advisors: Devon Brenner, Nicole Miller, Margaret Pope, and Rebecca Robichaux Office: 310 Allen Hall

The Elementary Education major is designed to prepare teacher candidates and encourage the professional development of teachers and other school personnel. The undergraduate program prepares graduates for certification in Elementary Education through coursework and experiences that focus on subject matter knowledge, foundations of education, pedagogy, practice, and field experiences in pre-K through 8th grade classrooms. Students must choose an early childhood (N-1/K-3) or middle school (K-8) concentration. The early childhood concentration leads to K-3 general certification with N-1 (nursery-1st grade) early childhood/ special education certification. The middle school concentration leads to K-6 general certification with  $4^{\text{th}}-8^{\text{th}}$  grade subject area certification. The junior year includes two mini-blocks of courses: one that emphasizes teaching at the early childhood levels (pre-K–3<sup>rd</sup> grade), and one that emphasizes teaching at the middle school levels (4<sup>th</sup>-8<sup>th</sup> grades). The senior year includes the senior methods block – four co-requisite courses with extensive field experiences that prepare graduates for the teaching of subject matter. The Elementary Education curriculum culminates in the teaching internship, a semester-long field experience in public schools. Persons interested in an Elementary Education degree are advised to obtain a copy of the advising worksheet, available in 310 Allen Hall, from any elementary education advisor, or at www.cise.msstate.edu.

#### **General Education Requirements**

English Composition (6 hours)

0		1		
	EN	1103	English Comp I OR	
	EN	1163	Accelerated Comp I	
	EN	1113	English Comp II OR	
	EN	1173	Accelerated Comp II	
Mathem	natics	(12 hou	urs)	
	MA	1313	College Algebra	
	MA	1413	Structure of Real Number System	
	MA	1423	Problem Solving & Real Numbers	
	MA	1433	Informal Geometry & Measurement	
Science	(6 hc	ours)		
	See G	Beneral	Education courses (must be lab-based courses)	
Humani	ities (	6 hours	)	
	3 hours		History (HI 1063, HI 1163 or HI 1213)	
	3 hours		History (HI 1073, HI 1173 or HI 1223)	
Fine Arts (3 hours)				
	3 hou	rs	See General Education courses	
Social/Behavioral Sciences (6 hours)				
	GR	1123	Intro to World Geography	
	PS	1113	American Government OR	
	SO	1003	Introduction to Sociology OR	
	SO	1203	Marriage and Family	
Additional Core				
6 hours		***	Natural Colongo courses	

#### Addi

6 hours Natural Science courses

English Literature Elective (see General Education courses) English Grammar Elective OR

English course above EN 1113

# Major Core

Core	
RDG 3113	Early Literacy I*
RDG 3213	Early Literacy II*
EDE 3123	Early Childhood Education*
EDX 3213	Psych and Educ of Except Child & Youth
DDC ALLA	

RDG 3413 Middle Level Literacy I\*

- RDG 3423 Middle Level Literacy II\* EDE 3223 Middle Level Education\* EDF 3333 EDF 3423 Social Foundations of Ed
- Exploring Diversity through Writing\*
- EDE 3443 Creative Arts at Elem & Mid Levels\*
- EDE 3523 Foundations of Elem & Mid Level Math Ed\*
- EDE 4113 Teach Elem & Mid Level Science\*
- EDE 4123 Teach Elem & Mid Level Mathematics\*
- RDG 4133 Integrating Lang. Arts Instruct in Content Areas\*
- EDE 4143 Teach Elem & Mid Level Social Studies\*
- EDE 4883 Managing the Elem & Mid Level Classroom\*
- EDE 4886 Elem/Middle Level Teaching Internship\*
- EDE 4896 Elem/Middle Level Teaching Internship\*

# Early Childhood Concentration (ECHD)

Leads to K-3 general certification with N-1 (nursery - 1st grade) early childhood/special education certification.

- HS 2813 Child Development I
- HS 2803 Pre-natal and Infant Development
- 3803 HS Child Care Procedures
- EDX 4113 Diagnostic-Prescriptive Methods and Materials for Early Childhood Handicapped
- EDX 4413 Working with Parents OR
- HS 4803 Art of Parenting

Students choosing the Early Childhood Education concentration may obtain K-6 certification by taking, in addition to the K-3 requirements, EDE 3223 and any two of the following: 3 hours of English, 3 hours of math, 3 hours of social studies, and/or 3 hours science.

# Middle School Concentration (MDSC)

Leads to K-6 general certification with 4th-8th grade subject area certification.

EDE 3223 Middle Grades Education

Twelve hours certification endorsement area electives. Two 21-hour endorsement areas required. See Advisor.

#### Total hours needed for major: 123

Requires admission to Teacher Education.

Many courses have co-requisites. See catalog or advisor.

#### SECONDARY EDUCATION Major (SEED)

The purpose of the Secondary Education major is to prepare students to teach the academic subjects in grades 7-12, to provide professional courses and experiences for those desiring to teach at the middle and high school levels; and to collaborate with the other colleges of the University in matters of teacher education.

The Secondary Education program is designed to lead teacher candidates to a 7-12 licensure in English, Speech, Foreign Language, Mathematics, Science, or Social Studies.

Through its graduate programs in secondary education, the department furnishes additional professional courses and experiences for teachers, principals, supervisors, and superintendents; and offers consultative services to school boards and school systems in need of such services.

Degrees offered on the graduate level include Master of Education, Master of Arts in Teaching, Educational Specialist and Doctor of Philosophy.

#### **ENGLISH EDUCATION Concentration (ENED)**

#### Major Advisor: Missy Hopper; Office: 310 Allen

The curriculum in English Language Arts is offered to prepare students to teach English Language Arts in high schools and middle schools. A minimum of 42 hours in English beyond freshman composition is required for a major.

#### **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR
  - EN Accelerated Comp I 1163
  - EN 1113 English Comp II OR
  - EN 1173 Accelerated Comp II
- Mathematics (6 hours)
  - MA 1313 College Algebra
    - MA higher than Algebra

Science (6 hours)

BIO Science with lab (see General Education courses)

- Physical Science with lab (see General Education courses)
- Math/Science Elective (3 hours)

See General Education courses

- Humanities (6 hours)
  - HI 1063 Early US History
  - HI 1073 Modern US History
- Fine Arts (3 hours)
- CO 1503 Introduction to Theatre
- Social/Behavioral Sciences (6 hours)

See General Education courses

# **Major Core**

Major Core	
EDS 3411	Practicum in Secondary Ed
EDF 3333	Social Foundations of Ed
EDX 3213	Psych and Education of Except Child & Youth
RDG 3513	Developing Reading Strategies*
EDE 3343	Teaching Adolescent Literature
EPY 3143	Human Development/Learning*
EDF 4243	Planning for the Diversity of Learners*
EPY 3253	Evaluating Learning*
EDS 3673	Secondary Lang Arts Education*
EDS 4673	Methods of Teaching Lang Arts*
EDS 4873	Sem in Managing Sec. Class*
EDS 4886	Teaching Internship in Second Ed*
EDS 4896	Teaching Internship in Second Ed*
Content Area	
EN 2203	Intro to Literature
EN 2213	English Literature I

- English Literature 2223 ΕN English Literature II
- EN 2243 American Literature I
- EN 2253 American Literature II
- EN 2273 World Literature I OR
- 2283 EN World Literature II
- EN 2434 Literature and Film
- Critical Writing EN 3414
- ΕN 3423 Descriptive English Grammar
- Shakespeare OR 4503 EN
- 4513 EN Shakespeare
- EN 4413 History of English Lang OR
- EN 4403 Intro to Linguistics OR
- 4633 EN Sociolinguistics
- EN 4323 Lit Criticism Plato to Present OR
- EN 4353 20th Century Criticism
- EN Electives 3000/4000 level 6 hours

Oral Communication Requirement

Satisfied by successful completion of EDS 3673

Computer Literacy Requirement

Satisfied by successful completion of EDS 4673 and EDF 4243 Writing Requirement

Satisfied by successful completion of EN 3414

# Total hours needed for major: 124

Requires admission to Teacher Education

# FOREIGN LANGUAGE EDUCATION Concentration (FLED)

# Major Advisor: Kelly Moser; Office: 310 Allen Hall

This curriculum in Foreign Language Education is offered to prepare prospective middle school and high school teachers of Spanish, French, or German. A minimum of 35 semester hours above FLS/FLF/FLG 1123 (Spanish II, French II, German II) in one language is required for the first teaching field. An endorsement in a second foreign language requires 21 hours in the second language.

In addition to the required courses listed below, students must interview and demonstrate oral proficiency at the Intermediate-Mid level prior to admission to Phase II: Teacher Education. To be considered for Phase III: Teacher Licensure, students must demonstrate Advanced-Low proficiency on the Oral Proficiency Interview. Students should see the advisor or visit http://actflproficiencyguidelines2012.org/ for more information.

#### **General Education Requirements** E PLO • , • (61

English Composit	English Composition (6 hours)			
•	B English Comp I OR			
EN 1163	Accelerated Comp I			
EN 1113				
EN 1173	I I			
Mathematics (6 h				
MA 1313 3 hours	3 College Algebra MA higher than College Algebra (see Gen. Ed.)			
Science (6 hours)	MA higher than Conege Algebra (see Gen. Ed.)			
	ce with lab (see General Education courses)			
Physical S	cience with lab (see General Education courses)			
Math/Science Ele				
Consult A	dvisor. See General Education courses			
Humanities (6 hor	·			
EN 227.				
EN 2283	World Literature After 1600			
Fine Arts (3 hours	,			
See Gener	al Education courses			
	Sciences (6 hours)			
GR 1123				
AN 1143	Intro to Cultural Anthropology			
Major Core				
EDF 333.	3 Social Foundations			
EDF 4243				
EPY 3143 EPY 3253				
EP 1 323. EDX 321				
RDG 3513				
EDS 341				
EDS 366.				
EDS 466.				
EDS 4873				
EDS 4880 EDS 4890	8 1 1			
	5 Teaching Internship in Second Ed*			
Content Area				
3 hours 3 hours	FLF/FLS/FLG 2133 FLF/FLS/FLG 2143			
4 hours	FLF/FLS/FLG 3114			
4 hours	FLF/FLS/FLG 3124			
21 hours	FLF/FLS/FLG courses 3000-level or above			
EN 4403	3 Intro to Linguistics			
EN 4463	3 Studies in Secondary Language Acquisition			
Additional Humanities				
HI 121.				
HI 1223				
PHI 1103	1 2			
Oral Communication Requirement				
Satisfied by successful completion of EDF 4243				
Computer Literacy Requirement Satisfied by successful completion of EDF 4243				
	•			
Total hours needed for major: 123				

Admission to Teacher Education Required

#### MATHEMATICS EDUCATION Concentration (MAED)

Major Advisor: Dana Franz; Office: 310 Allen Hall

This curriculum is offered for the education of prospective teachers of mathematics in grades 7-12. A minimum of 36 semester hours of mathematics is required.

# **General Education Requirements**

			1	
English Composition (6 hours)				
-	EN	1103	English Comp I OR	
	EN	1163	Accelerated Comp I	
	EN	1113		
	EN	1173	Accelerated Comp II	
Mather	matics	(6 hou	rs)	
	MA	1713	Calculus I	
	MA	1723	Calculus II	
Scienc	e (9 h	ours)		
Selene	3 hou		Biological Science w/lab (see General Education)	
	6 hou		Physical Science (Calculus-based PH or CH 1213	
	0 1100		or higher))	
Humar	nities (	6 hours		
manna	HI	1063	Early US History	
	HI	1003	Modern US History	
Fine A			houdin ob history	
THICA			Education courses	
a . 1				
Social/			ciences (6 hours)	
		1013	General Psychology	
	SO	1003	Intro to Sociology	
Additi	onal (	Core		
	PS	1113	American Government	
	6 hou	irs	EN Literature Electives (see General Education)	
Oral C	ommu	nicatio	n Requirement	
	CO	1003	Fundamentals of Public Speaking	
Comp	ıter I i	teracy I	Requirement - choose one	
compt		1213	Computer Programming w/ Fortran	
		1213	Computer Programming w/ C	
		1273	Computer Programming w/ C	
Writin		iremen		
vv Hung		3413		
		5415	Writing for Thinking	
Major				
		4243	Planning for Diversity of Learners*	
	EDF	3333	Social Foundations of Ed	
		3213	Exceptional Child and Youth	
	EPY	3143 3253	Human Development/Learning*	
		3513	Evaluating Learning* Reading Strategies in Secondary School*	
		3411	Practicum in Secondary Educ*	
		3633	Secondary Mathematics Educ*	
	EDS	4633	Methods of Teaching Mathematics*	
		4873	Seminar in Managing Second Ed Class*	
		4886	Teaching Internship in Second Ed*	
	EDS	4896	Teaching Internship in Second Ed*	
Conte	nt Are	я		
Conter		a 2733	Calculus III	
	MA		Calculus IV	
		3053	Foundations of Math	
			3 Intro to Statistical Inference	
		3113		
		3163	Modern Algebra	
	MA	3253	Differential Equations I	
		3463	Foundations of Geometry	
	MA	3513	History of Math	

MA 4523 Intro to Probability

#### Total hours needed for major: 124

Requires admission to Teacher Education.

# **BIOLOGY EDUCATION Concentration (BIED)**

Major Advisor Office: 310 Allen Hall

The Biology Education Curriculum is designed in accordance with the recommendations of the National Science Teachers Association and the National Science Education Standards for prospective teachers at the secondary level (grades 7-12). Courses designed for nonscience majors will not count toward a degree in any area of science education.

# **General Education Requirements**

#### English Composition (6 hours) 1103 English Comp I OR EN EN 1163 Accelerated Comp I EN 1113 English Comp II OR EN 1173 Accelerated Comp II Mathematics (6 hours) MA 1313 College Algebra ST 3113 Intro to Statistica Intro to Statistical Inference Science (6 hours) See Science Content Area Math/Science Elective (3 hours) See Sciences Content Area Humanities (6 hours) See General Education courses Fine Arts (3 hours) See General Education courses Social/Behavioral Sciences (6 hours) See General Education courses **Major Core** EDF 3333 Social Foundations of Ed EDF 4243 Planning for Diversity of Learners\* EDS 3411 Practicum in Secondary Ed\* EDX 3213 Exceptional Child and Youth EPY 3143 EPY 3253 Human Development/Learning\* Evaluating Learning\* Secondary Science Ed.\* EDS 3653 EDS 4653 Methods of Teaching Science\* EDS 4873 Sem in Managing Sec. Class\* EDS 4886 Teaching Internship in Second Ed\* Teaching Internship in Second Ed\* Reading Strategies in Secondary School\* EDS 4896 RDG 3513 1803 Health Trends and Topics KI Content Area - choose 54 hours from the following:+ BIO 2113 Plant Biology BIO 1504 Principles of Zoology w/lab BIO 3014 Human Physiology BIO 2103 Cell Biology BIO 3103 Genetics I or BIO 4133 Human Genetics BIO 3104 Ecology BIO 3304 General Microbiology BIO 3504 Comparative Anatomy BIO 4113 Evolutionary Biology Chemistry I Invest in Chemistry CH 1213 CH 1211 CH 1223 Chemistry II CH 1221 Invest in Chemistry CH 2503 Elem Organic Chemistry BCH 4013 Principles of Biochemistry 6 hours **BIO/Science Elective** Botany (3000-4000 level) 3 hours Oral Communication Requirement Satisfied by successful completion of EDS 3653 Computer Literacy Requirement Satisfied by successful completion of EDS 3653 Writing Requirement BIO 3013 Writing for Biologists or EDF 3413 Writing for Thinking Total hours needed for major: 124 Requires Admission to Teacher Education.

+ At least 21 hours of BIO courses must be 3000-4000 level.

# **CHEMISTRY EDUCATION Concentration (CHED)**

# Major Advisor Office: 310 Allen Hall

The Chemistry Education Curriculum is designed for prospective secondary teachers (7-12) in accordance with the recommendations of the NSTA and NSES.

No grades of "D" will be accepted. Courses designed for nonscience majors will not be accepted.

#### **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR EN 1163 Accelerated Comp I
  - EN 1163 Accelerated Comp I EN 1113 English Comp II OR
  - EN 1173 Accelerated Comp II
- Mathematics (6 hours)
  - MA 1313 College Algebra MA 1713 Calculus I
- Science (9 hours)

See Content Area

Humanities Electives (6 hours) See General Education courses

- Fine Arts (3 hours)
- See General Education courses
- Social/Behavioral Sciences (6 hours)
- See General Education courses
- Major Core

4243	Planning for the Diversity of Learners*		
3333	Social Foundations of Ed		
	Practicum in Secondary Ed*		
	Exceptional Child and Youth		
	Human Development/Learning*		
3253	Evaluating Learning*		
3653	Secondary Science Education*		
4653	Methods of Teaching Science*		
4873	Sem in Managing Sec. Class*		
4886	Teaching Internship in Second Ed*		
4896	Teaching Internship in Second Ed*		
3513	Reading Strategies in Secondary School*		
1803	Health Trends and Topics		
a - choo	ose 54 hours from the following:		
1213	Chemistry I		
	Investigations in Chemistry		
1223	Chemistry II		
1221	Investigations in Chemistry		
	Analytical Chem I		
4213	Adv Inorganic Chemistry		
4212	Adv Inorganic Chem Lab		
	Analytical Chem II		
	Physical Chemistry I		
	Physical Chemistry Lab		
4423	Physical Chemistry II		
	Physical Chemistry II Lab		
	Organic Chemistry I		
	Organic Chem Lab		
	Organic Chemistry II		
4521	Organic Chem Lab		
1063	Descriptive Astronomy		
	Physics I		
2223	Physics II		
	Physics III		
	Calculus II		
2733	Calculus III		
	n Requirement		
ied by s	successful completion of EDF 4243		
teracy F	Requirement		
	successful completion of EDF 4243		
Satisfied by successful completion of EDF 4243 and EDS 4653			
Total hours needed for major: 124			
	3333 3411 3213 3143 3253 3653 4653 4873 4886 4896 3513 1803 <b>a</b> - choo 1213 1221 2314 4213 1221 2314 4212 4353 4413 4411 4423 4421 4513 4513 4521 1063 2223 2233 4603 1723 2733 nication ied by s		

Requires admission to teacher education

# **PHYSICS EDUCATION Concentration (PHED)**

# Major Advisor Office: 310 Allen Hall

The Physics Education Curriculum is designed for prospective physics teachers at the secondary level in accordance with the recommendations of the NSTA and the NSES. The following concentration in physics is outlined to meet the requirements for licensure. Courses designed for nonscience majors will not be accepted.

# **General Education Requirements**

General Education	n Requirements		
English Composition	on (6 hours)		
EN 1103	English Comp I OR		
EN 1163			
EN 1113	English Comp II OR		
EN 1173	Accelerated Comp II		
Mathematics (6 hou	urs)		
MA 1713	Calculus I		
MA 1723	Calculus II		
Science (9 hours)			
See Conten	t Area		
Humanities Electiv	es (6 hours)		
	lucation courses		
Fine Arts (3 hours)			
· · · · · · · · · · · · · · · · · · ·	lucation courses		
Social/Behavioral S			
See General E	ducation courses		
Major Core			
EDF 4243	Planning for the Diversity of Learners*		
EDF 3333	Social Foundations of Ed		
EDS 3411	Practicum in Secondary Ed*		
EDX 3213	Exceptional Child and Youth		
EPY 3143	Human Development/Learning*		
EPY 3253	Evaluating Learning*		
EDS 3653 EDS 4653	Secondary Science Education*		
EDS 4055 EDS 4873	Methods of Teaching Science* Sem in Managing Sec. Class*		
EDS 4886	Teaching Internship in Second Ed*		
EDS 4896	Teaching Internship in Second Ed*		
RDG 3513	Reading Strategies in Secondary School*		
KI 1803	Health Trends and Topics		
Content Area - ch	pose 54 hours from the following:		
PH 1063	Descriptive Astronomy		
PH 2213	Physics I		
PH 2223	Physics II		
PH 2233	Physics III		
PH 3063			
PH 3613			
PH 4113			
PH 4143 PH 4213	5		
PH 4213 PH 4323			
PH 4413			
PH 4513	Intermediate Optics		
PH 4713	Intro to Quant Mechanics		
CH 1213	Chemistry I		
CH 1211	Investigations in Chem I		
CH 1223	Chemistry II		
	Investigations in Chem II		
	Calculus III Calculus IV		
3 hours	Math or Science Elective		
Oral Communication	1		
-	successful completion of EDF 4243		
Computer Literacy Requirement			
Satisfied by successful completion of EDF 4243			
Writing Requirement			
Satisfied by successful completion of EDF 4243 and EDS 4653			
Total hours needed for major: 124			
	to teacher education.		
1			

# SOCIAL STUDIES EDUCATION Concentration (SSED)

Major Advisor: Charlotte Burroughs; Office: 310 Allen Hall

The Social Studies Education curriculum is designed in accordance with the recommendations of the National Council for the Social Studies. With a minimum of 54 hours required in history and the social sciences, the program of study provides a broad-based preparation for prospective social studies teachers of grades 7-12.

# **General Education Requirements**

English		-	n (6 hours)			
	EN	1163	Accelerated Comp I			
	EN	1113	English Comp II ÔR			
	EN 1173 Accelerated Comp II					
Mather		(6 hour				
			College Algebra			
	51	2113	Stats for Behavioral Science OR			
G	((1))		MA higher than Algebra			
Science						
			cience w/lab (see General Education courses) ence w/lab (see General Education courses)			
M (1 (0	•					
Math/S			ve (3 hours)			
			Education courses			
Human	```	6 hours	·			
	See C	Jeneral	Education courses			
Fine A						
	See C	Beneral	Education courses			
Social/	Behav	vioral So	ciences (6 hours)			
	PSY	1013	General Psychology			
	SO	1003	Intro to Sociology			
Major	Core					
		4243	Planning for the Diversity of Learners*			
		3333	Social Foundations of Ed			
		3411	Practicum in Secondary Ed*			
		3213	Exceptional Child and Youth			
		3143	Human Development/Learning*			
EPY 3253 RDG 3513 EDS 3643 EDS 4643			Evaluating Learning* Reading Strategies in Secondary School*			
			Secondary Soc. Stud. Educ.*			
			Methods of Teaching Social Studies*			
		4873	Sem in Managing Sec. Class*			
		4886	Teaching Internship in Second Ed*			
	EDS	4896	Teaching Internship in Second Ed*			
Conter	nt Are	a				
	EC	2113	Prin of Macroeconomics			
		2123	Prin of Microeconomics			
	GR	1114	Elements of Physical Geography or			
	CD	1100	approved GR elective			
	GK	1123 1063	Intro to World Geography			
		1063	Early US History Modern US History			
		1163	World History before 1500			
	HI	1173	World History since 1500			
	HI	3333	Mississippi History			
	3 hou	rs	HI elective (3000 level or above)			
	3 hou		HI, PS, EC, or GR Elective (3000 level or above)			
	3 hou		HI, PS, EC, or GR Elective (3000 level or above)			
	3 hou	rs	HI, PS, EC, GR, PSY or SO Elective			
	HI	4403	(3000 level or above) The Ancient Near East OR			
	HI	4903	The Far East			
	PS	1113	American Government			
	PS	1513	Comparative Government			
Oral Co	ommu	nicatio	n Requirement			
	CO	1003	Fundamentals of Public Speaking			
Compu	Computer Literacy Requirement					
Compu			Computer Applications or other approved course			
Writing		iremen				
**1111112	- 1					
	Satisfied by successful completion of EDS 4643					
Total hours needed for major: 124						

\* Admission to Teacher Education required

#### SPEECH EDUCATION Concentration (SPED)

Major Advisor: Kelly Moser; Office: 310 Allen Hall

This curriculum is offered for the education of prospective teachers of speech. A minimum of 38 semester hours of Speech is required. An endorsement in a second teaching field consisting of 21 semester hours, such as English, is recommended.

#### **General Education Requirements**

English Composition (6 hours)

- English Comp I OR EN 1103
- EN Accelerated Comp I OR 1163
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II OR
- Mathematics (6 hours)
  - MA 1313 College Algebra
- MA higher than College Algebra (see General Education) Science (6 hours)
- Biological Science w/lab (see General Education courses) Physical Science w/lab (see General Education courses) Math/Science Elective (3 hours)
  - See General Education courses
- Humanities (6 hours)
- EN Lit Sequence World, Eng, or Am (see General Education) EN Lit Sequence - World, Eng, or Am (see General Education) Fine Arts (3 hours)
  - CO 1503 Intro to Theatre
- Social/Behavioral Sciences (6 hours)

  - PSY 1013 General Psychology PS
  - 1113 American Government
- **Major Core**

Conten

EDF	4243	Planning for the Diversity of Learners*
EDF	3333	Social Foundations of Ed
EDX	3213	Exceptional Child and Youth
EPY	3143	Human Development/Learning*
EPY	3253	Evaluating Learning*
RDG	3513	Reading Strategies in Secondary School*
EDS	3411	Practicum in Secondary Ed*
EDS	3673	Secondary Lang. Arts Educ.*
EDS	4673	Methods of Teaching Language Arts*
EDS	4873	Sem in Managing Sec. Class*
EDS	4886	Teaching Internship in Second Ed*
EDS	4896	Teaching Internship in Second Ed*
nt Are	a	
CO	1223	Communication Theory
CO	1403	Introduction to Mass Media
CO	2013	Voice and Articulation
CO	2213	Small Group Communication
CO	2253	Interpersonal Communication
CO	2333	TV Production
	2413	Introduction to News Writing and Reporting
CO	2503	Acting

- CO 2524 Stagecraft and Lighting OR
- 2544 Makeup and Costuming CO
- 2613 Intro to Oral Interpretation CO
- CO 3833 Interviewing
- CO 4253 Elements of Persuasion
- 4524 Directing OR CO
- CO 2574 Summer Theatre Workshop OR
- CO 1533 Theatre Practicum
- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking

Computer Literacy Requirement

- Satisfied by successful completion of EDS 4673
- Writing Requirement

Satisfied by successful completion of EDS 4673 Elective

> 3 hours HI Elective (Western, World, or US) (see General Education courses)

#### Total hours needed for major: 122

Requires admission to Teacher Education.

#### SPECIAL EDUCATION Major (EXED)

Major Advisors: Kent Coffey and Sandy Devlin Office: 310 Allen Hall

The program in Special Education is designed to prepare teachers to teach children and youth with mental retardation, learning disabilities, and other areas of exceptionality. The curriculum in special education is designed to meet the requirements for the endorsements in the areas of specialization.

Some students may wish to obtain licensure in the areas of special education and elementary education.

General Education Requirements				
English	English Composition (6 hours)			
	EN		English Comp I OR	
	EN 1163 Accelerated Comp I EN 1113 English Comp II OR			
	EN	1113	English Comp II OR	
	EN	1173	Accelerated Comp II	
Mather	natics	(6 hou	rs)	
	MA	1313	College Algebra	
	3 hou	ırs	MA Elective (see General Education courses)**	
Natura	l Scier	nce (6 h	ours)	
	Natu	ral Scien	nce w/lab (see General Education courses)	
			nce w/lab (see General Education courses)	
Math/S	cienc	e Electi	ve (3 hours)	
	3 hou		See General Education courses	
Humar	nities (	6 hours	)	
mannai	6 hou		See General Education courses	
Eine A			See General Education courses	
Fine A	· ·		See Conserval Education courses	
a	3 hou		See General Education courses	
Social/			ciences (6 hours)	
	6 hou	irs	See General Education courses	
Profes	sional	Core		
	EDF	4243	Planning for the Diversity of Learners*	
		3333	Social Foundations of Education	
	EPY	2513	Human Growth and Development	
	EPY	3253 4053	Evaluating Learning*	
			Psychology of the Mentally Retarded	
		3203	Intro to Learning Disabilities	
		3213	Psychology of Exceptional Child	
		3223	Intro to Emotional/Behav Disorder	
		3233	Contingency Management	
		4113 4123	Diag/Pres Methods for Early-Age* Diag/Pres Methods for Elementary Students*	
		4123		
		4353	Diag/Pres Methods for Secondary Students* Assist Tech in Special Education	
		4413	Working with Parents	
		4886	Internship in EXED*	
		4896	Internship in EXED*	
		4873	Prof. Seminar in Special Education	
			Collateral Core Electives	
	6 hou	irs	Literacy Electives*	
Oral C	ommu	inication	n Requirement	
0141 0			successful completion of EDX 4353, 4413 and	
	4133	lied of .		
Comp	iter I i	teracy F	Requirement	
compt		•	successful completion of EDX 4353, 4413 and	
	4133	licu by a	successful completion of EDA 4555, 4415 and	
Writin		iromor	t	
vv11t1113		liremen		
	4133	neu by s	successful completion of EDX 4353, 4413 and	
	Total hours needed for major: 123			
* Re	<ul> <li>Requires admission to Teacher Education.</li> </ul>			

\*\* A math course higher than MA 1313 must be completed

# Department of KINESIOLOGY (KINE)

Department Head: Stanley Brown Office: 216 McCarthy Gym Applied Physiology Coordinator: Ben Abadie Office: 237 McCarthy Gym Sport Studies Coordinator: Katherine Gilliland Office: 221 McCarthy Gym

The Department of Kinesiology offers four undergraduate concentrations: Sport Pedagogy (SPPE), Health Fitness Studies (HFS), Clinical Exercise Physiology (CLEP), and Sport Studies (SS).

Community college transfer hours not to exceed 62 semester hours may be applied to the Kinesiology degree program.

All concentrations require the specified course requirements cited within the General Education and major core listings below. Specified area content courses vary among the four concentrations and are listed following the core section. Pre-Occupational Therapy and Pre-Physical Therapy curricula have different core and program requirements. Students electing to pursue Pre-OT or Pre-PT should consult their advisor.

#### **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR
  - EN 1163 Accelerated Comp I
  - EN 1113 English Comp II OR
  - EN 1173 Accelerated Comp II

Mathematics (6 hours)

- MA 1313 College Algebra
- MA 1613 Calculus for Business and Life (Req for SS)
  - 2113 Introduction to Statistics (Req for CLEP, HFS, SPPE)

Science (9 hours)

ST

See concentration for required courses

Humanities (6 hours)

- See concentration for required courses
- Fine Arts (3 hours)
  - PE 1323 History and Apprec. of Dance

Social Sciences (6 hours)

- PSY 1013 General Psychology (Req for CLEP, HFS and SPPE)
- EC 2113 Prin of Macroeconomics (Req for HFS and SS)
- SO 1003 Intro to Sociology (Req for CLEP and SS)
- SO 1203 Marriage and Family (Req for SPPE)

#### Choose one of the following concentrations:

#### Sport Pedagogy Concentration (SPPE)

Major Advisors: Greg Drye, Debby Funderburk, Katherine Gilliland, Brad Vickers, Benjamin Wax and Glen Young

The sport pedagogy concentration requires 124 semester hours of prescribed courses to complete the Bachelor of Science in Kinesiology. The curriculum is designed to meet the need of students interested in becoming physical education teachers in public and private schools. The teaching block of courses must be included in the on-campus requirement of 32 semester hours of junior and senior courses. Students who complete the program will be eligible for teacher licensure by the Mississippi Department of Education.

- Anatomy & Physiology w/ Lab\* BIO 1004
- BIO 1023 Plants and Humans\*
- BIO 1123 Animal Biology w/ Lab\*
- Literature\* (See General Education courses) 3 hours History\* (See General Education courses) 3 hours
- Health Trends and Topics ΚI 1803
- Emergency Health Care ΚI 2213
- Athletic Training 3273 KI
- Teaching Team Sport Skills PE 1202
- 1212 Teaching Individual and Dual Sport Skills PE
- PE 1222 Teaching Lifetime Activities
- PE 1232 Teaching Rhythms
- 2043 PE Introduction to Sport Studies

- PE 3133 Adapted Physical Education 3153 Methods of Elementary Physical Education PE PE 3163 Sport Psychology PE Motor Development and Movement 3223 3233 Anatomical Kinesiology EP PE 3313 Sport Physiology Principles and Methods of Secondary Health and PE 4163 Physical Education\*\* PE 4173 Test and Measurement in Health & Phys. Educ.\*\* PE 4283 Sport Biomechanics PE 4853 Motor Learning and Skill Analysis\*\*
- PE School Health Education\*
- 4883

# PE Electives - Choose two of the following courses - 4 hours

- PE 3422 Principles of Coaching Football
  - Principles of Coaching Basketball 3432 PE
  - Principles of Coaching Softball and Baseball PE 3452

# **Professional Education Courses- 30 hours**

EDF 3333	Social Foundations in Ed
EPY 3143	Human Development and Learning**
EDX 3213	Psy & Ed of Except Child & Youth
EDF 4243	Planning for the Diversity of Learners**
EPY 3253	Evaluating Learning**
PE 4873	Professional Seminar in Physical Education

- )n\*\* Teaching Internship in Physical Education\*\* PE 4886
- Teaching Internship in Physical Education\*\* PE 4896
  - Total hours needed for major: 124
- Satisfies General Education requirements

\*\* Requires full admission to Teacher Education

#### Health Fitness Studies Concentration (HFS)

Major Advisors: Ben Abadie, Stamatis Agiovlasitis, Erin Grant, Brandon Hale, Megan Holmes, Lee Ann Joe, Andreas Kavazis, Adam Knight, John Lamberth and Heather Webb

The health fitness studies concentration provides a basic understanding of the science behind physical fitness and the knowledge to implement effective health fitness programs. This concentration also provides students a basic preparation in one of three tracks students may choose: Business, Health, or Aging. Students are prepared to work in a variety of settings and jobs: fitness instructors, strength and conditioning specialists, directors of wellness and fitness programs associated with hospitals or geriatric centers, or in employee assistance in the corporate setting.

BIO	1004	Anatomy and Physiology*
BIO	1123	Animal Biology/Lab*
CH	1043	Survey of Chemistry I*
3 hou	irs	Literature* or other approved course
		- See General Education courses
3 hou	irs	History* or other approved course
		- See General Education courses
KI	1803	Health Trends and Topics
KI	2213	Emergency Health Care
PSY	3503	Health Psychology
FNH	2293	Individual and Family Nutrition
HS	4403	Introduction to Gerontology
HS	4583	Entrepreneurship Human Sciences
PE	1041	Aerobics
PE	1131	Walking/Jogging
PE	1361	Strength Training
EP	2013	Introduction to Exercise Science
EP	3183	Exercise Psychology
EP	3233	Anatomical Kinesiology
KI	3273	Athletic Training
EP	3304	Exercise Physiology
EP	3663	Personal Fitness Training
EP	4113	Fitness Programs and Testing Procedures
EP	4153	Training Techniques for Exercise and Sport
EP	4183	Exercise and Weight Control
EP	4216	Health Fitness Studies Internship
		(Total of 6 hours required for the degree)
EP	4802	Professional Seminar in Exercise Science

Choose 15 hours from one of the following cognates and one course from each of the other two cognates:

EP

# **Business Cognate**

EC 2123	Principles of Microeconomics
ACC 2013	Principles of Financial Account
MKT 3013	Principles of Marketing
MGT 3513	Introduction to Human Resource Management
	Advertising
MGT 4153	Management Seminar
MGT 4533	Advanced Human Resource Management
Health Cognat	e
KI 2023	Foundations of Health Education
FNH 3163	Basic Principles of Health Promotion
EP 4603	Physical Activity Epidemiology
PSY 3363	Behavioral Modification
	Motivation
COE 4023	Introduction to Counseling
CO 3203	Communication and Group Leadership
Aging Cognate	
PSY 4983	Psychology of Aging
EP 4123	Aging and Physical Activity
HS 4813	
COE 4713	Issues in Aging
	Aging and Retirement American Society
HS 4863	Consumer Aspects of Aging
Oral Communicati	on Requirement
CO 1003	Fundamentals of Public Speaking
Computer Literacy	Requirement
TKT 1273	Computer Applications or other approved course
Writing Requireme	ent
EDF 3413	Writing for Thinking or approved junior-level writing course

Total hours needed for major: 124

Satisfies General Education requirements

### **Clinical Exercise Physiology Concentration (CLEP)**

Major Advisors: Ben Abadie, Stamatis Agiovlasitis, Erin Grant, Brandon Hale, Megan Holmes, Andreas Kavazis, Lee Ann Joe, Adam Knight, John Lamberth and Heather Webb

The clinical exercise physiology concentration is designed as a profes-sional preparation program of study that enables students to work in clinical settings as exercise physiologists in cardiac and pulmonary rehabilitation, or other clinical rehabilitation settings, such as those for individuals with diabetes, orthopedic limitations, arthritis, cancer, osteoporosis, renal failure, obesity, and in programs dealing with issues of aging and female specific issues. The clinical exercise physiology concentration also provides students with the necessary background to pursue graduate health professions, such as physical or occupational therapy, physician assistant studies, medicine, or other graduate level educational programs.

, mear	enne, or	other graduate lever educational programs
CH	1043	Survey of Chemistry I* OR
CH	1213	Chemistry I
BIO	1004	Anatomy and Physiology* OR
PH	1113	General Physics I
BIO	1123	Animal Biology* OR
BIO	1134	Biology I*
3 hou	rs	Literature*
3 hou	rs	History*
KI	1803	Health Trends and Topics
KI	2023	Foundations of Health Education
KI	2603	Medical Terminology
FNH	2293	Individual and Family Nutrition
FNH	3163	Basic Principles of Health Promotion
PSY	3213	Psychology of Abnormal Behavior OR
PSY	3803	Intro to Developmental Psychology OR
EPY	2513	Hum Growth Develop
EP	2013	Introduction to Exercise Science
	3613	Exercise Electrocardiography
	3183	Exercise Psychology
	3233	Anatomical Kinesiology
	3304	Exercise Physiology
	3643	Applied Anatomy and Pathophysiology
EP	4113	Fitness Programs and Testing Procedures

	EP	4183	Exercise & Weight Control			
	EP	4603	Physical Activity Epidemiology			
	EP	4703	Neural Control of Human Movement			
	EP	4802				
	EP	4816	Clinical Exercise Physiology Internship (6)			
			(Total of 6 hours required for the degree)			
Ch	oose	one of th	he following sets of courses to complete the degree			
Re	habili	itation	Science (18 hours)			
	COE	3313	Rehabilitation Services			
	EP	4123	Aging and Physical Activity			
	EP	4143	Aging and Disability			
		4353				
Ch	oose t	wo of the	he following:			
	COE	4713	Issues in Aging			
	PSY	4983	Psychology of Aging			
	HS	4403	Introduction to Gerontology			
		4423	Health and Society			
Pre-Graduate Health Professions (choose 18 hours)			Health Professions (choose 18 hours)			
	CH	1223	Chemistry II			
	PH	1123	General Physics II			
	KI	3633	Rehabilitation Techniques in Sport			
		1144	Biology II			
	BIO	3004	Human Anatomy OR			
	CH	4513	Organic Chemistry I			
	BIO	3014	Human Physiology OR			
	CH	4523	Organic Chemistry II			
	BIO	3000/4	000 Approved Course			
	BCH	4013	Principles of Biochemistry			
	EP	4503	Mechanical Analysis of Movement			
Oral Co	ommu	nication	n Requirement			
	CO	1003	Fundamentals of Public Speaking			
Compu	ter Li	teracy F	Requirement			
-	TKT	1273	Computer Applications or other approved course			

4133 Exercise Programs for Clinical Populations

Writing Requirement

EDF 3413 Writing for Thinking or other approved juniorlevel writing course

#### Total Hours needed for major: 124

Satisfies General Education requirements

# Sport Studies Concentration (SS)

#### Major Advisors: Adam Love and Alan Morse

The Sport Studies concentration provides students with knowledge and skills necessary for careers in the sport industry. A concentration in Sport Studies helps prepare students to work in such fields as sport marketing & promotions, sporting event and/or facility management & operations, sport communication & media relations, and other administrative areas at the professional, collegiate, and recreational levels of the sport business industry. The program seeks to combine classroom education with hands-on experience, as all students will complete an internship in the sport industry prior to graduation. Students choosing a concentration in Sport Studies choose either the Business or Communication cognate field.

	PHI	1123	Intro to Ethics*		
	3 hou	ırs	Humanities* (See General Education courses)		
	BIO	1004	Anatomy & Physiology*		
	3 hou	ırs	Science w/ lab* (See General Education courses)		
	3 hou	ırs	Science* (See General Education courses)		
	PE	2043	Introduction to Sport Studies		
	SS	2003	Foundations of Sport Industry		
		3103	Sport Sponsorship		
		3203	Sport Law		
	SS	4103			
	SS	4203	Funding of Sport		
	SS	4303	Globalization and Sport – Writing Req for B.C.		
	SO	4333	Sociology of Sport		
	SS	4396	Sport Industry Internship		
Choose five of t		five of t	he following (15 hours)		
	SS	3403	Facility and Event Management in Sport		
	SS	3303	Communication Management in Sport		
	KI	4990	Special Topics Courses (with approval)		

- 4000 Directed Individual Study KI
- Emergency Health Care ΚI 2213
- PE 3163 Sport Psychology
- PE 3313 Sport Physiology
- PE 4223 Sport Biomechanics

Choose one of the following cognates to complete the concentration requirements:

#### Business Cognate (25 hours)

- ACC 2013 Financial Accounting
- ACC 2023 Managerial Accounting
- ST 2113 Introduction to Statistics
- EC 2123 Principles of Microeconomics
- MKT 3013 Principles of Marketing
- FIN 3113 Financial Systems
- FIN 3123 Financial Management
- MGT 3114 Principles of Management and Production
- Free Electives (11 hours)
- Communication Cognate (27 hours)
  - CO 1223 Introduction to Communication Theory
  - CO 1403 Introduction to the Mass Media
  - CO 2333 **Television Production**
  - 2413 Introduction to News Writing CO
  - CO 3313 News Writing for Electronic Media
  - CO 3423 Feature Writing
  - 3713 CO
  - Digital Communication
  - Principles of Public Relations CO 3803
  - CO 3823 Public Relations Copy & Layout

Free Electives (9 hours)

#### Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Computer Literacy Requirement

TKT 1273 Computer Applications or other approved course Writing Requirement

Satisfied by successful completion of SS 4303 or CO 3423.

#### Total hours needed for major: 124

Satisfies General Education requirements.

# **Department of MUSIC** (MU) (MUA) (MUE)

#### Major Advisor: Michael R. Brown Office: Music Building A

The Department of Music offers a Bachelor of Music Education degree with four concentrations (Instrumental, Vocal, Keyboard and Guitar). Students must choose one of these concentrations:

Instrumental Concentration. The curriculum in instrumental music education is designed to prepare instrumental music teachers for positions in junior high schools and high schools. Students who complete this program are fully qualified for licensure by the Mississippi Department of Education. This program provides the student with a balanced curriculum, combining the practical and theoretical aspects of music education. To insure core competency necessary for the field, all instrumental majors must pass the Piano Proficiency Exam and all portions of the Upper Division Proficiency Exam (consult Departmental Handbook) and must participate in the University Band every semester of their attendance at MSU except the semester in which they student teach. (Students are advised to participate in more than two ensembles only after consultation with their advisor and/or the department head.) All Instrumental Music Education majors must study the same instrument in applied lessons for at least six semesters, the last of which culminates in a Senior Recital.

Vocal Concentration. The curriculum in vocal music education is designed to prepare vocal music teachers for positions in elementary schools, junior high schools and high schools. Students who complete this program are fully qualified for licensure by the Mississippi Department of Education. This program provides the student with a balanced curriculum, combining the practical and theoretical aspects of music education. To insure core competency necessary for the field, all vocal majors must pass the Piano Proficiency Exam and all portions of the Upper Division Proficiency Exam (consult Departmental Handbook) and must participate in the University Chorus every semester of their attendance at MSU except the semester in which they student teach. (Students are advised to participate in more than two ensembles only after consultation with their advisor and/or the department head.) All Vocal Music Education majors must study voice in applied lessons for at least six semesters, the last of which will culminate in a Senior Recital.

Keyboard Concentration. The curriculum in keyboard music education is designed to prepare music teachers for positions in elementary schools, junior high schools and high schools. Students who complete this program are fully qualified for licensure by the Mississippi Department of Education. This program provides the student with a balanced curriculum, combining the practical and theoretical aspects of music education. To insure core competency necessary for the field, all keyboard majors must pass the Piano Proficiency Exam and all portions of the Upper Division Proficiency Exam (consult Departmental Handbook) and must participate in the University Chorus or Band every semester of their attendance at MSU except the semester in which they student teach. (Students are advised to participate in more than two ensembles only after consultation with their advisor and/or the department head.) All Keyboard Music Education majors must study piano in applied lessons for at least six semesters, the last of which will culminate in a Senior Recital.

Guitar Concentration. The curriculum in guitar music education is designed to prepare music teachers for positions in elementary schools, junior high schools and high schools. Students who complete this program are fully qualified for licensure by the Mississippi Department of Education. This program provides the student with a balanced curriculum, combining the practical and theoretical aspects of music education. To insure core competency necessary for the field, all guitar majors must pass the Piano Proficiency Exam and all portions of the Upper Division Proficiency Exam (consult Departmental Handbook) and must participate in the University Chorus or Band every semester of their attendance at MSU except the semester in which they student teach. (Students are advised to participate in more than two ensembles only after consultation with their advisor and/or the department head.) All Guitar Music Education majors must study guitar in applied lessons for at least six semesters, the last of which will culminate in a Senior Recital.

#### **General Education Requirements**

English Composition (6 hrs)

EN	1103	English Composition I OR

- 1163 Accelerated Composition I EN
- EN 1113 English Composition II OR
- EN 1173 Accelerated Composition II

#### Mathematics (6-9 hrs)\*

MA 1313 College Algebra

Math Elective at a level above MA 1313

Math Elective at a level above MA 1313 or Science Elective

Science (6-9 hrs)\*

Biological Science with Lab Science Elective with Lab Math or Science Elective \*A total of 15 hours in Math and Science

Humanities (6 hrs)

Literature Elective

History Elective

Fine Arts (3 hrs)

MU 2323 Music History III

Social Science (6 hrs)

PSY 1013 General Psychology Social/Behavioral Science Elective

#### **College Core**

EDF 3333	Social Foundations of Education
EPY 3143	Human Develop. and Learning Strategies in Educ
EDX 3213	Psych. and Educ of Exceptional Child. and Youth
MUE 3243	Planning and Managing Learning in Music Ed
MUE 3253	Performance Assessment in Music Education
MUE 4873	Professional Seminar in Music Education
MUE 4886	Teaching Internship in Music Education
MUE 4896	Teaching Internship in Music Education

#### **Major Core**

Public Speaking

Satisfied through music history courses, upper division proficiency exam, music education courses and student teaching.

Upper Level Writing Requirement

Satisfied through music theory, music history, music education courses and the upper division proficiency exam.

Computer Literacy Requirement (0 hrs)

Satisfied through the music theory sequence.

Red Cross Approved Certification Training\* or KI 2213 Emer. Health (Not counted in the total number of hours.) \*The Red Cross training must occur during the last two years of study prior to receiving the degree.

Music Requirements

MU	1162	Music History I
MU	2322	Music History II
MU	1213	Music Theory I
MU	1321	Ear Training I
MU	1413	Music Theory II
MU	1521	Ear Training II
MU	2613	Music Theory III
MU	2721	Ear Training III
MU	2813	Music Theory IV
MU	2921	Ear Training IV
MU	3333	Orchestration
MU	3412	Conducting
MU	3442	Advanced Conducting
MU	4313	Form and Analysis
MUE	3001	Practicum in Music Education
General Elect	ives	2 hours

Choose one of the following concentrations:

### **INSTRUMENTAL Concentration (MUI)**

MU 2111	Piano Class		
MU 2121	Piano Class		
MU 3111	Piano Class		
MU 3121	Piano Class		
OR			
MU 3112	Functional Skills Piano Class		
MU 3122	Functional Skills Piano Class		
MU 1131	Voice Class		
MUE 3212	Brass Class		
MUE 3222	Woodwind Class		
MUE 3231	String Class		
MUE 3242	Percussion Class		
Piano Proficiency Exam			
Applied Lessons - 12 hours (6 semesters of study)			
Recital – 0 hours			
Major Ensemble – 7 hours (7 semesters of study)			
Recital Hour – 0 hours			
Upper Divis	ion Proficiency Exam - 0 hours		

Total hours needed for major: 130

### **VOCAL Concentration (MUV)**

MU 2111 Piano Class MU 2121 Piano Class MU 3111 Piano Class MU 3121 Piano Class OR MU 3112 Piano Class MU 3122 Piano Class Applied Piano - 2 hours (2 Semesters of Study) Piano Proficiency Exam - 0 hours MUE 3262 Instrumental Class Applied Voice - 12 hours (6 semesters of study) MÛ 1141 Seminar for Voice Majors - 4 hours (with links to private study) (4 Semesters of Study) Recital – 0 hours Major Ensemble – 7 hours (7 Semesters of Study) Recital Hour - 0 hours Upper Division Proficiency Exam - 0 hours

Total hours needed for major: 130

#### **KEYBOARD Concentration (MUP)**

MU 3112 Functional Skills Piano Class MU 3122 Functional Skills Piano Class MUE 3262 Instrumental Class MUE 3333 Introduction to Piano Pedagogy MU 1131 Voice Class Applied Voice - 2 hours (Two semesters of study) Applied Piano – 12 hours (6 semesters of study) Recital - 0 hours Piano Proficiency Exam - 0 hours Major Ensemble - 7 hours (7 semesters of study) Recital Hour - 0 hours Upper Division Proficiency Exam - 0 hours

Total hours needed for major: 130

#### **GUITAR Concentration (GUIT)**

MU 2111 Piano Class MU 2121 Piano Class MU 3111 Piano Class MU 3121 Piano Class OR MU 3112 Functional Skills Piano Class MU 3122 Functional Skills Piano Class MU 1131 Voice Class MUE 3231 String Class Piano Proficiency Exam Applied Voice - 2 hours (2 semesters of study) Applied Guitar - 12 hours (6 semesters of study) Recital - 0 hours Recital Hour - 0 hours Major Ensemble - 7 hours (7 semesters of study) Music Electives - 4 hours (advisor approved) Upper Division Proficiency Exam - 0 hours

Total hours needed for major: 130

# Department of INSTRUCTIONAL SYSTEMS and WORKFORCE DEVELOPMENT (TTE) (ITS)

Department Head: Connie M. Forde Office: 100 Industrial Education Building

# **TECHNOLOGY TEACHER EDUCATION Major (TTE)**

Business Technology (BT) and Industrial/Technical Education (ITE) Concentrations Major Advisor: Connie Forde; Office: 101 IED Building

The Technology Teacher Education major provides teacher preparation with concentrations in Business Technology and Industrial/Technical Education. Schools recruit graduates of the TTE program to teach academic business courses, and career and technology courses in management and marketing and economics. Students may also choose to complete certifications in computer applications and Information and Communication Technology I and II, and Cooperative Education. Specific certifications and/or endorsements include:

- · Business Education Grades 7-12 (Cert. #105)
- · Computer Applications (Cert. #111)
- · Cooperative Educ. / Career Pathway Experience (Cert. #317/917)
- · Information and Communication Technology I (Cert. #981)
- · Information and Communication Technology II (Cert. #982)
- · Management (Cert. #955)
- · Marketing and Economics (Cert. #956)

The MSU Bulletin is not the final source of information; departmental advisement is important for course sequence and selection. Students should get advisement and approval from their MSU advisors for course scheduling.

#### **General Education Requirements**

English Composition (6 hours) EN 1103 English Comp I OR EN 1163 Accelerated Comp I EN 1113 English Comp II OR

EN 1173 English Comp II OK EN 1173 Accelerated Comp II

Life (Channe)

Mathematics (6 hours) MA 1313 Colle

MA 1313 College Algebra MA 1323 Trigonometry (required for ITE)

MA higher than College Algebra (for BT)

Science (6 hours)

Lab Science (see General Education courses) Lab Science (see General Education courses)

- PH 1113 and PH 1123 required for ITE concentration

Math/Science Elective (3 hours)

See General Education courses

Humanities (6 hours)

3 hoursUS or World History (see General Education)3 hoursLiterature (see General Education courses)

Fine Arts (3 hours)

3 hours See General Education courses - TKI 2413 required for ITE concentration

Social/Behavioral Science (6 hours)

PSY 1013 General Psychology

EC 2113 Principles of Macroeconomics

Major Core

EDF 3333 Social Foundations

- EPY 3143 Human Develop & Learn Strategies\*
- EDF 4243 Planning for the Diversity of Learners\*
- EPY 3253 Evaluating Learning\*
- EDX 3213 Psych of Exceptional Child
- TKT 3001 Practicum in Technology Teacher Education
- EDS 4873 Managing the Secondary Classroom\*
- TKT 4886 Teaching Internship\*
- TKT 4896 Teaching Internship\*
- Oral Communication Requirement

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CO 1003 Fundamentals of Public Speaking
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Writing Requirement

BT conc. Satisfied by successful completion of MGT 3213 ITE conc. EDF 3413 Writing for Thinking

#### Choose one of the following concentrations:

#### **Business Technology Concentration (BTEC)**

The TTE Business Technology concentration prepares students to teach academic business courses, career and technical business courses, as well as the option to add certifications in computer applications, ICT I and ICT II, and cooperative education/career pathway experience.

#### **Concentration Requirements**

	1
ACC 2013	Financial Accounting
ACC 2023	Managerial Accounting
BL 2413	Legal Environment of Business
EC 2123	Principles of Microeconomics
FIN 2003	Personal Money Management
MGT 3213	Organizational Communications
MKT 3013	Principles of Marketing
TKB 1123	Document Formatting and Info. Processing
TKB 1312	Information Resource Management
TKB 2122	Intro to Database Management
TKB 2132	Intro to Spreadsheet Design & Analysis
TKB 3133	Administrative Management and Procedures
TKB 4543	Advanced Information Processing
TKB 4563	Introduction to Data Networks OR
TKB 4583	Graphics and Web Page Design
TKT 3173	Teach Business Ed Skills Subjects*
TKT 4143	His/Phil of Voc and Tech Ed
TKT 4153	Teaching Business Technology*
TKT 4213	Teach Basic Bus Subjects
TKT 4743	Electronic Desktop Publishing

#### Total hours needed for major: 124

Requires admission to Teacher Education

#### Industrial/Technical Education Concentration (ITED)

The TTE Industrial/Technical Education concentration prepares students to teach industrial/technical and vocational courses, as well as the option to add certifications in ICT I and ICT II, and computer applications.

#### **Concentration Requirements**

TKT 1273	Computer Applications
TKI 1223	Ind Wood Process
TKI 1813	Bas Ind Elec & Electronics
TKI 2323	Forg, Weld & Found
TKI 2813	Bas Ind Elec & Electronics II
TKI 3043	Industrial Safety
TKI 3103	Adv Ind Elec & Electr
TKI 3183	Mach Metal Processing
TKI 3223	Ind Materials Tech
TKI 3343	CAD/CAM
TKI 4103	Ind Control Systems
TKI 4113	Ind Fluid Power
TKI 4203	Automated Systems
TKI 4213	Sur Energy Sources/Power
TKI 4263	
TKT 4103	Del of Voc. Inst Program*
TKT 4853	Phil & Prin of Voc-Tech Educ.

#### Total hours needed for major: 124

Requires admission to Teacher Education.

# INFORMATION TECHNOLOGY SERVICES Major (ITS) non-teaching

Major Advisors: Chien Yu, 259; Vicki Keel, 114; Kui Xie, 103; Marla Earle, 102.

This curriculum is designed to prepare students for the use of computer-based information systems, particularly software applications and hardware and the development and implementation of information technology end user support and information technology project management.

Minor in Business Administration. By completing the business requirements for the ITS degree, students may be eligible to receive a minor in Business Administration from the College of Business. ITS majors interested in a minor in business administration should contact an academic coordinator in room 106 McCool Hall.

MSU Bulletin is not the final source of information; department advisement is critically important for course sequence and selection. Students should always get advisement and approval from MSU advisor for course scheduling.

#### **General Education Requirements**

English Composition (6 hours) EN 1103 English Comp I OR EN 1163 Accelerated Comp I EN 1113 English Comp II OR EN 1173 Accelerated Comp II

Mathematics (6 hours)

- MA 1313 College Algebra
- ST 2113 Intro to Statistics OR

BQA 2113 Business Statistical Methods

Science (6 hours)

Natural Science w/lab - see General Education courses Natural Science w/lab - see General Education courses

Math/Science Elective (3 hours)

See General Education courses

Humanities (6 hours)

3 hours US or World History - see General Education courses

3 hours Literature - see General Education courses

Fine Arts (3 hours)

See General Education courses

Social/Behavioral Science (6 hours)

PSY 1013 General Psychology

PS 1113 American Government

# **College Core**

Oral Communication Requirement 1003 Fundamentals of Public Speaking CO Computer Literacy Requirement TKT 1273 Computer Applications or other approved course

Writing Requirement

Satisfied by successful completion of MGT 3213 Org. Comm.

# **Major Core** Busin

ne	ess Cou	rses	
	ACC	2013	Financial Accounting
	ACC	2023	Managerial Accounting
	BL	2413	Legal Environment of Business
	EC	2113	Principles of Macroeconomics
	EC	2123	Principles of Microeconomics
	MGT	3114	Principles of Management and Production
	MGT	3213	Organizational Communication
	MGT	3513	Human Resource Management
	BIS	1733	Visual Basic Applications
	BIS	3233	Intro to Mgt Information Systems
nno	ology C	Courses	
	TKB	1123	Document Formatting/Information Process
	TKB	1312	Information Resource Management
	TKB	2122	Intro to Database Management
	TKB	2132	Intro to Spreadsheet Design
	TKB	3133	Administrative Management and Procedure
	TKB	4283	Advanced Office Systems
	TKB	4543	Advanced Info Processing
	TKB	4563	Intro to Data Networks
		4583	Graphics/Web Design
	TKT		Call Center Management
	TIZT	2462	

Tech

TKB 1123	Document Formatting/Information Processing
TKB 1312	Information Resource Management
TKB 2122	Intro to Database Management
TKB 2132	Intro to Spreadsheet Design
TKB 3133	Administrative Management and Procedures
TKB 4283	Advanced Office Systems
TKB 4543	Advanced Info Processing
TKB 4563	Intro to Data Networks
TKB 4583	Graphics/Web Design
TKT 3213	Call Center Management
TKT 3463	Computer Repair & Maintenance
TKT 3623	Design Tech Training
TKT 4343	Info Tech Project Management
TKT 4623	Del/Eval Tech Training
TKT 4683	Senior Seminar
TKT 4743	Elements of Electronic Desktop Publishing
TKT 4753	Teaching and Presenting with Media

3 hours Approved Elective

Total hours needed for major: 124

# INDUSTRIAL TECHNOLOGY Major (INDT) non-teaching

Major Advisors: Dr. John Wyatt , Mickey Giordano and Mervin Mize Office: 110 IED Building

This curriculum is designed for students who want to prepare for employment leading to supervisory and management positions in the production, automation, maintenance or logistics areas of industry. The role of the Industrial Technology graduate is that of a facilitator of ideas from senior management to the production floor. Successful completion of the four-year curriculum would provide an excellent background in science, mathematics, design and human relations. This is coupled with the practical use of both manual and automated machinery and the associated tools, as well as knowledge of industrial manufacturing processes, materials and logistics.

To this extent the curriculum is divided into three concentrations:

• Industrial Automation

• Industrial Distribution

• Manufacturing & Maintenance Management

These concentrations are designed to give students a specialization that they can take into the workforce and build upon throughout their industrial career.

Graduates should quickly become proficient in both the supervisory and administrative roles of dealing with personnel, and depending upon the concentration selected, the graduate should become adept in the various aspects of the manufacture, distribution and automation of industrial products and processes. Employment opportunities are good.

The MSU Bulletin is not the final source of information. Departmental advisement is critically important for the course sequence and selection. Students should always get advisement and approval from their MSU advisor for course scheduling.

The INDT baccalaureate degree requirements include that all courses in the major core and concentration area have a minimum passing grade of C. Major courses are defined as those courses listed on the INDT curriculum sheet with the following course symbols: TKI, MGT, MKT, BL, ACC, BQA or EN.

Upper division courses (3000 level and up) must be taken at a senior college or university. See a faculty advisor for prerequisites and proper course sequence.

NOTE: This curriculum lends itself well to a minor in Business Administration or Marketing.

# **General Education Requirements**

English	Comp	osition	(6	hours)	

EN	1103	English	Comp 1	OR

- EN 1163 Accelerated Comp I
- 1113 EN English Comp II OR
- EN Accelerated Comp II 1173

Mathematics (9 hours)

- MA 1313 College Algebra
- MA 1323 Trigonometry
- MA 1613 Calculus for Business & Life Science
- Science (9 hours)
  - CH 1043 Survey of Chemistry I or higher
  - PH 1013 Physical Science Survey w/lab (PH 1011)
  - PH 1113 General Physics w/lab

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

- Social/Behavioral Science (6 hours)
  - See General Education courses

(EC 2113 & EC 2123 recommended for business minors)

- **Major Core** 
  - BQA 2113 **Business Statistics I**
  - Industrial Communication TKI 1203
  - TKI 1814 Basic Industrial Electrical & Electronics
  - TKI 2113 Intro to PLC Programming
  - Intro to CNC Programming TKI 2123
  - TKI 2323 Forging, Welding, & Foundry
  - TKI 3044 Industrial Safety
  - 3063 Industrial Human Relations TKI
  - TKI 3104 Adv Industrial Elec & Electronics

  - Machine Metal Processing TKI 3183
  - 3224 TKI Industrial Materials Technology
  - TKI 3243 Industrial Metrology
  - TKI 3343 CAD/CAM
  - 3353 Forecasting and Modeling TKI
  - TKI 3363 Motion & Time Study
  - TKI 4113 Industrial Fluid Power
  - TKI 4213 Energy Sources and Power Technology
  - TKI 4224 Quality Assurance

Writing Requirement

- AIS 3203 Technical Writing in Agricommunication OR (recommended)
- EN 3313 Writing for the Workplace OR
- MGT 3213 Organizational Communication

# Choose one of the following concentrations:

# Industrial Distribution Concentration (IDIS)

MKT 3013	Principles of Marketing
MKT 4113	Personal Selling
MKT 4123	Advertising
6 hours	Marketing (MKT) electives - See advisor
6 hours	TKI Electives - See advisor

Total hours needed for major: 123

### 123

#### Industrial Automation Concentration (IAUT)

- ACC 2013 Principles of Financial Accounting BL 2413 Legal Environment of Business
- BL 2413 Legal Environment of Busine TKI 4103 Industrial Control Systems
- TKI 4203 Automated Systems
- TKI 4233 Maintenance Management
- TKI 4303 Industrial Robotics
- 3-4 hours TKI or MGT Electives See advisor

Total hours needed for major: 124

#### Manufacturing & Maintenance Management Concentration (MFMA)

- ACC 2013 Principles of Financial Accounting
- BL 2413 Legal Environment of Business
- MGT 3114 Prin of Management & Production
- TKI 4103 Industrial Control Systems
- TKI 4233 Maintenance Management
- TKI 4263 Manufacturing Technology & Processing
- 3 hours TKI Electives See advisor

#### Total hours needed for major: 124

# Department of LEADERSHIP AND FOUNDATIONS

#### Department Head: Frankie Keels Williams Office: 245 Allen Hall

Undergraduate educational foundations courses required in teacher education programs in the College of Education are offered in the Department of Leadership and Foundations. Courses include the following:

EDF 3333 Social Foundations EDF 3413 Writing for Thinking EDF 3423 Exploring Diversity

EDF 4243 Planning for Diverse Learners

The programs in Leadership and Foundations are designed through course sequence, planned observation and participation, individual study and research, and other learning experiences to prepare administrators, supervisors, teachers, and other educational professionals for positions of leadership in elementary, middle, and secondary schools, and in central offices. The department also provides programs to prepare community college staff, faculty, and leaders.

Programs are offered leading to the Master of Science degree in School Administration, the Master of Arts in Teaching in Community College Education, the Master of Science degree in Workforce Educational Leadership, the Educational Specialist degree with a concentration in School Administration, and the Doctor of Philosophy degrees in Elementary, Middle, and Secondary School Administration and Community College Leadership.

# NOTES

# The James Worth Bagley College of Engineering

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# **GENERAL INFORMATION**

The James Worth Bagley College of Engineering is a professional college whose purposes are to provide both undergraduate and graduate education, to conduct basic and applied research, and to engage in outreach and public service activities. The Bagley consists of the following academic departments:

Department of Aerospace Engineering Department of Agriculture and Biological Engineering Dave C. Swalm School of Chemical Engineering Department of Civil and Environmental Engineering Department of Computer Science and Engineering Department of Electrical and Computer Engineering Department of Industrial and Systems Engineering Department of Mechanical Engineering

In addition to these academic departments, the Bagley College offers opportunities for faculty and student research in the following centers:

Center for Advanced Vehicular Systems (CAVS) Center for Computer Security Research Computational Simulation and Design Center Geosystems Research Institute (GRI) High Voltage Laboratory High Performance Computing Collaboratory (HPCC) Institute for Clean Energy Technology (ICET) Industrial Assessment Center Institute for Digital Biology Institute for Neurocognitive Science and Technology Microsystems Prototyping Laboratory Mississippi Transportation Research Center Northern Gulf Institute (NGI) Raspet Flight Research Laboratory Southeast Cooling, Heating, and Power (CHP) Applications Center Southeast Region Forensics Training Center Sustainable Energy Research Center

The vision of the Bagley College of Engineering is to be known for excellence in scholarly achievement, innovative engineering solutions, and economic and educational outreach that enhances the quality of life across the globe.

It is the mission of the Bagley College of Engineering to provide a world-class research, outreach and educational environment that supports, cultivates and fosters the talents of students, faculty and staff to discover new knowledge and technology for the benefit of society. To accomplish this mission the College has established the following goals:

- Foster a professional environment that cultivates and enhances our faculty members' scholarly knowledge base and supports them in building an accomplished academic reputation for themselves and the college.
- Provide engineering graduates who, through their excellent technical and leadership skills, cultural awareness, and social re-

sponsibility, will solve the challenges of the 21st century.

- Increase engineering opportunities for underrepresented groups to support and serve the diverse demographic of the state of Mississippi and the nation to ensure that the college encourages a variety of input, influences and participation in all its endeavors.
- 4. Conduct cutting edge research to enhance the quality of human life and earth's sustainability.
- Provide engineering expertise, engagement and outreach to create positive change and economic development in Mississippi and the region.

The Bagley College is dedicated to providing an extraordinarily rich environment where engineering students can gain the skills that will allow them to become leaders and builders in commerce, industry, and government. Through innovations in and enhancements to the curriculum housed in the Center for Engineering Student Excellence, Bagley engineering graduates will: 1) Develop effective communications skills; 2) Fully utilize the computer as a productivity tool; 3) Develop effective leadership and teamwork abilities; 4) Understand the entrepreneurial process; and 5) Comprehend the global business environment. These enhancements ensure that Bagley engineering graduates are highly sought after by employers and will continue to be successful throughout their careers.

The Center for Engineering Student Excellence also includes a study abroad program which provides students with an opportunity to take courses in another country and experience different cultures. This experience broadens the vision of those who participate and increases their awareness of the global environment in which engineers work. Engineering students also have the opportunity to apply for Congressional internships. Currently internships are in place for the U.S. Congress in Washington, D.C.

In addition to the many enhancements offered through the Center for Engineering Student Excellence, the Bagley College is a full participant in the Leadership Studies minor. An engineering student who pursues this minor will have the opportunity to develop their leadership skills through both general leadership courses and courses focused on skills specific to leadership in the engineering profession. Students pursuing this minor should consult with their advisor and the college's leadership studies minor advisor as early as possible so that course work can be adequately planned.

The Bagley College is dedicated to producing outstanding graduates who are capable of achieving excellence. With a strong focus on engineering fundamentals and an attitude among the faculty of helping each student achieve his or her best, Bagley engineering graduates are ready to obtain positions with the leading companies or further their educations at the finest graduate schools in the nation.

Basic-level professional programs leading to the Bachelor of Science degree are offered in Aerospace Engineering, Biological Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science, Electrical Engineering, Industrial Engineering, Mechanical Engineering, and Software Engineering. The Bachelor of Science programs in aerospace, biological, chemical, civil, computer, electrical, industrial, mechanical and software engineering are accredited by the Engineering Accreditation Commission of ABET, http://www.abet. org, and the B.S. in computer science is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.

All basic-level engineering programs are designed to give the student an understanding of the fundamental principles underlying engineering science and engineering practice. Each curriculum consists of four sequences: Basic Sciences and Mathematics; a general education component; Engineering Sciences; and Engineering Analysis, Design and Systems.

Included in the Basic Sciences and Mathematics sequence are Biology, Chemistry, Physics, and Mathematics, through Calculus and other advanced mathematics topics.

There is also a General Education component required for graduation which is also published in this bulletin.

The sequence in Engineering Sciences consists of studies in engineering mechanics, thermodynamics, transfer and rate mechanisms, electrical theory, the nature and properties of materials, and computer science.

The Engineering Analysis, Design and Systems sequence is directed toward the creative and practical phases of economic design, involving analysis, synthesis, and engineering research and development. This sequence is the most distinctive feature of the engineering curricula, since it is the element of creative and economic design which distinguishes the engineer from the pure scientist.

Engineers and Computer Scientists must develop communication skills through courses in English composition, public speaking, and upper level writing. These skills are reinforced throughout the curricula.

The curriculum in Computer Science consists of general studies, mathematics, science, computer science, and electives.

#### ENTRANCE REQUIREMENTS

Prospective students are encouraged to take as many courses as possible in mathematics, science, English, social studies, and foreign languages while in high school. One unit of computer-aided graphics is recommended for engineering students and at least one-half unit of keyboarding and one-half unit of computer programming are recommended.

The level of high school preparation needed to be successful in engineering or computer science degree programs as measured by ACT or SAT scores and high school academic core grade point average has been identified. The following guidelines are established to help high school students understand the level of preparation required for engineering and computer science. These guidelines are established to help MSU students at risk who want to pursue engineering or computer science.

#### Math Prerequisites

In order to be successful in engineering, a student must develop good math skills through courses in calculus, differential equations, and other math topics. In engineering and computer science, the first math course that applies to a degree is calculus. Taking calculus requires that a student have an adequate preparation in algebra, geometry, and trigonometry.

To provide students with the best possible opportunity for success in calculus, the Department of Mathematics has established the following guidelines for placing students in math courses:

• MA 1713 Calculus I - have an ACT math sub-score of 26 or higher, or have grades of C or better in MA 1313 College Algebra and MA 1323 Trigonometry or a C or better in MA 1453.

• MA 1453 Precalculus - have an ACT math sub-score of 24 or higher, or have a grade of C or better in MA 1313 College Algebra

• MA 1313 College Algebra - have an ACT math sub-score of 20 or higher.

Students who are not prepared for Calculus I will be required to first complete Precalculus or a sequence of College Algebra and Trigonometry before taking calculus. This may delay a student from taking some engineering courses until they have developed the proper math background, but this should not discourage a student from pursuing an engineering degree. Improving math skills early in their academic career will result in a student having greater academic success.

Students who do not meet the guidelines for enrolling in Calculus I should consider completing Precalculus or a sequence of College Algebra and Trigonometry during the summer prior to attending Mississippi State. These courses may be taken either at Mississippi State, at a Mississipi Community or Junior College, or at any other accredited two-year or four-year institution. Only grades of C or better will be accepted as satisfying these pre-requisites. Courses taken during high school will not count for this credit unless they were taken as part of a dual enrollment program and appear on a separate transcript from a two-year or four-

year institution of higher learning. A combination of College Algebra and Trigonometry may be substituted for Precalculus.

# New Freshmen Admission

For regular admission to one of the Bagley College of Engineering's degree-granting programs as a freshman, students must be admitted to MSU, complete the following high school academic core: 4 units of English, 4 units of mathematics (algebra, geometry, trigonometry), 3 units of science (chemistry and either biology or physics), 3 units of social studies and/or foreign languages and 2 units of electives, and meet any one of the following criteria:

- Have a composite score greater than or equal to 23 on the ACT or 1060 on the SAT
- Have a composite score of 20, 21, or 22 on the ACT or between 940 and 1050 on the SAT with a high school GPA of 3.0 or greater on academic core courses listed above
- Have any ACT or SAT score with a high school GPA of 3.5 or greater on academic core courses listed above.

These criteria are essential for the success of a student beginning an engineering or computer science curriculum at the level shown in the following pages of this Bulletin. Applicants with justifiable circumstances may petition the Dean of Engineering for special admission.

New freshmen applicants who do not meet these requirements, are otherwise admitted to MSU, and want to pursue an engineering degree should join the undeclared major with a pre-engineering concentration. These students will be advised for the first 30 hours by the University Academic Advising Center. Students in the pre-engineering and computer science programs can request to be assigned a mentor from the engineering or computer science faculty.

All students who are classified as Undecided with a Pre-Engineering concentration to enroll in an appropriate math course each semester they are enrolled in this major. Students who fail to meet these requirements will be disenrolled from the Pre-Engineering concentration and remain simply Undecided majors.

Students with course work deficiencies will be required to schedule preparatory course work. This course work will be in addition to that shown in the engineering and computer science curricula and will, in general, extend the time to graduation.

#### **Internal Transfers**

Students in the pre-engineering concentration and other students at Mississippi State University may transfer into an engineering degreegranting program if they satisfy any one of the following criteria:

• Meet engineering new freshmen requirements listed above.

• Have completed at least 30 hours with a cumulative GPA greater than or equal to 2.0 and passed Calculus I (MA 1713), English Composition I (EN 1103), and Fundamentals of Chemistry (CH 1213) with grades of C or better.

Internal transfer students should discuss the transfer with the appropriate department head or program coordinator before completing the Change of Major form. Some departments have additional admission requirements for internal transfers.

Students admitted to one engineering or computer science degree program may transfer to another engineering or computer science program at any time so long as they meet departmental transfer requirements.

#### External Transfers

Students may transfer from other colleges or universities into MSU engineering degree programs if they meet all requirements to transfer to MSU and satisfy any one of the following criteria:

• Meet engineering new freshmen admission standards listed above.

• Have completed at least 30 hours with a cumulative GPA greater than or equal to 2.0 and passed courses equivalent to Calculus I (MA 1713), English Composition I (EN 1103), and Fundamentals of Chemistry I (CH 1213) with grades of C or better.

Applicants with justifiable circumstances may petition the Dean of Engineering for special admission.

Coursework taken elsewhere will not be applied toward a degree in the Bagley College of Engineering until it is determined that it is equivalent to required coursework or is an acceptable substitute. Also, only coursework taken elsewhere on which a grade of C or better has been earned will be considered for application toward a degree. No more than one-half of the hours of an engineering or computer science curriculum may be transferred from two-year community or junior colleges.

For admission to undergraduate programs, international students must earn a minimum paper-based TOEFL score of 550 or a computer-based minimum score of 213.

### PERSONAL COMPUTER REQUIREMENT

All engineering students are required to own or lease a personal laptop computer. Minimum specifications for a computer will be developed and posted on the Bagley College of Engineering home page on the World Wide Web by July of each year. A computer meeting these minimum specifications should suffice for the entirety of a students program of study as long as normal progress is made each semester. Transfer students are required to have a computer that meets the minimum specifications in place at the time their cohorts would have been freshmen. For example, a student transferring as a junior in the Fall of 2011 is required to have a computer that meets the For freshmen who entered the Bagley College in the Fall of 2009.

Information on the computer specifications and special pricing which may be available, can be found by visiting the Web site at http:// www.bagley.msstate.edu, by calling the Undergraduate Coordinator at (662) 325-2267, or by writing to Mr. Robert Green at the address given above.

Computers are used by students to solve engineering problems, write papers, and develop presentations for classes. Computer technology improves communication between students and faculty and develops the computational skills demanded of engineering graduates by employers. Further, email is an official means of communication with students per university policy.

Students applying for or receiving financial aid should notify the office of Student Financial Aid and Scholarships that they are entering the Bagley College of Engineering and are required to have a personal computer. The cost of the personal computer can then be added to the total cost of education and financial aid may be awarded accordingly. The full cost of the computer will not necessarily be covered by financial aid or scholarships depending on the total amount of aid received and other regulations.

#### **GRADUATION REQUIREMENTS**

Graduation requirements are the courses and hours shown in the individual programs. Some majors require a grade of C or better in certain courses. This information is available from the department in which the student is enrolled. All students are required to study these requirements together with the course prerequisites, and to be sure that they are taking the proper courses in the curriculum in which they expect to graduate. Students should discuss their programs with their academic advisors each semester, particularly before pre-registration. To graduate with a baccalaureate degree from the Bagley College of Engineering, in addition to meeting the requirements as specified in the Mississippi State University Academic Operating Policy 12.11, candidates must have earned at least a 2.00 cumulative grade point average on all courses scheduled and rescheduled (average on all attempts) at Mississippi State University that are applied toward meeting degree requirements. Departments within the College may have requirements in addition to those specified above. It is the student's responsibility to be sure that requirements are fulfilled in a particular program before applying for a degree.

Credit up to a maximum of six semester hours may be applied toward a baccalaureate degree in the College of Engineering for successful completion of the Army ROTC Advanced Course of study or the Air Force ROTC Professional Officer Course of study. Such credit may not be available to students who, before they enter an ROTC program, have completed those courses for which ROTC credit is usually substituted.

Independent study credit up to a maximum of six semester hours will be accepted, with the prior approval of the department head and the dean. In no case will engineering courses taken by independent study be approved.

No courses taken under the pass/fail option may be used to satisfy degree requirements.

# ENGINEERING STUDY ABROAD PROGRAMS

(See International Study Programs)

# ADVANCED-LEVEL, GRADUATE and CERTIFICATE PROGRAMS

#### **Environmental Engineering**

The field of Environmental Engineering is an interdisciplinary one concerned with applications of the principles of engineering science and design to improve the quality of the environment. As a broad field, efforts in Environmental Engineering can be found in several departments within the Bagley College of Engineering, including the Departments of Agricultural and Biological Engineering, Chemical Engineering, and Civil and Environmental Engineering. Areas of concern in Environmental Engineering include air quality and pollution control, soil and water quality and wastewater collection, treatment, and disposal, food quality and management of agricultural land and other natural resources, and the minimization, management, and disposal of industrial, municipal, and agricultural waste.

While the Bagley College of Engineering does not offer degrees in Environmental Engineering, the undergraduate student pursuing a Bachelor of Science degree may develop an area of emphasis in Environmental Engineering by fulfilling elective course requirements with a number of courses related to Environmental Engineering including:

- ABE 3513 GPS/GIS in Agriculture and Engineering
- ABE 4263 Soil and Water Management
- ABE 4313 Biological Treat. of Non-Point Source Pollution
- CHE 4613 Air Pollution Control Design: Theory & Practice
- CE 2803 Environmental Engineering Issues
- CE 3801 Environmental/Water Resource Engineering I Lab
- CE 3803 Environmental/Water Resource Engineering I
- CE 3811 Environmental/Water Resource Engineering II Lab
- CE 3813 Environmental/Water Resource Engineering II

Courses in environmental chemistry, organic chemistry, biochemistry, microbiology, and geological sciences are offered by the College of Arts and Sciences.

For information, the student should consult advisors in the Bagley College of Engineering, especially those in Agricultural and Biological Engineering, Chemical Engineering, and Civil and Environmental Engineering.

#### **GRADUATE STUDY**

The Bagley College of Engineering offers graduate degrees at both the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) levels. Some undergraduate programs also offer a process by which promising undergraduate students may be directly admitted to the Ph.D. program following graduation. Students interested specifically in a graduate program should consult the Graduate Bulletin or contact the department of interest directly.

Master of Science degrees are offered in Aerospace Engineering, Biological Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science, Computational Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering. The Master of Science degree requires 24 semester hours of coursework and six semester hours of thesis research. The Master of Science non-thesis option is also offered and requires 33 semesters of coursework. Computer Science also requires two semester hours of seminar for Computer Science. For more information on these programs, interested students should contact the graduate coordinator in the department of interest.

For those students seeking a Master of Science degree in a flexible on-line format, the Bagley College offers an interdisciplinary program consisting of 33 semester hours of coursework. This program culminates in a Master of Engineering degree. More information can be found at http://www.distance.msstate.edu/engr/degreeprograms.html or by contacting Ms. Rita Burrell at rburrell@bagley.msstate.edu.

The Doctor of Philosophy degree is available in all engineering departments, either through a composite interdisciplinary program or a specific major. In addition to these, Ph.D. degrees are offered in interdisciplinary programs in Computational Engineering and Applied Physics.

Most teaching departments are able to offer teaching assistantships to qualified graduate students. Additionally, many departments are also able to offer research assistantships. Bagley, Barrier, and Honda graduate Fellowships are also awarded each year. Because Mississippi State University is a member of the National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (GEM), students with GEM Fellowships are eligible to study in the Bagley College.

Students interested in pursuing a graduate education should consult with the graduate coordinators in each academic department, the Associate Dean for Research and Graduate Studies, and The Office of the Graduate School.

#### CERTIFICATE PROGRAMS

#### Automotive Engineering Certificate

This certificate will enable students enrolled in a variety of engineering degree programs to enhance their education in topical subject matter related specifically to automotive engineering.

The 15 hours of academic credit required for this certificate may be earned by completing selected courses from a list of qualifying designated by a representative faculty committee. These courses include one from the Level I list; two courses from the Level II list; Automotive Engineering (cross-listed as CHE, ECE, IE or ME 4193/6193); plus a directed individual study course related to a team experience in automotive engineering.

Additionally, at least six hours taken for the certificate must be in addition to the courses required for the student's graduation requirements for his or her major. Students should see an advisor for a list of approved courses. In the case of graduate students, the student's graduate committee will determine how many of the courses taken for the certificate fulfill course requirements for the student's degree.

# **Computational Biology Certificate**

The availability of entire genomes of both simple and complex organisms has made advances in the life sciences critically dependent upon computing. The field of computational biology combines computer science and biology to address questions of how biological systems work by analyzing and synthesizing the data made available with high throughput biology. This certificate program will allow undergraduate and graduate students in the computational and life sciences to pursue a well-defined program where they will gain fundamental skills in computing integrated with biology and will become competitive for highend employment in emerging technical fields. Students will learn how to apply computational techniques to understand structures, functions, dynamics, and evolution of living organisms.

The certificate program is ideal for students working toward or possessing a BS or MS degree in computer science, computer engineering, mathematics, statistics, biological engineering, or one of the life sciences. A Computational Biology certificate will be issued jointly by the Bagley College of Engineering and the College of Agriculture and Life Sciences upon a candidate's successful completion of the requirements of the program.

Certificate Requirements:

- CSE 4623/6623 Computational Biology required of all students
- CSE 4613/6613 Bio-computing required of students in the life sciences
- BCH 4113/6113 Essentials of Molecular Genetics required of students in computer science, computer engineering and biological engineering.
- 3 additional relevant courses as approved by the Certificate Advisory Board – required of all students

#### The Jack Hatcher Engineering Entrepreneurship Program

The role of the engineering entrepreneur in the expansion of the economy is self-evident. Engineers with entrepreneurial spirit and skills are the locomotives of the technology-based startup company and, perhaps more importantly, of the evolution of established industry. Developing entrepreneurial thinking in our graduates is one of the primary learning goals of the Bagley College of Engineering at Mississippi State University. Through an endowment by alumnus Jack Hatcher, we have established a multi-level engineering entrepreneurship program to serve students with different degrees of interest. The primary mission of the program is to expose our students to the broader elements of running a business and the general managerial skills required to prepare them for opportunities in management. For a more limited number, our mission is to equip technologically creative students to businesses.

The basic and broadest element of the entrepreneurship program is a weekly seminar series in which successful entrepreneurs present case histories. Also business leaders discuss specific items, such as patents, hiring employees, and venture capital.

#### **Engineering Entrepreneurship Certificate**

For students with higher levels of interest, a formal course of study leading to an Entrepreneurship Certificate is available. The certificate program is a joint program with the College of Business that requires a minimum of 15 semester hours. Students gain knowledge in finance, marketing, and accounting followed by a management course in entrepreneurship where the capstone project is a business plan.

All undergraduate engineering and computer science students in good standing are eligible to join the program. Each student must have a faculty mentor from both engineering and business. To join the program, a student must submit an application that has been signed by both mentors to the Associate Dean of Engineering.

The Entrepreneurship Certificate Program is comprised of three major parts:

1. Completing 15 hours of business and engineering classes:

- ACC 2013 Prin Financial Accounting
- EC 2123 Microeconomics
- IE 3913 Engineering Economy
- MKT 3013 Principles of Marketing
- MGT 3323 Entrepreneurship
- 2. The Seminars Series GE 3011

3. The "company" or project experience.

By utilizing electives, students in most engineering disciplines can complete the course requirements with a maximum of six to nine hours of additional work above the degree program. Also, much of the coursework will apply toward the prerequisites for an MBA degree at a later time should the student decide to pursue that path.

A GPA of 2.25 is required on all coursework, and no grade less than a C can be applied toward the certificate. A maximum of two courses can be transfer courses, and correspondence courses will not be accepted. In addition, a passing grade must be obtained for three semesters of GE 3011- Engineering Entrepreneurship Seminar.

The "company" or project experience is the real-world engineering experience of developing a marketable product or service. In most cases, the certificate candidate can get academic credit through the senior design course or a technical elective. For example, Electrical Engineering and Computer Engineering majors can receive credit for the senior design project requirement (ECE 4512/4522 and ECE 4521). The "company" experience may be a concept developed by students or faculty members. To complete the requirements for the project experience, the candidate submits a report to the Associate Dean, which has been approved by both mentors. This report usually takes the form of a Business Plan and is developed as part of the entrepreneurship course MGT 3323.

Upon completion of the Entrepreneurship Certificate Program requirements, the Associate Dean will review the student's records. If all requirements are met satisfactorily, the Associate Dean will submit the candidate to the Deans of Business and of Engineering for issuance of the certificate. The Associate Dean will notify the Registrar to have a statement placed on the candidate's transcript. The certificate will be issued concurrently with the B.S. Degree in Engineering or Computer Science.

For more information contact:

Mr. Gerald Nelson

Director, Jack Hatcher Entrepreneurship Program Box 9544, Mississippi State University, MS 39762-9544 Phone: (662) 325-8423 email: gnelson@bagley.msstate.edu

### **Geospatial and Remote Sensing Engineering Certificate**

Geospatial technology refers to the application of technology resources in the acquisition and analysis of data that has a geographic component along with non-spatial attributes associated with the feature(s) under evaluation. Geospatial technologies include remote sensing, geographic information systems (GIS), and global positioning systems (GPS). Over the past several years, MSU has developed a national reputation in research and applications development in geospatial technologies in agriculture, renewable natural resources and transportation. Faculty involved with research utilizing geospatial technologies recently expanded the academic course offerings at MSU in order to extend their experiences to undergraduate and graduate students. With the wide offering of geospatial and related courses in the University curriculum, an engineering certificate program in geospatial technologies, with an emphasis on remote sensing, has been developed.

#### Eligibility

- Undergraduate students in good standing who are currently enrolled in one of the undergraduate majors in the College of Engineering.
- Current graduate students in good standing in one of the majors in the College of Engineering.
- Other individuals who hold a B.S. degree in a field of engineering from a university accredited by the Engineering Accreditation Commission of ABET.

Applicants will make application for the certificate program to the Director of Education for the High Performance Computing Collaboratory (HPC<sup>2</sup>). The Director of Education will validate that the applicant meets admission eligibility requirements and forward the application to the Technical Committee of the GeoResources Institute (GRI) for recommendations. Once an applicant is accepted into the certificate program the Director of Education will notify the Dean of Engineering and the Director of GRI.

#### **Issue of Certificates**

The Director of Education will validate completion of the requirements for the certificate and will inform the Dean of Engineering when a candidate has successfully completed the curriculum. The Dean of Engineering will issue the certificate and have the appropriate notice placed on the candidate's transcript—"Awarded Geospatial and Remote Sensing Engineering Certificate." The certificate will be signed by the Dean of Engineering, the Director of Education (HPC<sup>2</sup>) and the Director of GRI.

#### Curriculum

To receive the certificate, the candidate must complete 15 hours - six hours of core courses, six hours of engineering electives, and three hours of application electives from the lists given below. The curriculum must be completed with a minimum of 2.00 GPA for undergraduate students and a 3.00 GPA for graduate students. No grade less than a C will count toward the certificate. No more than two courses can be transferred from another institution.

#### **Core Courses** (6 hours)

ABE/PSS 4483/6483 or ECE 4423/6423 Introduction to Remote Sensing

ECE 4413/6413 Digital Signal Processing

Engineering Electives (6 hours)

- ABE 3513 GPS and GIS in Agriculture and Engineering
- ECE 3443 Signals and Systems

ECE 8413 Digital Spectral Analysis

- ECE 8401 Topics in Remote Sensing
- ECE 8423 Adaptive Signal Processing
- ECE 8433 Statistical Signal Processing

Elective Engineering Special Topics course - as approved by the GRI Technical Committee and the Dean of Engineering

Application Electives (3 hours)

- FO 4313/6313 Spatial Tech in Nat Res
- 4311/6311 Lab
- GR 2313 Maps and Remote Sensing
- FO 4472/6472 GIS for Nat Resource Mgmt
- 4471/6471 Lab

PSS 4373/6373 Geospatial Agronomic Management

WFA 4253/6253 GIS & GPS in Wildlife and Fisheries Mgt. Elective Special Topics in applications areas approved by the Technical Committee of GRI and the Dean of Engineering.

#### **Information Assurance Certificate**

MSU is certified by the National Security Agency as a Center of Academic Excellence in information assurance (IA) education. The IA certificate program is designed for but not limited to, students of the following backgrounds:

- Students participating in the Department of Defense IA Scholarship Program at MSU
- Students participating in the National Science Foundation's Scholarship for Service at MSU
- Government employees interested in IA who desire to take advantage of education support available from their employer
- Government students on campus as part of the National Defense University educational partnership with MSU who are studying IA topics
- MSU students with a desire to focus on IA topics and wish to demonstrate to perspective employers a competency in this area.

#### Requirements

Admission to the program is managed by the Department of Computer Science and Engineering. All candidates must:

- Be enrolled as a full-or part-time student at MSU
- Demonstrate mastery of computer science, computer engineering, electrical engineering or management information systems fundamentals

- Exhibit knowledge of discrete mathematics, algorithms and data structures at the level of an undergraduate course
- Demonstrate a practical knowledge of computer organization

A minimum of 15 hours must be completed for the Information Assurance certificate.

Required courses:

CSE 4243/6243	Information and Computer Security
CSE 4273/6273	Computer Crime and Forensics
CSE 4383/6383	Cryptography and Network Security
Choose two of the fo	llowing:
BIS 4513/6513	Local Area Networks
BIS 4113/6113	BIS Security Management
CSE 4153/6153	Data Communications and Networks
	Operating Systems
CSE 4503/6503	Database Management Systems
(MIS students ma	y substitute BIS 3753 or BIS 8313)
	00-level or above) IA course approved by the
program administ	rator.

#### **Manufacturing Certificate**

The Bagley College of Engineering has recognized a need for enhanced manufacturing-related education of those students particularly interested in a career in manufacturing.

The Manufacturing Certificate is available to students in a variety of degree programs, including non-engineering majors and graduate students. The program will enhance a student's education in topical subject matter related specifically to manufacturing.

There are 24 hours of math and science prerequisite courses for the program including CH 1213, CH 1223, MA 1713, MA 1723, PH 2213, PH 2223, IE 4613 and one Materials course selected from a list of approved courses. Once in the program, undergraduate students will be required to maintain a 2.5 GPA (Graduate students, 3.0 GPA) on the 15 hours of required coursework for the certificate.

#### **Required Coursework** (9 hrs)

IE 4333/6333 Production Control Systems I IE 4653/6653 Industrial Quality Control I IE 3323 Manufacturing Processes OR FP 4223/6223 Furniture Production I **Production Systems** – choose one course (3 hrs) IE 4373/6373 Automation ME 4643/6643 Automation of Mechanical Systems IE 4353/6353 Materials Handling IE 4773/6773 Systems Simulation I **Processes** – choose one course (3 hrs) FP 4123/6123 Lumber Manufacturing FP 4233/6233 Furniture Production II ME 3133 Modeling and Manufacturing ME 4413/6413 Casting and Joining ME 4423/6423 Machining and Forming Quality

In addition to 15 hours of required coursework, participating students must have gained actual work experience in a manufacturing environment equivalent to a cooperative education work semester or a summer internship. Verification of employment by the employer, including a description of work duties may be required of the candidate prior to certification.

Upon satisfactory completion of the required coursework and work experience, students will become candidates for certification. The Department of Industrial and Systems Engineering will validate completion of all requirements and forward a certification recommendation to the Dean of Engineering.

#### **Materials Certificate Program**

The Materials Science and Engineering Certificate Program, administered through the Bagley College of Engineering, is available to qualified students who complete an organized plan of study in the interdisciplinary field of Materials Science and Engineering at Mississippi State University.

The University's various departments offer a range of materialsrelated courses in both the science and engineering fields, such as biomaterials, electronic and semiconductor materials, metals, composites, polymers, ceramics, and construction materials. We also have a wide range of supporting courses in the areas of materials modeling, mechanics, processing, and characterization, along with special topics in tribology, fatigue, fracture, and corrosion. Faculty participating in these course offerings are organized as the Materials Working Group (MWG).

As part of an organized plan of study, including Directed Individual Study courses under the direction of a MWG member, materials-based courses allow students to pursue an interdisciplinary education and training program tailored to individual interests.

The Materials Science and Engineering Certificate Program is available to both traditional and non-traditional students. This allows industry to offer employees further training in materials, as well as provide current university students the opportunity to pursue an interdisciplinary materials specialty.

To apply for this program, the candidate must submit the initial application for the certificate to a MWG Faculty in their home department. The MWG Faculty will validate the proposed courses and forward the package to the MWG Chair. Upon successful completion of the required courses, the MWG will recommend award of the certificate by the Dean of Engineering.

#### Admission to the Certificate Program:

Students pursuing a materials certificate typically fall into one of the following categories:

- (1) Persons possessing at least a bachelor's degree in engineering or science;
- (2) Persons working towards either a bachelor's or master's degree in engineering or science; or
- (3) Persons working in technical positions in industry desiring a certificate in materials but requiring additional prerequisites.
- Minimum admission requirements:

To be admitted to the program a student must have satisfactorily completed Chemistry (CH 1213, CH 1223), its associated laboratories (CH 1211, CH 1221), Calculus (MA 1713, MA 1723), and Physics (PH 2213, PH 2223). In addition, the student is responsible for meeting all prerequisites for each course taken towards the materials certificate.

Candidates in categories (1) and (2) automatically will meet the program requirements, either upon entrance to the program or in parallel. For those lacking the prerequisites, additional course work must be completed successfully.

In all cases, it is the responsibility of the student to provide an official transcript of all courses taken prior to admission into the program. An application form including a proposed course of study must be completed by the student and an official transcript must be provided for admission to the program. A member of Materials Engineering Working Group will review the application and agree to the program of study.

#### **Certificate Requirements:**

To receive a materials certificate, students must complete at least one course from Level I, at least two courses from Level II, at least one course from level III, and a three-hour Directed Individual Study that incorporates a materials-related research project and is under the direction of a MWG faculty member. Students must obtain a grade of "C" or better in each class taken

Level I: Fundamental materials course. This course may be part of the student's home curriculum. Student must take at least ONE course.

ABE 3813 Biophysical Properties of Materials

Construction Materials CE 3313

- Engineering Materials CHE 3413
- ME 3403 Materials for Mechanical Engineering Design

Level II: Intermediate material courses. These courses extend and enrich the basic materials topics introduced in the Level I courses. Students must take at least TWO courses.

CE	4633	Concrete Structures
ECE	4243/6243	Physical Electronics
EM	4133/6133	Mechanics of Composite Materials
FP	4323/6323	Wood Physics
PH	3613	Modern Physics
Elect	ive	Special topics: Courses under development
relate	ed to basic m	aterials properties such as: Ceramics, Physical
Mate	Ilmary Dolem	Commenciates and Electronic Materials

Metallurgy, Polymers, Composites and Electronic Materials. Note: Only one of the two courses in Level II maybe a special topic.

Level III: Advanced or Applied materials courses. Students must take at least ONE course.

ABE 4523/6523 Biomedical Materials

ABE/CHE/ME 4624/6624

Experimental Methods in Materials Research ABE 8314 Corrosion of Biomedical Implants CHE 4423/6423 Fundamentals of Industrial Corrosion Transmission Electron Microscopy EPP 8144 EPP 8223

Scanning Electron Microscopy

FP	4423/6423	Mechanical Properties of Wood
ME	4453/6453	Lubrication
ME	4413/6413	Casting and Joining
ME	4423/6423	Machining and Forming

PH 4813/6813 Introduction to Solid State Physics

For further details about the program and a current listing of al-lowed courses, please contact the Office of the Dean of Engineering at (662) 325-2270 or visit www.bagley.msstate.edu.

#### Six Sigma Certificate Program

Six Sigma is a term, commonly recognized by organizations around the world, which represents various methodologies used systematically to reduce process variation, improve performance and increase customer satisfaction. The Bagley College of Engineering is pleased to offer students the unique opportunity to further their education in this field.

The Six Sigma certificate program will enable both graduate and undergraduate students to gain knowledge in these methodologies currently in widespread use throughout business and industry, worldwide. Engineers knowledgeable in Six Sigma techniques study processes to identify ways to reduce or eliminate waste and non-value added activity. The Six Sigma program is designed to supplement current curricula with knowledge and experience generally not attained until an engineer is professionally active in the business world. The project portion (ref: IE 4923/6923) of this program will provide the opportunity for an engineer to utilize the wide array of techniques learned in order to improve a specific process. Relevant projects will benefit either a university or industry functional process. During performance of the project, students will be mutually mentored by a cognizant representative of the sponsoring organization and MSU faculty or staff.

To enter the program, students must have completed a minimum of 20 credit hours in a degree program recognizing the prerequisite courses for the proposed certificate courses.

To earn the certificate, undergraduate students must complete the required 15 hours with a minimum GPA of 2.5 (Graduate Students, 3.0 GPA). The required courses are:

- IE 4613/6613 Engineering Statistics I
- IE 4623/6623 Engineering Statistics II
- IE 4653/6653 Industrial Quality Control I
- IE 4573/6573 Process Improvement Engineering
- IE 4923/6923 Six Sigma Methods and Project

Upon satisfactory completion of the required coursework, students will become candidates for certification. The Department of Industrial and Systems Engineering will validate completion of all requirements and forward a certification recommendation to the Dean of Engineering. Successful students are also encouraged to further leverage this educational achievement by seeking to attain Six Sigma certification, by exam and demonstrated experience, through a professional organization such as the American Society for Quality (ASQ).

#### Software Engineering Certificate Program

Software Engineering is the application of engineering practices to the design and maintenance of software. Large complex software systems and products often involve millions of lines of code and operate in safety-critical environments. Software Engineering skills are critical to the nation and 10 various states to maintain and expand the industrial base. The certificate program is designed to provide a focused set of course work in Software Engineering. The certificate is available to both traditional and non-traditional students. Through it, industry and government organizations may offer employees additional technical education related to their work.

The Certificate in Software Engineering is administered by the Department of Computer Science and Engineering and the Dean of Engineering.

#### Admission to the Certificate Program:

It is anticipated that students from the following backgrounds will likely pursue a certificate in software engineering:

(1.) Persons working in industry in a software development or maintenance function and who wish to improve their technical background.

(2.) Government employees such as those located at the John C. Stennis Space Center or the U.S. Army Engineering Research and Development Center in Vicksburg who do not wish to complete a degree, but desire to take advantage of educational support available from their employer.

(3.) Students on campus in related disciplines that would like to obtain this certificate in addition to another degree option.

All candidates, as a minimum, must demonstrate through experience or course work, the following:

- Have obtained a B.S. degree
- · Mastery of computer science fundamentals
- · Proficiency in at least one programming language
- · At least two years experience working in a significant software development project
- · Knowledge of discrete mathematics, algorithms, and data structures at the level of an undergraduate course
- · Practical knowledge or programming methods and computer organization.

Although it is expected that most students applying for this certificate program will hold undergraduate degrees from programs like computer science, engineering, mathematics, or physics - those holding a degree in another field will be considered for admission if they can clearly demonstrate the ability to perform graduate-level work in software engineering. Programming experience is considered essential.

Applications for admission to the Certificate in Software Engineering Program will be administered by the Department of Computer Science and Engineering. Students applying for admission may or may not be degree candidates - but all must make application to and be admitted by the MSU Graduate School. Application for admission to the certificate program will result in a determination of qualification and, if admitted, an advisor will be assigned. The advisor will meet with the applicant to create a planned program of study and to obtain any necessary prerequisite waivers that the student may need (primarily for non-traditional certificate candidates).

### **Requirements for Certificate Award**

A minimum of 15 semester credit hours must be completed for award of the certificate. All the courses must be at the 4000 level or higher. Some of the certificate courses may count toward a degree, subject to approval of the Graduate School and the student's Graduate Committee. Successful completion of the Certificate in Software Engineering requires completion of all courses in List A and any two from List B below:

# List A (Certificate in Software Engineering Core Courses):

- CSE 4214/6214 Software Engineering
- CSE 8233 Software Engineering Project Management or IE 4533 Project Management
- CSE 4283/6283 Software Testing and Quality Assurance
- List B (Certificate in Software Eng Electives choose two):
  - CSE 4233/6233 Software Architecture and Design paradigms
  - CSE 4243/6243 Information and Computer Security
  - CSE 8243 Software Specification
  - CSE 8253 Software Design
  - CSE 8263 Software Verification and Validation

Upon a candidate's successful completion of the program's requirements, the Bagley College of Engineering will issue a certificate in Software Engineering. The candidate will submit the initial application for the certificate to the Department of Computer Science and Engineering. The department will validate that the candidate has met all requirements satisfactorily and will recommend award of the certificate to the Dean.

For further details about the program, contact the Department of Computer Science and Engineering at (662) 325-2756 or www.cse.msstate.edu.

# Department of AEROSPACE ENGINEERING (ASE)

#### Interim Department Head: Professor Pasquale Cinella Major Advisor: Ms. Machaunda Bush Office: 330 Walker Engineering Building

The Department of Aerospace Engineering at Mississippi State University provides an accredited undergraduate curriculum with the mission of preparing students to enter the workplace as qualified entry-level aerospace engineers or to enter any aerospace engineering graduate program adequately prepared for advanced study. This mission is accomplished by a strong foundation in mathematics and physical and engineering sciences upon which student problem solving and application skills are developed. The curriculum stresses analytical and communication skills, with particular emphasis placed on engineering design throughout the curriculum. A capstone design experience in the senior year provides the opportunity to integrate design, analytical, and problem solving skills along with communication skills in a team environment that emulates aerospace engineering practice.

The mission is accomplished by the following educational objectives, which describe the career and professional accomplishments we are preparing our graduates to achieve. Our graduates shall:

- 1. Demonstrate an understanding of engineering principles and an ability to solve unstructured engineering problems that will allow them to successfully enter into and advance in the engineering profession;
- 2. Demonstrate an appreciation for lifelong learning and for the value of continuing professional development through continual study of the current literature in the field, participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies;
- 3. Demonstrate an understanding of professional and ethical responsibilities to the profession, society, and the environment incumbent on an engineering professional;
- 4. Successfully interact with others of different backgrounds, educations, and cultures;

5. Demonstrate effective communication skills in their profession.

These objectives are accomplished in two different concentrations in the aerospace engineering curriculum, an aeronautics concentration and an astronautics concentration. The concentration in aeronautics focuses on the analysis and design of aircraft and other vehicles that operate primarily within the earth's atmosphere, and the concentration in astronautics focuses on the analysis and design of spacecraft and other vehicles that operate primarily outside the earth's atmosphere. A student in aerospace engineering will choose one of these two concentrations upon choosing the aerospace engineering major.

The aerospace engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

#### **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR
  - EN 1163 Accelerated Comp I
  - EN 1113 English Comp II OR
  - EN 1173 Accelerated Comp II
- Mathematics (9 hours)

See Major Core

- Science (6 hours)
- See Major Core

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

Social/Behavioral Sciences (6 hours)

See General Education courses

# **Major** Core

Major Core		
Math and Ba	sic Scie	ence
MA	1713	Calculus I
MA	1723	Calculus II
MA	2733	Calculus III
MA	2743	Calculus IV
MA	3113	Linear Algebra
MA	3253	Differential Equations I
3 hou	irs	Math/Science Elective
CH	1213	Chemistry I
CH	1211	Investigations in Chemistry I
PH	2213	Physics I
PH	2223	Physics II
PH	2233	Physics III
Engineering	Topics	
ECE	3183	Electrical Engineering Systems
EM	2413	Engineering Mechanics I
EM	2433	Engineering Mechanics II
EM	3213	Mechanics of Materials
EM	3313	Fluid Mechanics
EM	3413	Vibrations
ASE	1013	Intro to Aerospace Engineering
ASE	2013	Astrodynamics, Propulsion, and Structures
ASE	2113	Intro to Aircraft and Spacecraft Performance

- ASE 3213 Mechanics of Deformable Structures
- ASE 3223 Aerospace Structural Analysis
- ASE 3333 Aerothermodynamics

- ASE 4113 Aerospace Engineering Lab I
- ASE 4123 Aerospace Controls
- ASE 4343 Compressible Aerodynamics
- ASE 4623 Aerospace Structural Design
- Aerospace Engineering Lab II ASE 4721
- Technical Electives\* 6 hours
- Oral Communication Requirement Satisfied by successful completion of ASE 2013, ASE 4623,

ASE 4721 and GE 3513. Writing Requirement

GE 3513 Technical Writing

Computer Literacy

Fulfilled by ASE 1013, ASE 2013 and ASE 2113

#### Choose one of the following concentrations:

# Aeronautics Concentration (ARO)

- ASE 3123 Aircraft Attitude Dynamics
- ASE 3313 Incompressible Aerodynamics
- ASE 4413 Aircraft Propulsion ASE 4513
- Aircraft Design I
- ASE 4523 Aircraft Design II

#### Astronautics Concentration (ASO)

- ASE 3813 Intro to Orbital Mechanics
- ASE 3823 Spacecraft Attitude Dynamics
- ASE 4443 Spacecraft Propulsion
- ASE 4533 Spacecraft Design I
- ASE 4543 Spacecraft Design II

#### Total hours needed for major: 128

\* Technical electives may be selected from any of the department's listing of Advanced Undergradu-ate/ Graduate Courses, plus EM 4123, EM 4133 and EM 4143. Other courses may be selected upon approval of the department. All required courses in one concentration qualify as technical electives for students in the other concentration.

# Department of AGRICULTURAL and BIOLOGICAL ENGINEERING (ABE)

Department Head: Professor Jonathan Pote Office: 150 Agricultural and Biological Engineering Building

#### **BIOLOGICAL ENGINEERING (BE)**

Biological Engineering is that branch of the engineering profession which deals with engineering problems encountered in biological sys-tems. The responsibilities of the Biological Engineer may include the need for more complex food-producing systems, controlling and monitoring the deterioration of the earth's environment, the replacement of living organs and artificial organs, the use of new technologies to assist the disabled, and the creation of new engineering designs based on the inherently creative characteristics of living systems.

The curriculum in Biological Engineering is designed to give the student a thorough grounding in the basic sciences of mathematics, physics, chemistry, taken with and followed by a series of courses in the engineering and biological sciences and biological engineering.

The educational objectives of the program are as follows:

- 1. To educate students in the academic discipline of Biological Engineering so that they can formulate and solve engineering problems involving biological systems.
- 2. To ensure that students develop effective written and oral communication skills.
- 3. To instruct students in the latest computer-based technology in engineering.
- 4. To develop the students' ability to work individually and in teams to complete engineering design projects.
- 5. To prepare students for employment in engineering jobs or for study in graduate and professional schools and for continual professional development.

Biomedical Engineering Concentration. Students interested in Biomedical Engineering may choose to pursue a concentration in Biomedical Engineering. This concentration is designed for undergraduate students in Biological Engineering who choose to pursue biomedical engineering as a career option. Biomedical Engineering is the rapidly growing interdisciplinary field of engineering that studies the integration of the engineering and biomedical sciences to solve problems associated with the human body and human health. The department has a rich history of biomedical engineering research and teaching that goes back to the early 1970s when the Biological Engineering curriculum at MSU was in its infancy. Students concentrating in biomedical engineering will gain knowledge in biomechanics, biomaterials, bioinstrumentation, physiology, and other topic areas germane to the field. The undergraduate Biomedical Engineering concentration is excellent preparation for students wishing to pursue graduate studies in Biomedical Engineering.

Ecological Engineering Emphasis. The Ecological Engineering program at Mississippi State University addresses environmental problems through the application of basic engineering in concert with principles of ecology and biology. Man has shown repeatedly that working opposition to natural processes leads either to failure or to expensive and energy-intensive temporary solutions. Ecological engineering attempts to apply and emulate the rules that govern natural systems in order to meet human needs in ways that are sustainable.

Bioenergy Emphasis. Biological engineers can engage in environmental conservation and iBioenergy technologies use renewable biomass resources to produce an array of energy-related products including electricity, liquid, solid, and gaseous fuels, heat, chemicals, and other materials. Students in this emphasis area gain knowledge in the fundamentals of energy production, thermodynamics, alternative energy sources and biomass conversion into biofuels. The Bioenergy program prepares students to take up a career in the energy sector industry or government agencies, as well as pursue research in energy production from renewable sources.

Premedical Emphasis. The Biological Engineering curriculum offers a premedical emphasis which not only leads to a degree in Biological Engineering but also prepares students for acceptance into most medical, dental, and veterinary schools. Students completing this program have demonstrated their ability to tackle tough subjects, perform well under stressful conditions, work together in teams, learn new material, and achieve ambitious goals - characteristics desired by the best medical, dental, and veterinary schools.

The Biological Engineering degree and the Biomedical Engineering concentration curricula are offered by the Department of Agricultural and Biological Engineering which is jointly administered by the College of Engineering and the College of Agricultural and Life Sciences.

The Biological Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

#### **General Education Requirements**

English Composition (6 hours)

EN	1103	English Comp I OR
EN	1163	Accelerated Comp I
EN	1113	English Comp II OR
	11	

EN 1173 Accelerated Comp II

Mathematics (9 hours)

See Major Core Science (6 hours)

See Major Core

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

Social/Behavioral Sciences (6 hours) See General Education courses

#### Maior Core

Math and Basic Science

апа ва	and Basic Science			
MA	1713	Calculus I		
MA	1723	Calculus II		
MA	2733	Calculus III		
MA	2743	Calculus IV		
MA	3253	Differential Equations I		
CH	1213	Chemistry I		
CH	1211	Investigations in Chemistry I		
CH	1223	Chemistry II		

- CH 1221 Investigations in Chemistry II 2503 Elementary Organic Chemistry CH CH 2501 Elementary Organic Chemistry Lab 2213 PH Physics I PH 2223 Physics II BIO 3304 General Microbiology BCH 4013 Principles of Biochemistry Engineering Topics ABE 1911 Intro to Engineering in Life Sciences ABE 1921 Intro to Engineering Design ABE 4803 **Biosystems Simulation** ABE 3413 Bioinstrumentation I Transport in Biological Environment ABE 3303 ABE 4423 Bioinstrumentation II ABE 3813 **Biophysical Properties of Materials** ABE 4813 Principles of Engineering Design ABE 4833 Practices of Engineering Design
  - ABE 4911 Engineering Seminar
  - CSE 1233 Computer Programming with C
  - EM 2413 Engineering Mechanics I
  - EM 2433 Engineering Mechanics II
  - EM 3213 Mechanics of Materials
  - EM 3313 Fluid Mechanics
- Oral Communication Requirement

Fulfilled in GE 3513 and other ABE courses

Writing Requirement

GE 3513 Technical Writing

Computer Literacy

Fulfilled in Engineering Topics courses

# Choose one of the following sets of courses to complete the degree:

#### **Biological Engineering Degree Requirements**

ABE 4313	Bio Treatment NPS Pollution OR
ABE 4323	Phys Sys Biomed Eng
4 hours	BIO Science Elective
3 hours	BIO Science Elective
3 hours	BIO Science Elective or Engineering elective
9 hours	Approved Engineering Electives
3 hours	ABE Elective

### **Biomedical Engineering Concentration (BME)**

- ABE 4323 Physical Sys Biomedical Engineering
- ABE 4523 Biomedical Materials
- ABE 4613 Biomechanics
- ABE 4723 Tissue Engineering
- BIO 1504 Zoology

Restricted BIO Science Elective \*

6 hours Restricted Engineering/Math Electives\*\*

#### Total hours needed for major: 128

\* Restricted BIO Science Electives: BIO 2103, BIO 3504, BIO 4114, BIO 4405, BIO 4413, BIO 4433, BIO 4503, BIO 4504, BIO 4514, ADS 4613, BCH 4113, CVM 2443.

\*\* Restricted Engineering Electives: EM 4123, EM 4133, EM 4213, ME 3133, ME 3533, ME 4123, ME 4743, ME 4833, EO 1143, CSE 4613, CSE 4623, IE 4113, IE 4173, IE 4533. Restricted Engineering/Math Electives: ABE 4513, ABE 4533, ABE 4624, ABE 4723, MA 3113, MA 3353, MA 4373, MA 4543, ECE 3714, ECE 3443, IE 4733, IE 4743.

# Dave C. Swalm School of CHEMICAL ENGINEERING (CHE)

Director: Professor Jason Keith Office: 330 Swalm Chemical Engineering Building

Chemical Engineering is a profession where a diverse group of individuals contribute to the invention, development, and deployment of an incredible range of processes and products in a variety of industries including chemical, petrochemical, environmental, pharmaceutical, environmental, and materials. Chemical engineering is the branch of engineering that deals with the chemical and physical processes used to develop and manufacture many different products of greater value from lesser valued chemicals and feedstocks. Without question, chemical engineers are making major contributions to the technological infrastructure of modern society.

The mission of the Swalm School of Chemical Engineering is to produce graduates who have the ability to apply the principles of the physical sciences, together with the principles of economics and human relations, to fields that pertain directly to processes and process equipment that treat material to effect a change in state, energy content, or composition.

Graduates will receive a broad education that will enable them to become leaders in industry, the profession, and the community. Those graduates who excel academically will be prepared for entry to graduate or professional school.

To achieve our mission, Program Educational Objectives have been established to help us assess the degree to which we have achieved these objectives.

#### **Program Educational Objectives**

Mississippi State University Chemical Engineering graduates will:

- Successfully enter the chemical engineering profession as design and process engineers (and related designations) with prominent companies in the chemical process industries, petroleum and petro-chemical industries, pulp and paper industry, environmental, state and federal government agencies, consulting or other, related chemical industries.
- Demonstrate an ability to address unstructured problems specific to chemical engineering technical specialties by identifying and implementing solutions using the proper tools, practical approaches and flexible thinking.
- Pursue and earn post-baccalaureate degrees in chemical engineering and related fields, business and professional programs including medicine and law.
- Demonstrate proficiency in chemical engineering practice and leadership development by advancing in their chosen fields to supervisory and management positions.

Students choosing to major in Chemical Engineering will select one of three concentration areas within the Chemical Engineering Program: 1) Chemical Engineering Practice Concentration; 2) Chemical Engineering Research/Development Concentration; or 3) Biomolecular Engineering Concentration.

**Chemical Engineering Practice Concentration**. This concentration area prepares the graduate to enter industry upon graduation wellprepared to function as a chemical engineer, in a variety of industries as well as in a variety of job functions. Students pursuing this option are also well prepared for graduate studies in chemical engineering or professional school. A combination of 12 hours of technical electives, chemical engineering elective, and chemistry elective allows a student to emphasize an area of interest, including materials, environmental, energy (including alternative energy), or traditional chemical engineering.

**Chemical Engineering Research/Development Concentration.** This concentration area prepares the chemical engineering graduate for further educational endeavors at the graduate level and for opportunities in research and development by providing them with additional training in mathematics and chemical engineering topics. Focused selection of technical, chemistry, and basic engineering electives provides the opportunity to develop the depth required for post-graduate research activities in chemical engineering.

**Biomolecular Engineering Concentration**. This concentration area prepares the graduate for a career in the biotechnology industry. The concentration area also provides students the opportunity to fulfill prerequisites for medical, dental, or veterinary school upon completion of their chemical engineering degree. Focused selection of technical, chemistry, and basic engineering electives provides the opportunity to develop the depth required in biology, biochemistry, and microbiology for students interested in this concentration. While students regularly enter medical school via the Chemical Engineering Practice concentration, the biomolecular engineering concentration offers students not only a bachelor's degree in chemical engineering, but also highlights those topics encountered in biotechnology, medical school or in veterinary school.

The Chemical Engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

#### **General Education Requirements**

English Composition (6 hours)

EN 1103 English Comp I OR

EN 1163 Accelerated Comp I English Comp II OR EN 1113 EN 1173 Accelerated Comp II Mathematics (9 hours) See Major Core Science (6 hours) See Major Core Humanities (6 hours) See General Education courses Fine Arts (3 hours) See General Education courses Social/Behavioral Sciences (6 hours) See General Education courses **Major Core** Math and Basic Science Calculus I MA 1713 Calculus II MA 1723 MA 2733 Calculus III MA 2743 Calculus IV MA 3253 Differential Equations I CH 1213 Chemistry I 1211 Investigations in Chemistry I CH 1223 Chemistry II CH CH 1221 Investigations in Chemistry II Organic Chemistry Lab I CH 4511 4513 Organic Chemistry I CH Organic Chemistry II CH 4523 PH 2213 Physics I 2223 PH Physics II **Engineering Topics** CHE 1101 Chemical Engineering Freshman Seminar CHE 2114 CHE 2213 Mass and Energy Balances Chemical Engineering Analysis CHE 3113 Chemical Engineering Thermodynamics I\* Chemical Engineering Thermodynamics II CHE 3123 CHE 3203 Fluid Flow Operations\* CHE 3213 Heat Transfer Operations\* CHE 3222 Chemical Engineering Laboratory I CHE 3223 Mass Transfer Operations CHE 3232 Chemical Engineering Lab II Professional Development Seminar CHE 3331 CHE 3413 Engineering Materials CHE 4113 Chemical Reactor Design Process Design CHE 4134 CHE 4223 Process Instrumentation and Controls CHE 4233 Chemical Plant Design 3913 Engineering Economy I IE Oral Communication Requirement Fulfilled in CHE 3222, CHE 3232, CHE 4134 and CHE 4233 Writing Requirement GE 3513 Technical Writing Computer Literacy

Fulfilled in CHE 2213 and CHE 4134

#### Choose one of the following sets of courses to complete the degree:

# **Chemical Engineering Practice Concentration (CHEP)**

EM	2413	Engineering Mechanics I
ECE	3183	Electrical Engineering Systems

- CHE 3331 Professional Development Seminar
- CH 4413 Thermo and Kinetics
- Chemical Engineering Elective\*\* 3 hours
- Chemistry Elective\*\* 3 hours
- Technical Electives\*\*\* 6 hours

(It is strongly recommended that CHE 4313 Transport Phenomena be used as a technical elective)

#### **Chemical Engineering Research/Development** Concentration (CERD)

CHE 4313 Transport Phenomena CHE 3331 Professional Development Seminar Introduction to Linear Algebra MA 3113 MA 3353 Differential Equations II MA/ST 4543 Introduction to Mathematical Statistics I OR 4613 Engineering Statistics I IE (MA/ST 4543 is a cross-listed course, but the student should choose MA 4543 if a minor in mathematics is desired.) CH 4413 Physical Chemistry I 3 hours of Chemistry Elective\*\* 3 hours of Technical Elective\*\*\* (It is strongly recommended that the student become involved in research work either at a Co-op job or through CHE 4000 Special Topics, which can be used for up to 3 hours of technical elective credit.) **Biomolecular Engineering Concentration (BIOM)** BIO 1134 Biology I Biology II BIO 1144 BIO 3304 General Microbiology BCH 4603 General Biochemistry I CH 4521 Organic Chemistry Laboratory II Choose one of the following four engineering topics: Transport Phenomena CHE 4313 EM 2413 Engineering Mechanics I Electrical Engineering Systems ECE 3183 Engineering Statistics I 4613 IE Choose one of the following: PH 2233 Physic III (premedical students) 3 hours Advanced biology course (pre-veterinary students) 3 hours Biotechnology course from an engineering dept. (Biomolecular engineering practice)

#### Total hours needed for major: 128

\* With consent of student's advisor, the following course substitutions are acceptable\* EM 3313 Fluid Mechanics substituted for CHE 3203 ME 3513 Thermodynamics I for CHE 3113

ME 3313 Heat Transfer for CHE 3213

\*\* CHE 4000 Directed Individual Study will generally be disallowed for the required chemical engi-neering elective but may be used as a technical elective.

\*\*\* The Chemistry and Technical Electives are to be chosen from an approved list available online and from the student's advisor.

# **Department of CIVIL** and ENVIRONMENTAL ENGINEERING (CE)

Department Head: Professor Dennis D. Truax Office: 235 Walker Engineering Building

The Civil Engineer plans, designs, and supervises construction of almost every facility essential to modern life. Roads, bridges, buildings, water supply and waste disposal systems, transit systems, airfields, dams and irrigation projects are examples of the creative efforts of Civil Engineers. The field of Civil Engineering offers limitless employment opportunities that range from high-tech computer-aided design to hands-on field engineering. Civil Engineers find rewarding careers in government, military, industry or private practice to meet the challenges of pollution control, energy, transportation, housing and other problems that face modern society.

The mission of the Civil and Environmental Engineering Department at Mississippi State University is to provide students in the civil engineering program with the knowledge and skills needed to enter professional practice, or continue their studies at the graduate level, and develop a sense of personal responsibility to the needs of society and the profession.

The program educational objectives of the Department of Civil and Environmental Engineering are to enable graduates to achieve career and professional accomplishments that include:

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- 1. Demonstrate a broad knowledge of the principles and fundamentals of civil engineering and their application, through their successfully practice as professional civil engineers, their pursuit of graduate or professional degrees, or their engagement in other professional careers that involve the application of the engineering method.
- 2. Achieve success in the multidisciplinary environment of the 21st century, and demonstrate their ability to adapt to emerging and evolving technologies, social conditions, professional standards, and career opportunities, by attaining leadership, managerial, administrative, supervisory, or other positions of responsibility within their organization.
- 3. Demonstrate an understanding and appreciation of the ethical, societal and professional responsibilities of a civil engineer, through professional registration and active membership in professional organizations.
- 4. Demonstrate an appreciation for lifelong learning and for the value of continuing professional development in maintaining their professional competence, through participation in graduate and continuing education activities.

The department offers a Bachelor of Science in Civil Engineering. The civil engineering degree program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

#### Ge

Conoral Education Paguiroments						
General Education Requirements						
Englis	n Con EN EN EN EN		n (6 hours) English Comp I OR Accelerated Comp I English Comp II OR Accelerated Comp II			
Mathe	matics	s (9 hou				
		Major C				
Scienc		5				
Serene		Major C	ore			
Humai		(6 hours				
ITumu		·	Education courses			
Fine A			Education courses			
1 me A		,	Education courses			
Seciel						
Social			ciences (6 hours) Education courses			
			Education courses			
Major						
Math a		isic Scie				
	MA		Calculus I			
	MA	1723	Calculus II			
	MA	2733 2743	Calculus III Calculus IV			
	MA		Differential Equations I			
	CH	1213	Chemistry I			
	CH 1213 CH 1211		Investigations in Chemistry I			
	CH 1223		Chemistry II			
CH 1221			Investigations in Chemistry II			
	PH	2213	Physics I			
	PH	2223	Physics II			
Engine		Topics				
	EG	1143	Graphic Communication			
	IE	3913	Engineering Economy I			
	ST ME	3123	Intro to Statistical Inference			
	EM	3513 2413	Thermodynamics I Engineering Mechanics I			
	EM	2433	Engineering Mechanics II			
	EM	3213	Mechanics of Materials			
	EM	3313	Fluid Mechanics			
	CE	1001	Intro to Civil Engineering			
	CE	2213	Surveying			
	CE	2803	Envir. Engineering Issues			
	CE CE	3113 3313	Transportation Engineering Construction Materials			
	CE	3413	Soil Mechanics			
	CE	3601	Stress Analysis Lab			
	CE	3603	Structural Mechanics			
	CE	3801	Envir. & Water Res. Eng. I Lab			
CE 3803 Envir. & Water Res. Eng I						
	CE	3811	Envir. & Water Res. Eng II Lab			
	CE	3813	Envir. & Water Res. Eng II			

CE	4601	Fundamentals of Structural Desig	gn

CE 4903 Civil Engineering Comprehensive Choose one course from four of the following five lists:

List A:

Engineering Hydrology CE 4513

- CE 4873 Water and Wastewater Engineering
- CE 4523 **Open Channel Hydraulics**

List B:

- CE 4623 Steel Structures CE 4633 Concrete Structures
- List C:
- CE 4133 Geometric Design of Highways
- CE 4143 Traffic Engineering
- List D: CE 4103 Pavement Design
- List E:
  - CE 4433 Foundations
- Additional Civil Engineering Electives (6 hours)

Any CE course, except CE 4233 or CE 4243, not applied to another curriculum requirement.

Technical Elective (3 hours)

GR 4303 Principles of GIS

- Oral Communication Requirement
- Fulfilled in GE 3513 and various CE courses

Writing Requirement

GE 3513 Technical Writing

- Computer Literacy
  - Fulfilled in various Engineering Topics courses

#### Total hours needed for major: 130

# Department of COMPUTER SCIENCE and ENGINEERING (CSE)

#### Interim Department Head: Professor Donna Reese Office: 300 Butler Hall

The Department of Computer Science and Engineering is dedicated to maintaining quality programs in undergraduate teaching, graduate teaching, and research, and to the fruitful interaction between teaching and research. In research, we wish to maintain our present emphasis on applications (often pursued with colleagues from other disciplines), and upon the synergistic relationships between theory and applications in which the most meaningful advances often result. The department has identified five core competency areas in which we shall seek national prominence: artificial intelligence, computational science, human centered computing, graphics systems, and software engineering. These core competencies support research applications in areas such as bioinformatics, high performance computing, computer security, computer forensics, computer science education, human-robotic interaction, and visualization. The Department of Computer Science and Engineering offers degree programs leading to the Bachelor of Science degree in Computer Science, Software Engineering, and (jointly with the Department of Electrical and Computer Engineering) Computer Engineering. The department also offers study leading to the Master of Science and the Doctor of Philosophy degrees in Computer Science.

## **Computer Science Major (CS)**

Major Advisor: Dr. Sarah Lee 300 Butler Hall

Computer Science is the study of the principles, applications, and technologies of computing and computers. It involves the study of data and data structures and the algorithms to process these structures; principles of computer architecture-both hardware and software; problem solving and design methodologies; and language design, structure and translation techniques. Computer Science provides a foundation of knowledge for students with career objectives in a wide range of computing and computer-related professions.

The objectives for the department with respect to the Bachelor of Science Degree in Computer Science are as follows:

- 1. The graduate will demonstrate an understanding of computer science principles and an ability to solve unstructured computer science problems through the successful entrance into and advancement in the computer science profession.
- 2. The graduate will demonstrate an appreciation for lifelong learning and for the value of continuing professional development through participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies.
- The graduate will demonstrate an understanding of professional and ethical responsibilities to the profession, society and the environment incumbent on a computer science professional.
- 4. The graduate will successfully interact with others of different backgrounds, educations, and cultures.
- The graduate will demonstrate effective communication skills in their profession.

Computer Science graduates begin careers as computer programmers, system analysts, programmer/analysts, software engineers, systems programmers, computer system engineers and in a number of other computer-related jobs. A minor in computer science is available to students with major programs of study in other fields at the University.

The Bachelor of Science degree requires the completion of a total of 128 credit hours of general studies, computer science, mathematics and science, supporting technical courses. To graduate, a student must have a "C" average in all MSU computer science and engineering courses attempted.

The computer science program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.

# **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR
  - EN 1163 Accelerated Comp I
  - EN 1113 English Comp II OR
  - EN 1173 Accelerated Comp II
- Mathematics (9 hours)
- See Major Core
- Science (6 hours)
- See Major Core
- Humanities (6 hours)
- See General Education courses
- Fine Arts (3 hours)
- See General Education courses
- Social/Behavioral Sciences (6 hours) See General Education courses

#### Major Core

- Math and Basic Science
  - MA 1713 Calculus I
    - MA 1723 Calculus II
    - MA 2733 Calculus III
    - MA 3113 Linear Algebra
    - CH 1213 Chemistry I
    - CH 1211 Investigations in Chemistry I
    - PH 2213 Physics I
    - PH 2223 Physics II
    - BIO 1134 Biology I

# Engineering and Computer Science Topics

- CSE 1002 Intro to Computer Science
- CSE 1284 Intro to Computer Programming
- CSE 1384 Intermediate Computer Programming
- CSE 2383 Data Structures and Analysis of Algorithms
- CSE 2813 Discrete Structures
- CSE 3324 Distributed Client/Server Programming
- CSE 3813 Formal Languages
- CSE 3981 Social & Ethical Issues in Computing
- CSE 4733 Operating Systems
- CSE 4833 Intro to Analysis of Algorithms
- CSE 4713 Programming Languages
- ECE 3714 Digital Devices
- ECE 3724 Microprocessors
- ECE 4713 Computer Architecture
- IE 4613 Engineering Stats I

Computer Science Electives : choose two of the following

- CSE 4153 Data Communication and Networks
  - CSE 4163 Designing Parallel Algorithms CSE 4214 Intro to Software Engineering
  - CSE 4413 Principles of Computer Graphics
  - CSE 4503 Database Management Systems
  - CSE 4633 Artificial Intelligence
  - 6 hours Computer Science electives (upper level)
  - 3 hours Technical Electives see advisor
  - 6 hours International/Intercultural Studies see advisor 7 hours Free elective

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

GE 3513 Technical Writing

#### Computer Literacy

Fulfilled in Engineering & Computer Sci Topics courses

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Total hours needed for major: 128
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**Computer Science Minor**. Computer science has application in a broad range of disciplines, and students with majors in other fields of study may wish to complement their studies with a minor in computer science. Completion of the minor requirements should prepare the student to pursue a career as a computer applications specialist within his/her field of study or as an entry-level computer programmer in the general computing environment. The minor in computer science is not available to students majoring in computer engineering or software engineering since significant parts of these majors consist of computer science courses.

A minor in computer science consists of CSE 1284, CSE 1384, CSE 2383, CSE 2813 and nine hours of approved upper-division courses. A list of approved courses is available from the Department of Computer Science and Engineering.

### Software Engineering Major (SE)

Major Advisor: Sarah Lee 300 Butler Hall

Software Engineering is the application of engineering practices to the design and maintenance of software. The Software Engineering degree program prepares students for careers in the engineering of large complex software systems and products. These systems often involve millions of lines of code and frequently operate in safety-critical environments. The Software Engineering major contains courses related to the study of software engineering in practice necessary to manage these development processes. The faculty for the Software Engineering program is drawn from the Department of Computer Science and Engineering and the Department of Industrial Engineering.

The objectives for the department with respect to the Bachelor of Science Degree in Software Engineering are as follows:

- 1. The graduate will demonstrate an understanding of engineering principles and an ability to solve unstructured engineering problems through the successful entrance into and advancement in the engineering profession.
- 2. The graduate will demonstrate an appreciation for lifelong learning and for the value of continuing professional development through participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional so-cieties.
- 3. The graduate will demonstrate an understanding of professional and ethical responsibilities to the profession, society and the environment incumbent on an engineering professional.
- 4. The graduate will successfully interact with others of different backgrounds, educations, and cultures.
- 5. The graduate will demonstrate effective communication skills in their profession.

The Bachelor of Science degree in Software Engineering requires the completion of a total of 128 credit hours of general studies, computer science, industrial engineering, mathematics and science, supporting technical courses, and free electives. To graduate, a student must have a "C" average in all MSU computer science and engineering courses 136

attempted.

The software engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

#### **General Education Requirements**

English Composition (6 hours)

- 1103 English Comp I OR EN
- EN 1163 Accelerated Comp I
- 1113 English Comp II OR EN
- EN 1173 Accelerated Comp II
- Mathematics (9 hours)
  - See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

Social/Behavioral Sciences (6 hours)

See General Education courses

# **Major Core**

#### Math and Basic Science MA 1713 Calculus I MA 1723 Calculus II MA 2733 Calculus III MA 2743 Calculus IV OR MA 3053 Foundations of Mathematics OR MA 3253 Differential Equations OR MA 3113 Linear Algebra CH 1213 Chemistry I CH 1211 Investigations in Chemistry I PH 2213 Physics I PH 2223 Physics II BIO 1134 Biology I Engineering Topics CSE 1002 Intro to Computer Science CSE 1284 Intro to Computer Programming CSE 1384 Intermediate Computer Programming CSE 2383 Data Structures and Analysis of Algorithms CSE 2813 **Discrete Structures** CSE 3324 Distributed Client/Server Program Intro to Software Engineering CSE 4214 CSE 3981 Social & Ethical Issues in Computing CSE 4733 Operating Systems Database Management Systems CSE 4503 CSE 4833 Introduction to Analysis of Algorithms CSE 4233 Software Architecture & Design Paradigms CSE 4153 Data Communications & Computer Networks CSE 3213 Software Engineering Capstone I CSE 4283 Software Testing & Quality Assurance CSE 3223 Software Engineering Capstone II ECE 3714 **Digital Devices** ECE 3724 Microprocessors 4533 IE Project Management IE 4613 Engineering Statistics I 3 hours CSE Security Elective Technical elective - see advisor 6 hours 3 hours Free electives - see advisor Oral Communication Requirement CO 1003 Fundamentals of Public Speaking

Writing Requirement

GE 3513 Technical Writing

Computer Literacy

Fulfilled in Engineering Topics courses

Total hours needed for major: 128

Software Engineering Minor. Software Engineering practices and skills are valuable in a wide range of disciplines, and students with majors in other fields of study may wish to complement their studies with a minor in software engineering. Completion of the minor requirements

should prepare the student to pursue careers that involve the application and development of software systems in their field of study.

A minor in software engineering consists of CSE 1284, CSE 1384, CSE 2383, CSE 4214 and nine hours of approved upper-division software engineering courses. A list of approved courses is available from the Department of Computer Science and Engineering.

# Department of ELECTRICAL and COMPUTER ENGINEERING (ECE)

Department Head: Professor Nicolas Younan Office: 216 Simrall Engineering Building

Alumni, employers, faculty and students participate in a process used to develop educational objectives for the undergraduate programs in Electrical Engineering and Computer Engineering.

Students completing the baccalaureate degree in Electrical or Computer Engineering will

- Demonstrate a strong foundation in fundamentals through an 1. applied competence in mathematics, science, computing, and engineering.
- Demonstrate the ability to apply innovative techniques to ad-2. dress unstructured problems specific to technical specialties in Electrical or Computer Engineering by identifying and implementing solutions using the proper tools, practical approaches, and flexible thinking.
- Interact with others, both individually and within multidisci-3. plinary teams using effective oral and written communication skills and possessing the ability to deal with both technical and non-technical subjects when working with peers, supervisors, and the public.
- Develop an appreciation for the ethical duties incumbent on 4. an Electrical or Computer Engineering professional including a commitment to lifelong learning and a concern for society and the environment.

#### **COMPUTER ENGINEERING Major (CPE)**

Major Advisor: Mr. Mike Nosser

Office: 216 Simrall Engineering Building

With the origin of the modern computer dating back to the late 1940's and the growth of computer hardware fueled by the availability of digital integrated circuits starting in the late 1960's, computer engineers have enjoyed a pivotal role in technology that now permeates our entire society. Whether the end product is an integrated circuit, a system of networked embedded computers, or any system that relies on digital hardware or computer software, its development requires the skills of a computer engineer. While computing systems include both hardware and software, it is the optimal combination of these components that is the unique realm of the computer engineer. Today, computer engineers are a driving force in the technological and economic development of the digital age.

The curriculum requirements for computer engineering are built around a substantial engineering core curriculum and required courses in electrical engineering and computer science. The requirements in mathematics, the basic sciences, and engineering sciences provide the breadth of exposure required for all engineering disciplines. Basic electrical engineering requirements include circuit theory, electronics and digital devices which are supplemented by upper-level courses in computer architecture, embedded systems and computer aided design of digital systems. Basic computer science courses include a coordinated sequence providing fundamental knowledge in data structures, algorithms, object oriented programming, software engineering, real-time application and software development tools. These courses are developed across multiple platforms and are based on the Python and Java language. Upper-level courses in data communications and computer networks, algorithms and operating systems are also provided. Students wishing to gain depth of coverage in communications, parallel computing, VLSI or signal processing can achieve this with the availability of technical electives selected from an approved list or in consultation with a faculty advisor. Required courses in communications skills, social sciences and humanities provide studies in non-technical areas that are traditional in a broad-based education. A capstone senior design course requires students to apply newfound knowledge and explore entrepreneurship. Students research and identify a problem and work in teams applying a combination of hardware and software to develop a solution. Critical and Final Design Reviews enable students to develop their professional presentation skills.

The computer engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

This program is offered through joint efforts of faculty in the Department of Electrical and Computer Engineering and the Department of Computer Science and Engineering.

#### **General Education Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN Accelerated Comp II 1173
- Mathematics (9 hours)
- See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

- Social/Behavioral Sciences (6 hours)

Social/Behavioral Sciences (6 hours) See General Education courses				
Major Core				
Math and Bas	sic Scie	ence		
MA MA MA MA MA IE	1713 1723 2733 2743 3113 3253 4613	Calculus I Calculus II Calculus III Calculus IV Introduction to Linear Algebra Differential Equations I Engineering Statistics I		
CH CH PH PH	1213 1211 2213 2223	Chemistry I Investigations in Chemistry I Physics I Physics II		
<ul> <li>FR 2225 Physics II</li> <li>Engineering Topics</li> <li>CSE 1284 Intro to Computer Programming</li> <li>CSE 1384 Intermediate Computer Programming</li> <li>CSE 2383 Data Structures and Analysis Algorithms</li> <li>CSE 2813 Discrete Structures</li> <li>CSE 3324 Distributed Client/Server Programming</li> <li>CSE 4733 Operating Systems I</li> <li>CSE 4833 Introduction to Analysis of Algorithms</li> <li>ECE 1002 Introduction to Electronic Circuits</li> <li>ECE 3424 Intermediate Electronic Circuits</li> <li>ECE 3424 Intermediate Electronic Circuits</li> <li>ECE 3434 Advanced Electronic Circuits</li> <li>ECE 3443 Signals and Systems</li> <li>ECE 3714 Digital Devices and Logic Design</li> <li>ECE 4723 Embedded Systems OR</li> <li>ECE 4542 CPE Design I</li> <li>ECE 4542 CPE Design II</li> <li>ECE 4713 Computer Architecture</li> <li>ECE 4743 Digital System Design</li> <li>ECE 4833 Data Communications &amp; Computer Networks</li> <li>6 hours</li> </ul>				
	Oral Communication Requirement			
CO CO	1003 1013	Fundamentals of Public Speaking OR Introduction to Communication		
Writing Requirement				
GE				
Computer Literacy Fulfilled in Engineering Topics courses				
Total hours needed for major: 128				
* See advisor for approved courses.				

#### ELECTRICAL ENGINEERING Major (EE)

Major Advisor: Mr. Mike Nosser Office: 216 Simrall Engineering Building

The electrical engineer is a principal contributor to the modern technological age in which we live today. Following in the footsteps of inventors such as Thomas Edison and Alexander Graham Bell, the electrical engineer is developing technology that improves the quality of life. Developments in microelectronics, telecommunications, and power systems have had a profound effect on each of us. Electrical engineers have affected all segments of our society such as transportation, medicine, and the entertainment industry, to name only a few. Indeed, the electrical engineer has principally been responsible for the advent of the computer age in which we live today as well as the computer's miniaturization and rapid expansion in computational power.

The curriculum in electrical engineering has a foundation based on the principles of the electrical and physical sciences and uses mathematics as a common language to facilitate the solution of engineering problems. The core curriculum consists of a sequence of courses in digital devices, circuits and electronics, electromagnetic field theory, and modern energy conversion. In the senior year, students have the opportunity to take additional course work in one or more technical areas that include: telecommunications, electromagnetics, power systems, high voltage, feedback control systems, microelectronics, signal processing, and computer systems. Supporting course work outside electrical engineering consists of a strong background in mathematics, physical sciences, computer programming, social sciences, fine arts, humanities, and personal communication skills. Computers are used extensively throughout the curriculum, and students are expected to become proficient in higher-order programming languages and several application software tools. Although the concept of design is stressed throughout the program so as to emphasize the problem-solving skills of the engineer, the senior year includes a capstone design experience where much of the previous study is culminated. Through this twosemester design course sequence, students are required to integrate design and analytical problem-solving skills together with communication skills in a team environment.

The electrical engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

#### **General Education Requirements**

English Composition (6 hours)					
EN 1103 English Comp LOP					
EN 1163 Accelerated Comp I					
EN 1113 English Comp II OR					
EN 1163 Accelerated Comp I EN 1113 English Comp II OR EN 1173 Accelerated Comp II					
Mathematics (9 hours)					
See Major Core					
Science (6 hours)					
See Major Core					
Humanities (6 hours)					
See General Education courses					
Fine Arts (3 hours)					
See General Education courses					
Social/Behavioral Sciences (6 hours)					
See General Education courses					
Major Core					
Math and Basic Science					
MA 1713 Calculus I					
MA 1723 Calculus II					
MA 2733 Calculus III					
MA 2743 Calculus IV					
MA 3113 Introduction to Linear Algebra					
MA 3253 Differential Equations I					
IE 4613 Engineering Statistics I					
CH 1213 Chemistry I					
CH 1211 Investigations in Chemistry I					
PH 2213 Physics I PH 2223 Physics II					
Engineering Topics					
CSE 1284 Intro to Computer Programming					
CSE 1384 Intermediate Computer Programming					
ECE 1002 Introduction to Electrical and Computer Eng. ECE 3213 Introduction to Solid State Electronics					
ECE 5215 Infroduction to Solid State Electronics					

- ECE 3413 Introduction to Electronic Circuits ECE 3424 Intermediate Electronic Circuits ECE 3434 Advanced Electronic Circuits ECE 3443 Signals and Systems ECE 3313 Electromagnetics I ECE 3323 Electromagnetics II ECE 3614 Fundamentals of Energy Systems ECE 4512 EE Design I ECE 4522 EE Design II ECE 3714 Digital Devices and Logic Design ECE 3724 Microprocessors EM 2413 ME 3533 Engineering Mechanics I OR Thermodynamics 9 hours EE technical electives\* 3 hours Engineering Science elective\* Free elective 3 hours 3 hours Professional Enrichment elective\*
- Oral Communication Requirement
  - CO 1003 Fundamentals of Public Speaking OR
  - CO 1013 Introduction to Communication

Writing Requirement

GE 3513 Technical Writing

Computer Literacy

Fulfilled in Engineering Topics courses

Total hours needed for major: 128

See advisor for approved courses

# Department of INDUSTRIAL and SYSTEMS **ENGINEERING (IE)**

Interim Head and Undergraduate Coordinator: Professor John Usher Office: 260 McCain Engineering Building

Industrial and systems engineering is the application of engineering methods and the principles of scientific management to the design, improvement, and installation of integrated systems of people, materials, information, equipment, and energy. The industrial and systems engineer is concerned with the design of total systems, and is the leader in the drive for increased productivity and quality improvement.

The industrial and systems engineering profession uses a variety of specialized knowledge and skills. These include communications, economics, mathematics, physical and social sciences, together with the methods of engineering analysis and design.

The industrial and systems engineer is often involved in designing or improving major systems that encompass the total organization. Consequently, he/she is often in contact with individuals from many segments of the organization. From his/her education and these experiences, the industrial and systems engineer develops a global view of the many inter-related operations necessary to deliver a firm's goods and services. Because of their management skills and global view of the organization, a large proportion of industrial and systems engineers move into management positions, and later advance into top management positions.

Although industrial and systems engineering is especially important to all segments of industry, it is also applied in other types of organizations, such as transportation, health care, public utilities, agriculture, defense, government, and merchandising. Industrial and systems engineering is finding increasing application in service industries.

With increasing emphasis on quality and productivity for successful international competition, it is expected that industrial and systems engineers will be in increasing demand in the coming decades.

The objectives of the Department of Industrial and Systems Engineering are founded in Mississippi State University's Educational Philosophy and in the industrial engineering profession. They were developed to satisfy the needs of the department's constituents: students, employers, alumni, faculty, and the industrial engineering profession.

The Industrial Engineering program objective is to graduate students having a broad education, with emphasis in industrial and systems engineering fundamentals and practices, which enables them to function effectively in systems involving people, materials, information, energy, and money.

The six educational objectives of the Bachelor of Science degree in industrial engineering are stated below.

- 1. The Department of Industrial and Systems Engineering strives to ready its graduates for a lifelong pursuit of learning.
- 2. The Department of Industrial and Systems Engineering expects its graduates to be well versed in industrial engineering theory, know how to apply that theory, and to be capable of functioning effectively in a broad range of organizations.
- 3. The Department of Industrial and Systems Engineering expects its graduates to master important professional skills, including communication, economics, physical and social science, mathematics and statistics.
- 4. The Department of Industrial and Systems Engineering expects its graduates to interact cooperatively in professional situations with individuals having different cultures, training, education, and interest.
- 5. The Department of Industrial and Systems Engineering expects its graduates to think independently, to critically examine ideas, and to make discerning professional judgments, whether intellectual, ethical, or aesthetic.
- 6. The Department of Industrial and Systems Engineering expects to graduate professionally mature, responsible, and informed citizens.

Because of the importance of systems design in the many facets of industrial and systems engineering, instruction of the principles and methods of design is integrated throughout the curriculum of industrial engineering, and culminates in a major design experience in the student's senior year.

The Industrial Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

#### **General Education Requirements**

English Composition (6 hours)

- EN 1103 English Comp I OR
- ΕN Accelerated Comp I 1163
- English Comp II OR EN 1113
- EN 1173 Accelerated Comp II

Mathematics (9 hours)

See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

Social/Behavioral Sciences (6 hours)

PSY 1013 General Psychology

EC 2123 Principles of Microeconomics

#### **Major Core**

Math and Basic Science			
MA 1713	Calculus I		
MA 1723	Calculus II		
MA 2733	Calculus III		
MA 2743	Calculus IV		
MA 3113	Intro to Linear Algebra		
CH 1213	Chemistry I		
CH 1211	Investigations in Chemistry I		
CH 1223	Chemistry II		
PH 2213	Physics I		
PH 2223	Physics II		
Math/Science Elective: Choose one of the following:			
PH 2233	Physics III OR		
MA 3253	Differential Equations I		
Engineering Topics			

- CHE 3413 **Engineering Materials** 
  - ECE 3183 Electrical Engineering Systems

ΕM 2413 Engineering Mechanics I

- 1911 IE Introduction to IE\*
- IE 3121 Industrial Ergonomics Lab\*
- IE 3123 Industrial Ergonomics\*
- IE 3323 Manufacturing Processes\*
- IE 3913 Engineering Economy I\*
- Information Systems for IE\* IE 4934

- IE 4333 Production Control I\*
- IE 4513 Engineering Administration\*
- IE4543Logistics Engineering\*IE4613Engineering Statistics I\*
- IE 4623 Engineering Statistics II\*
- IE 4653 Industrial Quality Control I\*
- IE 4733 Linear Programming\*
- IE 4753 Systems Engineering & Analysis\*
- IE 4773 Systems Simulation I\*
- IE 4915 Design of Industrial Systems\*
- ACC 2203 Survey of Accounting
- EG 1142 Engineering Graphics
- 3 hoursIE Design Elective\*\*6 hoursEngineering Science Elective\*\*\*
- o nours Engineering Selen
- Oral Communication Requirement
- CO 1003 Fundamentals of Public Speaking Writing Requirement

GE 3513 Technical Writing

Computer Literacy

Fulfilled in Engineering Topics courses

# Total hours needed for major: 128

- A grade of C or better must be made in the course.
- \*\* Any three-hour industrial engineering course not required in curriculum.
- \*\*\* Courses that can be used for the Engineering Science Elective are EM 2433, EM 3213, EM 3313, ECE 3283 and ME 3533.

# Department of MECHANICAL ENGINEERING (ME)

#### Department Head: Professor S. R. Daniewicz Major Advisor: Ms. Chris Emplaincourt Office: 210 Carpenter Engineering Building

Mechanical Engineering is the application of science and mathematics to the design, development, and operation of mechanical and energy systems. Examples of these systems include mechanical devices ranging from simple linkages and gears to complex automated robots and energy systems ranging from basic water pumps to high-performance jet engines. Since the range of applications is so broad, virtually all industries employ Mechanical Engineers in various capacities. Some of the major areas of employment are the manufacturing, chemical, paper, aerospace, utility, construction, transportation, petroleum, electronics, and computer industries.

The mission of the Department of Mechanical Engineering is to educate students in fundamental engineering principles, thus enabling the understanding of existing and next generation technologies relevant to research and engineering practice. All graduates will receive a broad education that will enable them to be successful in industry or academia, the profession and the community.

To carry out this mission, the Mechanical Engineering faculty, with input from other constituencies, has established the following objectives that describe the expected accomplishments of graduates during the first few years following graduation:

- Apply fundamental engineering knowledge, industry perspective and research sills to become experts or leaders within a chosen engineering career path.
- Exhibit life-long learning and develop personal and teamwork skills in order to effectively solve eral-life problems and clearly communicate their results.
- Practice ethical responsibility and accountability in professional activities and actively participate in professional development.

The Mechanical Engineering curriculum is designed to meet these objectives. The basic courses in mechanics, materials, thermodynamics, electronics, and dynamics prepare the student for the comprehensive design courses in the senior year culminating in major design experiences in energy systems and in mechanical systems. Throughout the curriculum there is significant use of the computer to solve realistic engineering problems. All entering ME juniors will be required to have a portable computer that they will use interactively in the classroom. The

ME laboratory sequence stresses the planning, design, and operation of experiments. The curriculum also places a strong emphasis on technical communications. Senior technical electives allow the student to study particular areas of interest.

The Mechanical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

# **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR EN 1163 Accelerated Comp I
  - EN 1105 Accelerated Comp I EN 1113 English Comp II\* OR
    - EN 1173 Accelerated Comp II\*
- Mathematics (9 hours)

See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

Social/Behavioral Sciences (6 hours)

See General Education courses

#### **Major Core**

Math and Basic Science

MA	1713	Calculus I*
MA	1723	Calculus II*
MA	2733	Calculus III*
MA	2743	Calculus IV*
MA	3113	Intro to Linear Algebra*
MA	3253	Differential Equations I*
CH	1213	Chemistry I
CH	1211	Investigations in Chemistry I
CH	1223	Chemistry II*
PH	2213	Physics I*
PH	2223	Physics II
PH	2233	Physics III

**Engineering Topics** 

Ū	IE	3913	Engineering Economy	
		2413		
		2433		
			Mechanics of Fluids*	
		3213		
		3183		
		1111	Introduction to Mechanical Engineering	
		2133	Modeling and Manufacturing	
		3103		
		3113	Engineering Analysis*	
		3313		
			Materials for Mechanical Engineering Design	
		3423	Mechanics of Machinery	
			Thermodynamics I*	
			Thermodynamics II	
		3613	System Dynamics	
		4111		
		4301		
	ME	4333	Energy Systems Design	
	ME	4401	Solid Mechanics Laboratory	
	ME	4403		
	ME	4443		
	ME	4643	Introduction to Vibration and Controls	
	6 hours		Technical Elective**	
Oral C	Oral Communication Requirement			
Oral C	6 hours Technical Elective** Oral Communication Requirement Satisfied by successful completion of ME 2133, ME 4443, and GE 3513.			

Ultim Deminent

- Writing Requirement
  - GE 3513 Technical Writing
- Computer Literacy
  - CSE 1233 or equivalent programming course

### Total hours needed for major: 128

\* A grade of C or better must be made in these courses.

\*\* Mechanical Engineering technical electives are listed on the Web at www.me.msstate.edu/academics/techelesch.html. Substitutions may be approved by writing the ME Dept.

# College of Forest Resources

# GEORGE M. HOPPER, Dean

107 Thompson Hall Telephone: (662) 325-2953

Richard M. Kaminski, Associate Dean

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Mailing Address: Box 9680 Mississippi State, MS 39762-9680

## INTRODUCTION

The College of Forest Resources (CFR) was founded in 1954 as the School of Forest Resources to provide teaching, research, and service opportunities about forests and associated renewable natural resources for the state, region, and nation. Since then, the CFR has earned a national and an international reputation as a center for science and education programs in natural resources management and conservation. The vision of the CFR is to be recognized as preeminent in research, teaching, service, and outreach in forest products, forestry, wildlife, fisheries and aquaculture in the United States.

The CFR has unique responsibilities to fulfill the goals of Mississippi State University through programs focused on Mississippi's most important renewable natural resources: forests and their products, fisheries and aquaculture, wildlife, and water. In doing so, the CFR's mission is to promote the professional and intellectual development of its students; expand through research the fundamental knowledge upon which the natural resource disciplines are based; and assist with development and utilization of the natural resources of the state and nation through education, research, service, and technology transfer.

#### **GENERAL INFORMATION**

**Organization**. The CFR is composed of the Departments of Forestry; Wildlife, Fisheries and Aquaculture; and Forest Products. The CFR is a part of the Division of Agriculture, Forestry, and Veterinary Medicine.

Graduates receive a Bachelor of Science degree in Forestry or Wildlife, Fisheries and Aquaculture Science. Within the Forestry major, there are curricular concentrations in Forest Management, Environmental Conservation, Urban Forestry, Wildlife Management, and Forest Products. Each of the curricular concentrations in the forestry major meet the requirements for the professional degree in Forestry. Within the Wildlife, Fisheries and Aquaculture Science major, there are curricular concentrations in Conservation Law Enforcement, Human-Wildlife Conflicts; Wildlife Agriculture Conservation; Wildlife, Fisheries & Aquaculture Science, Wildlife Veterinary Science, and Wildlife Pre-Veterinary Medicine (3+1). Each of the curricular concentrations meets requirements for the professional degree in Wildlife by The Wildlife Society or in Fisheries by the American Fisheries Society.

**Graduate Programs in Forest Resources**. Graduate programs leading to an M.S. and Ph.D. degree are offered in the CFR's Departments of Forestry, Forest Products, and Wildlife, Fisheries and Aquaculture. For detailed information about graduate study, see the Graduate Bulletin. Copies of the Graduate Bulletin may be secured by writing to Office of the Graduate School, P.O. Box G, Mississippi State, Mississippi 39762-5726, or by going online to the Graduate School, Mississippi State University.

**Research**. Research is conducted within the Forest and Wildlife Research Center by the Department of Forestry; the Department of Wildlife, Fisheries and Aquaculture; and the Department of Forest Products. Faculty members generally are employed jointly as educators and scientists. There is opportunity for students to gain valuable professional experience by working part-time as research assistants. The experimental work often provides valuable demonstrations for the teaching program. Forestry-related research also is conducted in other departments of the University, and there are cooperative research arrangements with federal agencies, notably the Southern Forest Experiment Station of the USDA Forest Service, which operates research programs in Mississippi. Wildlife and Fisheries research also is conducted by a USGS Cooperative Fish and Wildlife Research Unit which is located in Thompson Hall. All these activities enrich the teaching program.

Facilities. The classrooms and many of the laboratories and offices of the CFR are located in Thompson Hall, a modern building with excellent facilities for teaching and research in forestry, forest products, and wildlife, fisheries and aquaculture. The facilities used for research- instruments, apparatuses, literature, experimental forests and lands, greenhouses, captive animal facilities and fish ponds-also are valuable for the teaching program. Additional classroom and laboratory facilities are available within the Forest Products building complex, including the state-of-the-art Franklin Center for Furniture and Manufacturing. The John W. Starr Memorial Forest of 8,200 acres is conveniently close to the campus and is managed and regularly used for demonstration and research. Adjoining the Starr Memorial Forest are the Noxubee National Wildlife Refuge and the Tombigbee National Forest, which also are used for student instruction and research. The Sharp Forest, 1,600 acres in Tishomingo County, was given to the University by Jack, Mollie, and Kate Sharp to be used for forest resources education and research with part of the income designated for scholarships.

# ACADEMIC UNIT ADMINISTRATORS

Andrew Ezell Forestry Department Head 105 Thompson Hall

Stephen C. Grado Forestry Department Undergraduate Program Coordinator 357 Thompson Hall

Rubin Shmulsky Forest Products Department Head Forest Products Undergraduate Program Coordinator 203 Franklin Center

Bruce D. Leopold Wildlife, Fisheries, and Aquaculture Department Head 109 Thompson Hall

Sam Riffell Wildlife, Fisheries, and Aquaculture Undergraduate Program Coordinator 229 Thompson Hall

Rachel Singleton Academic Coordinator CFR Academic Affairs 129 Thompson Hall

Sally Beth McCullough CFR Recruitment 135 Thompson Hall

# **Undergraduate Student Services**

CFR Academic Affairs 129 Thompson Hall 662.325.9376

CFR Recruiting 135 Thompson Hall 662.325.0855 **Prospective Students**. The CFR encourages prospective students to visit the college and MSU to learn more about our programs. A visit to campus can include, but is not limited to, appointments with current students and faculty, tours of campus and facilities, attending lecture classes, talking to other academic units, and visiting with financial aid and MSU housing. Prospective students should contact the CFR Recruiting office two weeks ahead of a planned visit to ensure productive visits. New students are encouraged to complete the on-line resume for scholarship opportunities when application for admission to MSU is made.

**Entrance Requirements.** Transfer students with less than 2.0 quality point average may not be admitted automatically to the College of Forest Resources' degree programs. Permission to enroll will be granted on an individual basis, depending on specific circumstances and the requirements of the major for which the student seeks to enroll.

**Students' Academic Responsibility.** The ultimate responsibility for meeting graduation requirements and decisions on course selection resides with the student. Specifically, responsibilities of the student are to:

• be aware of and understand degree requirements of his or her chosen major and option;

• be aware of and understand the MSU, CFR, and departmental policies, procedures, and academic calendar and meet all relevant deadlines;

• meet all requirements of the degree program for the curriculum year being pursued; and

• maintain regular contact with his or her faculty advisor.

The responsibility of the faculty advisor is to provide effective counsel to the student on academic matters regarding curriculum and career decisions.

The CFR Undergraduate Handbook is available at www.cfr.msstate. edu and contains curricula, policies, and other important information for a student to use to progress toward graduation. This handbook may include changes or requirements not found in the MSU Bulletin. Each student should retain a copy of the MSU Bulletin and the CFR Undergraduate Handbook that contains the curriculum year he or she is following.

The CFR Academic Affairs Office provides academic services to students and faculty. Official academic records of CFR students are maintained in the Office. The Academic Coordinator represents the Dean and Associate Dean on all academic paperwork such as graduation clearance, coursework evaluation, change of majors, off-campus requests, withdrawals, drop/adds, and registration overrides and overloads.

# Department of FORESTRY (FO)

Major Advisor: Dr. Stephen C. Grado Office: 357 Thompson Hall

The Objective. The objective of the Forestry Major is to prepare its graduates for professional, science-based careers in the management and use of forested ecosystems. By combining courses offering a broad general education with specialized professional courses, the curriculum of the Forestry Major is designed to produce professionally competent graduates who have appropriate development in interpersonal relations, written and oral communications, cultural understanding, environmental awareness, and professional ethics.

Accreditation. Educational programs in the Forest Management, Wildlife Management, Urban Forestry, Environmental Conservation, and Forest Products concentrations lead to the first professional degree in Forestry at Mississippi State University and are accredited by the Society of American Foresters (SAF), the specialized accrediting body recognized by the Commission of Recognition of Post-secondary Accreditation and the U.S. Department of Education as the accrediting agency for forestry education in the United States. The Forest Products concentration is also accredited by the Society of Wood Science and Technology (SWST).

The Major. The core curriculum of the Forestry Major is comprised of specifically selected and intentionally designed courses which must be completed satisfactorily by each student who intends to graduate in this major. In addition to completing the core curriculum of the Forestry Major, each student must complete one of five academic concentrations for specialized study offered by the Forestry Major. The five academic concentrations are Forest Management, Wildlife Management, Urban Forestry, Environmental Conservation, and Forest Products. Each concentration is an integral part of the Forestry Major and accredited by the SAF. The Forest Products concentration is also accredited by SWST. Graduates of the major are qualified to become a Registered Forester in Mississippi after completing an examination for this purpose from the Board of Registration for Foresters in Mississippi. The Forestry Major is designed for completion in four academic years which includes a nine-week Summer Field Program between the sophomore and junior years. Completion of the Summer Field Program is prerequisite to enrollment in junior/senior level professional courses in the Forestry Major and students should plan their schedules accordingly. Correspondence courses are not accepted toward the forestry degree.

**Transfer Students**. Transfer students are encouraged to enter the Forestry Major at MSU in the Spring semester of their sophomore year to complete their academic programs in the normal four-year period of study. Transfer students should be aware that course work taken elsewhere may not be accepted toward a degree in forestry. Only course work that is determined by the Forestry Department to be equivalent to required course work will be accepted. In addition, no course work will be considered for acceptance unless a grade of C or better has been earned.

**Degree Requirements**: In addition to General Education and College requirements students must attain a minimum grade of C on the Forestry Major core courses taught within the College of Forest Resources.

# **General Education Requirements**

English Composition (6 hours)			
E	ΕN	1103	English Comp I OR
F	IN	1163	Accelerated Comp I

LIN	1105	Accelerated Comp I
EN	1113	English Comp II OR

EN 1173 Accelerated Comp II

Mathematics (6 hours)

- 3 hours See concentration for requirements
- ST 2113 Intro to Statistics OR
- BQA 2113 Business Stats Methods I

Natural Science (6 hours)

CH 1043 Survey of Chemistry I

BIO 1134 Biology I

Humanities (6 hours)

See General Education courses

Fine Arts (3 hours)

See General Education courses

Social/Behavioral Sciences (6 hours)

- FO 4113 Forest Resource Economics
- AEC 2713 Intro Food and Resource Economics OR

EC 2113 Intro to Macroeconomics OR

EC 2123 Intro to Microeconomics

Note: Prerequisites and co-requisites are strictly enforced in the College of Forest Resources. It is the student's responsibility to be aware of prerequisites and co-requisites for all courses required in his or her program; prerequisites and co-requisites are identified in the Course Description section of this Bulletin.

**Major Core** 

Major Core			
	BIO	1144	Biology II
	EPP	3124	Forest Pest Management
	FO	1101	Forest Resources Survey
	FO	2113	Dendrology
	FO	2213	Forest Measurements
	FO	3012	Introduction to Forest Communities
	FO	3015	Forest Description and Analysis
	FO	4123	Forest Ecology
	FO	4213	Forest Biometrics
	FO	4221	Practice of Silviculture Lab
	FO	4223	Practice of Silviculture
	FO	4231	Introduction to Wood Supply Systems
	FO	4233	
	FO	4313	Spatial Tech in Natural Resource Management
	FO	4323	Forest Resources Management
	FO	4413	Natural Resources Policy
	FO	4423	Professional Practice
	PSS	3303	Soils
			Intro to Wildlife and Fisheries Practices
	WFA	4153	Prin of Wildlife Conservation and Management
Oral Communication Requirement			
	CO		Fundamentals of Public Speaking
Computer Literacy Requirement			
r			Computer Appl for Forest Resources Lab
			Computer Appl for Forest Resources
	-		r

Writing Requirement

AIS 3203 Intro Tech Writing in Ag-comm OR

MGT 3213 Organizational Comm OR BIO 3013 Prof Writing for Biologists

#### Choose one of the following concentrations:

Academic concentrations within the Forestry Major are offered to encourage the student to design a program with the assistance of a faculty advisor that will fit his or her interests and aptitudes. Each concentration has been constructed by substituting restricted, or in some cases directed, electives for what otherwise would appear as Business, Science, Free, or Professional electives in the major. Concentrations are intended to provide opportunities for the student to focus beyond the fundamental education provided by the core curriculum of the Forestry Major.

## Forest Management Concentration (FOMG)

Advisor: Dr. Ian A. Munn 349 Thompson Hall

This concentration provides the basic education necessary to enter the profession of forestry with the Bachelor of Science degree, yet permits a wide choice of electives. The student may elect courses in almost any subject of interest, if prerequisites are met; however, credit toward the degree will not be allowed for remedial courses, nor for courses covering substantially the same material as courses already passed, or covering only part of the subject matter of required courses.

Faculty advisors are assigned to assist students in selecting electives to meet their personal objectives. A program of study leading to a double degree in forestry and business is available.

Courses to be taken in addition to those in the core curriculum of the Forestry Major are as follows:

- MA 1313 College Algebra or equivalent
- PH 1113 General Physics OR
- PH 2213 Physics I
- FP 1103 Wood Tech and Products FO 3113 Forest Recreation Management Business/Science Electives\* 9 hours
- Professional Electives\* 9 hours
- Free Elective 3 hours

#### Total hours needed for major: 128

Professional electives and Business/Science electives are chosen from a list approved by the Department of Forestry

#### Wildlife Management Concentration (WFMG)

Advisor: Dr. Emily B. Schultz 315 Thompson Hall

Undergraduate students who wish to prepare for careers in wildlife management may do so by completing the Wildlife Management Concentration of the Forestry Major. This concentration is designed for forestry students who intend to pursue careers that emphasize wildlife management within the context of multiple-use management of forest land. In addition, the Wildlife Management Concentration prepares the student for a number of wildlife management positions and fulfills the course requirements for certification as a Professional Wildlife Biologist by The Wildlife Society. Graduates of this concentration may undertake graduate studies in forestry or wildlife ecology and related areas.

Courses to be taken in addition to those in the core curriculum of the Major are as follows:

- College Algebra or equivalent Biology of Vertebrates MA 1313
- BIO 3524
- BIO 4203 Taxonomy of Spermatophytes
- FO 4353 Natural Resources Law
- WFA 3133 Appl Aquatic and Terrestrial Ecology
- WFA 4243 Wildlife Techniques
- WFA 4433 Mammalogy
- WFA 4443 Ornithology
- Professional Elective\* 3 hours
- Physical Science Elective 3 hours

# Total hours needed for major: 126

Professional electives are chosen from a list approved by the Department of Forestry.

### Environmental Conservation Concentration (ENCO)

Advisor: Dr. Scott D. Roberts

351 Thompson Hall

Students interested in careers dealing with complex environmental issues in the realm of forest resource management may prepare themselves through this concentration. All students within this concentration are required to take the following seven courses:

- MA 1313 College Algebra or equivalent
  - General Physics OR PH 1113
  - PH 2213 Physics I
  - WFA 3133 Appl Aquatic and Terrestrial Ecology
  - FO 3113 Forest Recreation Management
  - Forest Hydrology and Watershed Management FO 4463
  - FO 4471 GIS Nat Res Management Lab and
  - FO 4472 GIS Nat Res Management OR
  - Remote Sensing Applications and 4452 FO
  - FO 4451 Remote Sensing Applications Lab 14 hrs Emphasis Electives

# Total hours needed for major: 127

See Department Advisor for list of currently approved emphasis electives.

# **Urban Forestry Concentration (URBN)**

Advisor: Dr. Stephen C. Grado

357 Thompson Hall This concentration addresses an emerging need for the management

of trees in towns and cities. Urban foresters manage trees along city streets, in municipal parks, private wood lots, and utility right-of-ways. Employers include federal, state, and municipal governments, private consultants, and industry.

Courses to be taken in addition to those in the core curriculum of the major are as follows:

- MA 1313 College Algebra or equivalent
- Forest Recreation Management FO 3113
- FO Natural Resources Law 4353
- FO 4471 GIS Nat Res Management Lab and
- GIS Nat Res Management OR FO 4472
- FO 4452 Remote Sensing Applications and
- Remote Sensing Applications Lab FO 4451
- Urban Planning LA 3623
- American Government PS 1113
- PSS 2423 Plant Materials I
- PSS 4353 Arbor and Landscape Maintenance
- REM 3253 Real Property Evaluation
- REM 3333 Principles of Real Estate

#### Total hours needed for major: 128

# **Forest Products Concentration (FP)**

Advisor: Dr. Laura A. Grace

309 Thompson Hall

This concentration is designed for students interested in the forest products industry. The program of study consists of the core courses for the university and the forestry major, plus courses specific to the concentration.

- MA 1613 Calculus for Business and Life Sciences OR
- MA 1713 Calculus I CH 1053 Survey of Chemistry II PH 1113 General Physics I Wood Technology and Products FP 1103 FP 4013 Wood Anatomy FP Physical Properties of Wood 4323 3 hrs FP Processing Elective\* 12 hrs FP Electives'

#### Total hours needed for major: 128 hours

See Departmental Advisor for list of current approved electives.

#### Forest-Based Entrepreneurship Certificate

The current trend in forestry and forest-based employment is downsizing and outsourcing. The shift has been especially abrupt in the forest industry sector, but similar moves are afoot in the public sector. As a consequence, two major markets for our graduates-corporations and agencies-are decreasing while employment with entrepreneurial scale firms is on the increase. Entrepreneurial scale firms are businesses with one to 50 employees, organized as a sole proprietorship, partnership, limited liability company, S corporation, or C corporation that provide a specialized set of services or produce specialized products supporting and supported by forests and forest resources or forest products. They may be forestry, wildlife, or wood products consultants, logging firms, small manufacturing firms, security or environmental auditors, operators of recreational facilities, tree service firms, or operators of wholesale and retail sales facilities serving customers in forest-based or affiliated businesses. Basic professional skills required are much the same as for traditional employment, but the business skills, acumen, and demands are quite different. The certificate program is directed at preparing our students to compete more effectively in this growing market.

## Admission to the Program and Requirements for Certificate

The program is open to students in good standing in the department. Each applicant must have the support of a faculty mentor. The certificate candidate must complete the following classes with a minimum QCA of 2.5, and will be encouraged to use electives to strengthen his/her background in the area.

ACC 2013	Principles of Financial Accounting	3 hours
BL 2413	The Legal Environment of Business	3 hours
FO/FP/WFA	7000 DIS in Entrepreneurship	3 hours
PH 3013	Business Ethics	3 hours
MGT 3323	Entrepreneurship	3 hours

Courses for which the student receives a grade of D cannot be applied. Only two required courses can be transferred from another institution. In addition, each candidate must, during their senior year, prepare, submit, and defend a business plan for a forest-based enterprise. Reports will be approved by the mentor, submitted to an oversight committee for review.

Issuance of Certificates: The Associate Dean will, upon approval of the report by the oversight committee, review the student's records to assure that grade requirements for the certificate have been maintained. If all requirements have been met, the Associate Dean will submit the candidate to the Dean of the CFR for certificate issuance and notify the registrar to have a statement placed on the candidate's transcript. Certificates will be issued with the B.S. degree.

# Department of WILDLIFE, FISHERIES and AQUACULTURE (WFA)

Major Advisor: Dr. Samuel Riffell Office: 205A Thompson Hall

Sustainable management of the diverse wildlife and fisheries resources by private and public sectors, requires knowledgeable and technically competent people. The Department of Wildlife, Fisheries and Aquaculture offers a major in Wildlife, Fisheries and Aquaculture Science designed to provide students with a curriculum that has foundations in biology, ecology, natural resources management, social sciences, computer science, and other contemporary educational needs for natural resources professionals. Six concentrations are available to students: wildlife, fisheries and aquaculture science, conservation law enforcement, wildlife veterinary medicine, wildlife pre-veterinary medicine, wildlife agriculture conservation, and human-wildlife conflicts. The curriculum will prepare students for employment in natural resource professions within private, federal, or state wildlife, fisheries, or aquaculture sectors. Additionally, the curriculum ensures that students are eligible for employment upon graduation, as well as providing the academic background required for further post-graduate studies.

Students may proceed towards a DVM degree by taking the concentration entitled the wildlife pre-veterinary program. Students, upon completing the course work outlined in the wildlife pre-veterinary program, may apply for admission into the College of Veterinary Medicine. Alternatively, students accepted into the early entry veterinary program, upon completing the wildlife pre-veterinary program satisfactorily, may be admitted into the College of Veterinary Medicine. There also is an opportunity to pursue, with an additional year, a M.S. degree in Veterinary or Wildlife Science. Upon successful completion of course requirements, the student will graduate with a B.S. degree in Wildlife, Fisheries and Aquaculture Science, pre-veterinary concentration at the end of the fourth year, and a DVM at the end of the seventh year.

Course work in all concentrations enables students to fulfill the course work requirements necessary to become Certified Wildlife Biologists by The Wildlife Society. The Wildlife, Fisheries and Aquaculture Science concentration exceeds requirements for certification by the American Fisheries Society as an Associate Fisheries Scientist.

The Wildlife, Fisheries and Aquaculture Science Major is designed for completion within four years, but some students may not complete the program in that time because of course scheduling or other constraints. Transfer students are encouraged to begin course work at MSU by the end of their sophomore year to enable graduation in four years. Transfer students should be aware that course work taken elsewhere may not necessarily be accepted toward a degree in Wildlife, Fisheries and Aquaculture Science. Only course work determined by the Wildlife, Fisheries and Aquaculture Department to be equivalent to required course work will be accepted. Additionally, no course work will be considered for acceptance unless a grade of C or better has been earned. Correspondence courses will not be accepted toward the Wildlife, Fisheries and Aquaculture Science degree. Transfer students with a grade point average less than or equal to 2.0 may not be admitted automatically into the Wildlife, Fisheries and Aquaculture Science major. Permission to enroll depends on specific circumstances and the requirements of the Wildlife, Fisheries and Aquaculture Science major. In addition to University and College requirements, students must maintain a C or better in Wildlife and Fisheries Science major core courses taught within the College of Forest Resources. These courses are concentration specific. Students in the Wildlife Pre-veterinary program, interested in pursuing the Veterinary Medicine program, must meet all admission requirements by the College of Veterinary Medicine.

#### **General Education Requirements**

English	Composition	(6 hours)
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EN	1103	English	Comp 1	OR [

- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR
- EN 1173 Accelerated Comp II
- Mathematics (6 hours)
  - MA 1613 Calculus for Bus & Life Sciences OR
  - MA 1713 Calculus I
  - ST 3123 Intro to Statistical Inference

Natural Science (9 hours)

BIO 1134 Biology I

BIO 1144 Biology II

See concentrations for additional requirements

Humanities (6 hours)

3 hours See General Education courses

3 hours See concentrations

Fine Arts (3 hours)

See General Education courses

Social/Behavioral Sciences (6 hours)		
AEC 2713	Intro Food & Resource Econ (for Ag. Con.) OR	

- EC 2113 Intro to Macroeconomics OR
- EC 2123 Intro to Microeconomics
- 3 hours See concentrations

**Note:** Pre-requisites and co-requisites are strictly enforced in the College of Forest Resources. It is the student's responsibility to be aware of pre-requisites and co-requisites for all courses required in his or her program; pre-requisites and co-requisites are identified in the Course Description section of this Bulletin.

# Major Core

WFA 1102	Wildlife and Fisheries Profession
WFA 3133	Appl Aquatic and Terrestrial Ecology
WFA 4122	Wildlife and Fisheries Biometrics
WFA 4121	Wildlife and Fisheries Biometrics Lab
WFA 4153	Principles of Wildlife Conservation & Mgt
WFA 4243	Wildlife Techniques
WFA 4353	Fisheries & Wildlife Policy & Law Enforcement
WFA 4473	Wildlife and Fisheries Practices
FO 2113	Dendrology
4 hours	Zoology elective*

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

- Intro to Tech Writ in Ag Comm OR AIS 3203
- MGT 3213 Organizational Comm OR
- BIO 3013 Prof Writing for Biologists

\* ADS 4115 Animal Nutrition, BIO 3304 General Microbiology, BIO 3504 Comparative Anatomy, BIO 3524 Biology of Vertebrates, BIO 4404 Environmental Microbiology, BIO 4413 Immunology, BIO 4514 Animal Physiology, EPP 4154 General Entomology, EPP 4244 Aquatic Entomology, PO 4843 Avian Physiology, VS 3014 Anatomy and Physiology

#### Choose one of the following concentrations:

The Concentrations: The academic concentrations within the Wildlife and Fisheries Science Major are offered to enable students to develop an academic background that is suited to their professional career goals. Each concentration has been developed to supplement the core curriculum which provides the basis for the wildlife and fisheries science major, regardless of the area of expertise desired by the student.

#### **Conservation Law Enforcement Concentration (CLE)**

#### Advisor: Dr. Kevin M. Hunt Room 205A Thompson Hall

This concentration is designed for undergraduate students who wish to seek employment immediately following receipt of a B.S. degree and wish to obtain positions related to natural resource law enforcement (e.g., conservation officers, park rangers) or wildlife managers (not biologists). Students may, upon graduation within this concentration, continue on to graduate school in the human dimensions-law enforcement or wildlife arenas. Starting salaries, on average, would be less than with a M.S. degree.

Co curriculum include:

ourses to be taken in addition to those of the core curriculur			
PHI 1123	Intro to Ethics OR		
PHI 3013	Business Ethics		
SO 1003	Intro to Sociology		
PSY 1013	General Psychology		
CH 1043	Survey of Chemistry I		
CH 1053	Survey of Chemistry II		
CH 1051	Experimental Chemistry Lab		
PSS 3303	Soils		
PSS 3301	Soils Lab		
CRM 3103	Contemporary Issues in Criminal Justice		
SO 3313	Deviant Behavior		
SO 3603	Criminology		
WFA 4253	Appl Spatial Tech. and WFA Mgmt		
WFA 4313	Fisheries Management		
WFA 4463	Human Dim. of Fish Wildlife Mgmt		
WFA 4523	Mammalogy		
WFA 4543	Ornithology		
6 hours	Professional Elective*		

#### Nutrition/Physiology/ Anatomy Elective\* 3 hours

3 hours

3 hours

Total hours needed for major: 124

Human Resource Mgt Elective\*

Natural Resources Mgt Elective\*

All electives are chosen a list approved by the Department of Wildlife and Fisheries.

#### Wildlife, Fisheries and Aquaculture Science **Concentration (WLFS)**

Advisor: Dr. Jerrold Belant Room 215 Thompson Hall

This concentration is designed for undergraduate students who wish to pursue one or more advanced degrees (M.S., Ph.D.), as it prepares students for graduate school. Employment following this B.S. program is possible, but competition for jobs may be keen. This concentration is intended for serious, academically strong students, who maintain an A-B grade record (GPA 3.0), which is the minimum required for admittance into graduate schools.

Courses to be taken in addition to those of the core curriculum include:

3 hours	Humanities Elective - see General Educ. courses
3 hours	Social Science Elect see General Educ. courses
CH 1043	Survey of Chemistry I
CH 1053	Survey of Chemistry II
BIO 3103	Genetics
PSS 3301	Soils Lab
PSS 3303	Soils
FO 4223	Practices of Silviculture
3 hours	Invertebrate Elective
WFA 4222	Limnology AND
WFA 4221	Limnology Lab OR
WFA 4383	Wetlands Ecology and Management
WFA 4463	Human Dim. of Fish Wildlife Mgmt.
WFA 4313	Fisheries Management OR
WFA 4133	Fisheries Science
WFA 4183	Principles and Practices of Aquaculture OR
3 hours	Organismal course
3 hours	Organismal course*
18 hours	Professional Electives*
3 hours	Nutrition/Dhysiology/Anotomy Elective*

3 hours Nutrition/Physiology/Anatomy Elective\*

#### Total hours needed for major: 124

All electives are chosen from a list approved by the Department of Wildlife and Fisheries.

#### Wildlife Pre-Veterinary Concentration (PVSF)

#### Advisor: Dr. Robbie Kroger Room 205A Thompson Hall

This integrated curriculum allows the students to pursue a 3 + 1undergraduate degree program in Wildlife and Fisheries Science for three years and then, if accepted, matriculate into the Veterinary Medicine program in College of Veterinary Medicine. Successful graduates of this program are qualified to apply for Certified Wildlife Biologist with The Wildlife Society as well as being qualified to practice veterinary medicine.

Note: Mississippi State requires a minimum of 124 hours for the undergraduate degree. Therefore, to qualify for the B.S. degree in Wildlife and Fisheries Science, a student MUST complete the three years of the listed undergraduate course work (114 hours) in the wildlife preveterinary program AND also successfully complete the first year in the Veterinary Medicine curriculum.

Humanities Elective - see General Educ. courses		
Social Science Elective*		
Chemistry I		
Investigations in Chemistry I Lab		
Chemistry II		
Investigations in Chemistry Lab II		
Organic Chemistry I		
Organic Chemistry I Lab		
Organic Chemistry II		
Organic Chemistry II Lab		
Principles of Biochemistry		
Genetics		
General Microbiology		
General Physics I		
General Physics II		
Immunology		
Mammalogy		
Ornithology		
erinary Internship		
Policy Elective*		
Total hours needed for major: 114		

All electives are chosen a list approved by the Department of Wildlife and Fisheries

#### Wildlife Veterinary Medicine Concentration (WFVM)

Advisor: Dr. Robbie Kroger Room 205A Thompson Hall

This integrated curriculum allows the students to pursue a 3 + 1 undergraduate degree program in Wildlife and Fisheries Science for three years and then, if accepted, matriculate into the Veterinary Medicine program in College of Veterinary Medicine. Successful graduates of this program are qualified to apply for Certified Wildlife Biologist with The Wildlife Society as well as being qualified to practice veterinary medicine.

Note: Mississippi State requires a minimum of 124 hours for the undergraduate degree. Therefore, to qualify for the B.S. degree in Wildlife and Fisheries Science, a student MUST complete the three years of the above listed undergraduate course work (114 hours) in the wildlife preveterinary program AND also successfully complete the first year in the Veterinary Medicine curriculum.

3 hours Humanities Elective - see University Core

- 3 hours Social Science Elective\*
- BIO 2103 Cell Biology
- BIO 3103 Genetics
- CH 1213 Chemistry I
- Investigations in Chemistry CH 1211
- 1223 Chemistry II CH
- 1221 Investigations in Chemistry CH
- CH 4513 Organic Chemistry I
- 4511 Organic Chemistry I Lab CH
- 4523 Organic Chemistry II CH
- Organic Chemistry II Laboratory CH 4521
- BCH 4013 Principles of Biochemistry
- BIO 3304 General Microbiology
- General Physics I PH 1113
- PH 1123 General Physics II
- WFA 4263 Wildlife Diseases
- Wildlife Nutrition and Physiology WFA 4323
- WFA 4413 Immunology
- WFA 4523 Mammalogy
- WFA 4543
- Ornithology
- Wildlife/Veterinary Internship 3 hours Policy Elective\*

Total hours needed for major: 114

\*All electives are chosen a list approved by the Department of Wildlife and Fisheries

#### Wildlife Agriculture Conservation (WLAC)

Advisors: Dr. Samuel Riffell Room 205A Thompson Hall

This curriculum provides the educational background for students pursuing careers as wildlife biologists or conservationists in agricultural areas which require a strong background in both wildlife biology and agricultural science. Successful graduates of this program are qualified to apply as Certified Wildlife Biologists to The Wildlife Society, and will meet minimum educational requirements for NRCS conservationist positions. Students completing this concentration may seek employment immediately following graduation. Students will be equally prepared to pursue one or more graduate degrees (M.S., Ph.D.) in wildlife biology and related natural resource fields.

- Courses to be taken in addition to those of the core curriculum include: Humanities Elective - see General Educ. courses 3 hours
  - Social Science Elect. see General Educ. courses 3 hours CH 1043 Survey of Chemistry I 1053 Survey of Chemistry II CH BIO 3103 Genetics PSS 3301 Soils Lab PSS 3303 Soils FO 4223 Practices of Silviculture WFA 4133 Fisheries Science OR WFA 4313 Fisheries Management
  - WFA 4253 Appl. Spatial Technologies to Wildlife Mgt
  - WFA 4363 Wildlife & Fisheries Admin and Communication
  - WFA 4373 Conservation in Agricultural Landscapes
  - PSS 4633 Weed Biology and Ecology
  - 3 hours Crop Science elective
  - 3 hours Animal Science elective

6 hours Organismal course\* Professional Electives\* 7 hours 3 hours Nutrition/Physiology/Anatomy Elective\*

#### Total hours needed for major: 124

All electives are chosen from a list approved by the Department of Wildlife and Fisheries.

#### Human-Wildlife Conflicts Concentration

Advisor: Dr. Jerrold Belant Room 205A Thompson Hall

This curriculum provides the educational background for those students wishing to pursue a career as wildlife biologist with a strong background in wildlife damage management to resolve human-wildlife conflicts. Successful graduates of this program are qualified to apply for Certified Wildlife Biologist with The Wildlife Society. Students completing this concentration may seek employment immediately following graduation; however, competition for positions may be intense. Students will be equally prepared to pursue one or more graduate degrees (M.S., Ph.D.) in Human-Wildlife Conflicts or other areas of Wildlife Science.

3 hours	Humanities Elective - see General Educ. courses
3 hours	Social Science Elect see General Educ. courses
CH 1043	Survey of Chemistry I
CH 1053	Survey of Chemistry II
BIO 3103	Genetics
PSS 3301	Soils Lab
PSS 3303	Soils
FO 4223	Practices of Silviculture OR
3 hours	Invertebrate Elective
WFA 3013	Human-Wildlife Conflicts Internship
WFA 4263	Wildlife Diseases
WFA 4273	Ecology & Manage of Human-Wildlife Conflicts
WFA 4283	Human-Wildlife Conflict Techniques
WFA 4433	Mammalogy
WFA 4443	Ornithology
WFA 4463	Human Dim Fish and Wildlife Management
WFA 4512	Adv Topics in Human-Wildlife Conflicts I
WFA 4521	Adv Topics in Human-Wildlife Conflicts II
7 hours	Professional Electives*
3 hours	Nutrition/Physiology/Anatomy Elective*
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#### Total hours needed for major: 124

\*All electives are chosen a list approved by the Department of Wildlife and Fisheries

# Department of FOREST PRODUCTS (FP)

Major Advisor: Head Rubin Shmulsky Office: 203 Franklin Center, 100 Blackjack Road

The forest products industry is one of the largest economic contributors to Mississippi, as well as in the United States. Employment in the furniture, lumber, wood products, composites, and paper sectors of the economy far exceeds the employment of any other manufacturing sector in the state. Mississippi's forest products industry recognizes the need for well-trained employees to help increase the conversion efficiencies and alter manufacturing processes to allow compatibility with a changing raw material base. While the industry is large in terms of employment, value-added processing facilities number only a few thousand nationwide and a few hundred in Mississippi.

The mission of the Department of Forest Products is to enhance the intellectual, cultural, social, and professional development of its students by providing them with knowledge and skills needed to utilize and conserve diverse forest resources effectively. In this regard, the Department's primary teaching responsibility is to provide high quality educational opportunities necessary to adequately prepare students for professional and scientific careers in forest products and wood science. The academic major is fully accredited by the Society of Wood Science and Technology.

The Department of Forest Products maintains its major for students currently enrolled in the program. New admissions have been suspended as of the summer of 2006. Transfer students who began their academic program prior to May 2006 should contact the department to determine admission eligibility and degree requirements. Students interested in a forest products curriculum are now directed to the newly created Forest Products concentration within the Forestry Major and to the Forest Products graduate program. Students enrolled in this concentration will be advised for academic and career related issues by members of the Forest Products faculty.

The Department of Forest Products' physical plant consists of five buildings and other special purpose buildings and Franklin Center for Furniture Manufacturing and Management, with a combined floor space in excess of 90,000 square feet. These buildings house the analytical and testing equipment, pilot plants, and support facilities required for a comprehensive research program involving wood and wood products.

# **Forest Products Minor**

A Forest Products minor is available to non-majors to provide students with the knowledge of wood, wood products, their use, and importance to employers in many areas including construction, design, marketing and distributing, retail and wholesale management, sales, production, technical services, and scientific fields such as chemistry, engineering and industrial technology. A minor in Forest Products will also provide non-major students an excellent background for entering a graduate degree program in Forest Products. Academic advising is available in the Department of Forest Products located at 100 Blackjack Road. A total of 18 hours is required to obtain a Forest Products minor. See Section II: Department Specific Policies for the list of requirements and course prerequisites.

# Shackouls Honors College

# Christopher A. Snyder, Dean

Office: 210 Griffis Hall Telephone: (662) 325-2522 Mailing Address: P.O. Box EH, Mississippi State, MS 39762

http://www.honors.msstate.edu

The Shackouls Honors College is a university-wide program that reports to the Provost. It serves all eight colleges and cooperates with academic departments in tailoring programs for talented students. The Shackouls Honors College allows many undergraduate students throughout the University to enrich their academic experiences. There are Honors sections of many required and elective courses; these are generally small sections, and they are always taught by highly qualified faculty. There are also Honors courses in addition to these sections of regular courses. To enroll in Honors courses, one must have been admitted to the College. Requirements for joining the College and a full explanation of its offerings are explained below.

The Honors College exists primarily to offer outstanding academic experiences to highly qualified students. Courses applicable to every degree program are available through the Honors College, and Honors students benefit from priority scheduling in pre-registration. The small Honors sections differ from regular sections by focusing on individualized instruction and allowing a more interactive learning environment with a concomitant expectation of greater student effort and commitment.

Honors students have the opportunity to compete for research grants from the Shackouls Honors College allowing them to participate in groundbreaking research under the supervision of a faculty mentor. Furthermore, students can also obtain travel grants to allow them to present their research at regional and national meetings, giving them invaluable experience and networking opportunities for future graduate work or careers. Students are also encouraged to participate in one of Mississippi State Universities twice annual undergraduate research symposia, which are sponsored by the Shackouls Honors College.

The Honors College strongly encourages Mississippi State students to develop a global perspective through foreign language study and study abroad. Our Honors students have studied in Spain, Italy, Germany, Quebec, and Australia. Beyond the exposure to other peoples and other cultures, the Honors College also seeks to connect our students to international universities and agencies of the highest caliber. Our unique Shackouls Summer Study at the University of Oxford places Honors students in the top Oxford colleges and gives them the true Oxford experience by having them taught by Oxford faculty. Our students are eligible for Honors-only scholarships to support their study abroad.

The Shackouls Honors College plays an important role in the cultural and social lives of students and faculty members, through Honors Forum and also through programs co-sponsored with the Holmes Cultural Diversity Center, the Stennis Institute, the Women's Studies Program, the Institute for the Humanities, the Model United Nations, and the Center for International Security and Strategic Studies, as well as every one of the University's colleges.

Honors College-sponsored exhibitions and gallery talks have included the Roger Ogden collection that now forms the Museum of Southern Art in New Orleans and the works of such artists as Walter Anderson, Marie Hull, William Wegman, William Dunlap, and Maude Gatewood. The Honors College has provided performances and lecture-recitals by notables such as the National Shakespeare Company, the Vienna Chamber Trio, Ballet Mississippi, and the Alvin Ailey Dance Company. Speakers at Honors Forum include former U.S. Poet Laureate and Pulitzer Prize-winner Ted Kooser, jazz guitarist Earl Klugh, vocalist Jane Monheit, philosopher Michael Boylan, classicist Philip Freeman, and archaeologist Eric Cline. The Lamar Conerly Honors Lecture Series, begun in 2007, has included addresses by U.S. Congressman Lee Hamilton, U.S. Supreme Court Justice Antonin Scalia, cultural commentator Sarah Vowell, psychologist Steven Pinker, football analyst Mark May, and former Secretary of State Colin Powell.

The Honors College is student-centered. Honors students elect their peers to the eighteen-member Honors Council, which advises the Dean and plans activities. Honors Council conducts special course evaluations of Honors courses, and makes the results available to their fellow Honors students. At the end of each academic year, outstanding students are honored at an awards ceremony, including those who have completed the Cursus Honorum ("Path of Honors").

Shackouls Honors College students have the opportunity to apply for residence in the living-learning community of Griffis Hall. The Office of Housing and Residence Life bases assignments on the date of application to the University.

The Honors College invites applications from incoming freshmen and transfer students with outstanding academic records. To remain in the College, a student must maintain a 3.40 GPA and earn credit for at least one 3-hour Honors course per academic year.

# THE CURSUS HONORUM

To be recognized as an Honors College Scholar at graduation, and to receive the Honors designation (*Collegium Honorum*) on transcripts, a student must complete the Cursus Honorum. This distinctive and rigorous curriculum includes at least 27 Honors credits with a 3.4 average in Honors courses and

- complete the English composition requirement within the first year of admission to the College;
- 2. complete the first-year Honors sequence (6 credits);
- 3. complete two interdisciplinary Honors courses (6 credits);
- complete three discipline-specific Honors courses or tutorials (9 credits);
- 5. complete a for-credit Study Abroad or additional foreign language course (3 credits); and
- 6. successfully write and defend an Honors thesis (3-6 credits).

All Honors students are required to complete a senior capstone experience. This can be a Senior Seminar in their major field of study, with a substantial presentation to the class; an internship with a presentation to a group of professionals; or a research project culminating in an Honors Thesis, with formal defense.

Those students intending to graduate as an Honors College Scholar should, at the beginning of their junior year, identify a faculty mentor and a thesis topic. The student may register for Honors Thesis credit during their junior and/or senior years, depending on the complexity of the research project.

#### First-year Honors sequence\*

HON 1163 The Quest Begins

HON 1173 From the West to the World

\* Students who complete the first-year sequence earning a grade of C or higher will receive General Education credits: 3 Humanities, 3 Fine Arts and 3 Social Sciences.

#### **Interdisciplinary Courses**

Honors students will be encouraged to take innovative courses designed by faculty recruited by the Honors College. These courses will often be interdisciplinary, some revolving around a defined problem, and some team-taught. Students will receive the appropriate General Education credit for these courses.

#### **Discipline-Specific Courses**

Honors students will by their nature seek challenging courses in their major/discipline. These courses can be Honors sections of existing courses, newly designed Honors courses, or Oxbridge tutorials.

#### Honors Students in Good Standing

To be considered a student in good standing in the Honors College a student must complete one Honors course during the first semester at MSU and at least one 3 credit hour course per year, plus the Senior Capstone Experience. All students must also keep a cumulative GPA of 3.4 or above to be in good standing. In order to be in good standing after 3 semesters, each student must file with the Honors College Office a declaration of intent to complete the Senior Capstone Experience with a tentative selection of their chosen path.

# College of Veterinary Medicine

# KENT H. HOBLET, Dean

Office: College of Veterinary Medicine (Wise Center) Telephone: (662) 325-3432

Mailing Address: Box 6100, Mississippi State, MS 39762-6100

#### **GENERAL INFORMATION**

The College of Veterinary Medicine was established in 1974 by an act of the Mississippi Legislature. The first class was admitted during the 1977-78 academic year and graduated in May of 1981.

The permanent College facilities, completed in the fall of 1981, include the learning resources center, the animal health center, and the research facility. College programs, faculty, students, and staff are located in these facilities.

The primary objective of the College is to serve the needs of Mississippi. In quest of this objective, the College will provide training in the sciences required for a career in veterinary medicine and veterinary medical technology. The Doctor of Veterinary Medicine curriculum focuses on the skills of the veterinary practitioner who will serve the animal-owning public of Mississippi while the veterinary medical technology curriculum focuses on the skills necessary to facilitate the work of veterinarians.

Students seeking a degree in either veterinary medicine or veterinary technology should acquire a sound foundation in the biological and physical sciences and a general knowledge of the humanities in high school and college. Because of the increasing use of information technology in veterinary medicine, students are strongly encouraged to acquire familiarity with computers. They must have a demonstrated aptitude for scientific study, and, in addition, experience with animals. An awareness of the requirements and characteristics of the practice of veterinary medicine is desirable in reaching a mature decision to pursue a career in either veterinary medicine or veterinary technology.

# EARLY ENTRY PROGRAM for the COLLEGE of VETERINARY MEDICINE

The Early Entry Program is offered on a competitive basis to high school seniors who have demonstrated exceptional academic achievement. Applications are available by October 1st of each year and are due for return by January 15th. Online applications are available at www.cvm.msstate.edu. Questions should be addressed to the Office of Student Admissions, College of Veterinary Medicine at (662) 325-9065 or hadaway@cvm.msstate.edu.

The Program is designed so an individual has the opportunity to obtain both a B.S. degree and a D.V.M. degree in seven to eight years. Those accepted into the Early Entry Program are pre-accepted into the professional program at the College of Veterinary Medicine contingent upon their maintaining predetermined qualifications throughout their college career and providing documentation of no less than 480 hours veterinary experience.

#### TRADITIONAL ENTRANCE REQUIREMENTS

The GRE® general exam (school code 1326) is required for admission consideration – No minimum score is required. Scores must be in the CVM Office of Student Admissions by October 1 of the application year. A Test of English as a Foreign Language (TOEFL®) score of 213 is required for applicants whose primary language is not English, also due October 1. Three (3) completed LOR (Letter of Recommendation) forms are required with the completed VMCAS application. At least one evaluator must be a veterinarian. To apply, applicants must have a minimum grade point average of 2.80 on a 4.00 scale both cumulative and in the required sciences (including mathematics). Minimum GPAs must be maintained throughout the application process. Prerequisite courses for entrance into the college must include specific courses:

English composition	6 sem hours
Speech or Technical Writing	3 sem hours
Mathematics (college algebra or higher)	6 sem hours
Biological science with lab	8 sem hours
Microbiology with lab	4 sem hours

Inorganic chemistry with lab	8 sem hours
Organic chemistry with lab	8 sem hours
Biochemistry	3 sem hours
Physics (can be Trig-based)	6 sem hours
Advanced Upper-level Science electives	12 sem hours
Humanities/fine arts/social and	
Behavioral sciences	15 sem hours
Total semester credit hours	79 sem hrs.

Science and mathematics courses must be completed or *updated* within six calendar years prior to the anticipated date of enrollment.

#### ADMISSION PROCEDURE

Applications are accepted through October 1 each year for the upcoming academic year. Admissions procedures take place in the spring, with new students beginning classes at the beginning of the second summer session. All applicants apply electronically through the Veterinary Medical College Application Service (VMCAS) at www.aavmc.org. Applications are available online in June each year.

Further information may be obtained from:

Office of Student Admissions College of Veterinary Medicine Mississippi State University Box 6100, Mississippi State, MS 39762-6100 662-325-9065; msu-cvmadmissions@cvm.msstate.edu

#### **DVM CURRICULUM**

The professional curriculum is divided into two phases - Phase 1 (DVM 1 and DVM 2 years) and Phase 2 (DVM 3 and DVM 4 years). Phase 1 is conducted in a lecture/lab based format.

DVM 1 COURSES

Freshmen	Fall	Courses
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CVM 5011	Professional Development I	
CVM 5013	Veterinary Neuroscience	
CVM 5023	Infectious Agents I	
CVM 5032	Immunology	
CVM 5036	Veterinary Physiology I	
CVM 5046	Veterinary Anatomy I	
CVM 5073	Veterinary Histology	
Freshmen Spring Courses		
CVM 5021	Professional Development II	
CVM 5022	Veterinary Epidemiology	
CVM 5044	Introduction to Veterinary Pathology	
CVM 5072	Veterinary Anatomy II	
CVM 5163	Veterinary Parasitology	
CVM 5193	Infectious Agents II	
CVM 5223	Pharmacology I	

#### **Total Credit Hours: 42 hours**

DVM 2 COURSES

Sophomore Fall Courses

- CVM 5111 Professional Development III
- CVM 5123 Veterinary Clinical Pathology
- CVM 5143 Theriogenology
- CVM 5153 Equine Medicine and Surgery I
- CVM 5152 Veterinary Toxicology
- CVM 5186 Small Animal Medicine and Surgery I
- CVM 5213 Intro to Veterinary Anesthesiology
- CVM 5553 Pharmacology II
- Sophomore Spring Courses

CVM 5121 Professional Development IV

CVM 5133	Preventive Medicine
CVM 5173	Equine Medicine and Surgery II
CVM 5162	Diagnostic Imaging
CVM 5175	Food Animal Medicine and Surgery
CVM 5183	Special Species
CVM 5196	Small Animal Medicine and Surgery II

**Total Credit Hours: 47 hours** 

#### **Clinical and Elective**

Phase 2, (DVM3 and DVM4 years) is conducted in a clinical and elective format. Students participate in twelve required clinical rotations of two to six weeks duration each. In these rotations students actively participate in the clinical diagnosis and management of patients admitted to the Animal Health Center.

During the fourth year (DVM4) students have 8 months of elective options. The options include elective clinical rotations, externship experiences, small group or discussion based courses, and special problems (directed individual study) opportunities. In essence, each student, working closely with a faculty advisor, designs a schedule which most uniquely meets the student's needs and career preferences.

Conducted in an experiential-learning mode, the clinical rotations and many of the electives continue to make the student responsible for his or her own education. The clinical cases or elective courses provide the environment for continued student growth and development. Students must be mature and responsible learners to obtain the maximum benefit from these courses.

#### DVM3 COURSES

Services and Practices CVM 5214 Laboratory Services CVM 5224 Radiology CVM 5234 Anesthesiology CVM 5246 Community Practice CVM 5256 Small Animal Surgery CVM 5266 Equine Medicine and Surgery CVM 5276 Food Animal Medicine and Surgery **Total Credit Hours: 36 hours** 

#### **DVM4 COURSES**

CVM 5000 Directed Individual Study in Veterinary Medicine I CVM 5282 Ambulatory/Large Animal Primary Care\* CVM 5292 Flowood/MVRDL Externship\* CVM 5302 Clinical Pathologic Conference\* CVM 5310 Small Animal Emer and Critical Care Medicine\* CVM 5386 Small Animal Internal Medicine\* CVM 5392 Pharmacy CVM 5420 Advanced Rotation in Radiology (2-4 hours) CVM 5430 Advanced Rotation in Anesthesiology (2-4 hours) CVM 5444 Clinical Small Animal Practice CVM 5454 Advanced Rotation in Small Animal Surgery CVM 5464 Advanced Rotation in Equine Medicine & Surgery CVM 5474 Advanced Rotation in Food Animal Practice CVM 5484 Advanced Rotation in Sm An Internal Medicine CVM 5510 Animal Industry Externship 1 (2-6 hours) CVM 5520 Animal Industry Externship 2 (2-6 hours) CVM 5530 Animal Industry Externship 3 (2-6 hours) CVM 5540 Animal Industry Externship 4 (2-6 hours) CVM 5550 Animal Industry Externship 5 (2-6 hours) CVM 5560 Advanced Clinical Rotation 1 (ACR 1) (2-6 hours) CVM 5570 Advanced Clinical Rotation 2 (ACR 2) (2-6 hours) CVM 5580 Advanced Clinical Rotation 3 (ACR 3) (2-6 hours) CVM 5622 Veterinary Diagnostic Toxicology CVM 5640 Shelter Medicine Spay Neuter CVM 5644 Applied Gross Anatomy CVM 5654 Applied Veterinary Parasitology CVM 5662 Clinical Neurology CVM 5672 Veterinary Dentistry CVM 5682 Veterinary Ophthalmology CVM 5692 Art and Business Management, Veterinary CVM 5694 Veterinary Cytology CVM 5714 Advanced Small Animal Dermatology CVM 5722 Small Ruminant Production Medicine CVM 5754 Advanced Small Animal Surgery CVM 5764 Advanced Equine Reproduction

CVM 5772 Canine Theriogenology CVM 5784 Clinical Behavioral Medicine CVM 5814 The Feline Patient CVM 5844 Clinical Pharmacology CVM 5854 Aquarium Health Management CVM 5862 Equine Lameness CVM 5864 Bovine Production Medicine CVM 5990 Spec Topics in Veterinary Medicine I (2-6 hours)

#### **Total Credit Hours Required: 46 hours**

Required

Students must take 30 hours of electives during their senior year. Electives can be selected from the above listed CVM courses or from University courses upon advisor's approval.

## VETERINARY MEDICAL TECHNOLOGY (VMT)

The Veterinary Medical Technology major (VMT) prepares students for multiple career opportunities. Upon completion of this program, graduates will positively contribute to the veterinary health care team regardless of the area/specialty graduates wish to pursue. Potential work environments for VMTP graduates include but are not limited to private veterinary practice, biomedical research, pharmaceutical industry, zoological parks, humane societies, nutrition companies, United States Department of Agriculture, U.S. military and academic institutions.

The first year of the curriculum students are enrolled as pre-vet tech students. Students will be enrolled in general education courses. Admission to the second year will be contingent on the student applying to the VMTP and meeting entrance criteria. Students will take a competency exam at the end of the sophomore year. The third year of the curriculum is competitive and enrollment is limited to 30 students. Accepted students will begin classes the summer session following acceptance. The fourth year mainly consists of clinical experiences and begins the first summer session following successful completion of the third year. Students will be evaluated by clinical competency exams throughout the curriculum for successful program advancement.

#### PREADMISSION to the SOPHOMORE YEAR

Preadmission to the sophomore year is offered on a competitive basis to high school seniors and college students who have earned no more than 18 college credits. Applicants must have demonstrated significant academic achievement. Applications are available by January 15 of each year and are due for return by March 15. Online applications are available at www.cvm.msstate.edu. Questions should be addressed to www.msuvmt@cvm.msstate.edu. Those granted preadmission status into the VMTP are pre-accepted into the sophomore year of the VMTP contingent upon their maintaining predetermined qualifications during their freshman year. Accepted students must attend Mississippi State University.

### ENTRANCE REQUIREMENTS TO THE SOPHOMORE YEAR

An applicant to the sophomore year of the VMTP must successfully complete prerequisite courses by the end of the spring semester prior to beginning the sophomore year. Three (3) letters of recommendation are required. To apply, applicants must have a minimum grade point average of 2.8 on a 4.00 scale with no grade less than "C" in any prerequisite course. The minimum GPA must be maintained throughout the application process. Prerequisite courses for entrance into the VMTP must include specific courses:

English Composition	6 semester hours
Mathematics	6 semester hours
(college algebra or higher)	
Inorganic Chemistry	7 semester hours
Humanities	6 semester hours
Social/Behavioral Sciences	6 semester hours
Total semester credit hours	31 semester hours

The following courses must be successfully completed prior to the fall semester of the junior year before students are allowed to continue in the program:

Public Speaking	3 semester hours
Microbiology with lab	4 semester hours
Biological science with lab	8 semester hours
Fine Arts	3 semester hours
ADS 1114 Animal Science	

VS 1012	Careers in Vet Medicine	
CVM 3101	Vet. Medical Terminology	
CVM 3243	Basics of Practice Procedures & Management	
CVM 3014	Anatomy & Physiology for Vet. Technologists	
CVM 3112	Animal Handling, Husbandry, & Nutrition	
Total of 34 semester hours		

#### **ADMISSION PROCEDURE**

Applications are available online and are accepted through March 1. Admission procedures include a critique of each applicant's academic record, an evaluation of each applicant's references, and a personal interview of selected applicants.

Further information may be obtained from:

Veterinary Medical Technology Program College of Veterinary Medicine Mississippi State University PO Box 6100, Mississippi State, MS 39762-6100 662-325-1103; www.msuvmt@cvm.msstate.edu

#### VETERINARY MEDICAL TECHNOLOGY

#### **General Education Requirements**

- English Composition (6 hours)
  - EN 1103 English Comp I OR
  - EN 1163 Accelerated Comp I
  - English Comp II OR 1113 EN
  - EN 1173 Accelerated Comp II
- Mathematics (6 hours)
  - MA 1313 College Algebra
  - MA 1323 Trigonometry OR
  - Intro to Statistics ST 2113
- Natural Science (8 hours)
- BIO 1134 BIO 1144 Biology I
  - Biology II
- Humanities (6 hours)
- PHI 1123
  - Introduction to Ethics 3 hours See General Education courses
- Fine Arts (3 hours)
- See General Education courses
- Social/Behavioral Sciences (6 hours)

## See General Education courses

- Other courses
  - Survey of Chemistry I CH 1043
  - Investigations in Chemistry 1051 CH
  - CH 1053 Survey of Chemistry II
  - BIO 3304
  - Microbiology Fundamentals of Public Speaking OR CO 1003
  - CO 1013 Introduction to Communication

#### **Major Core**

ADS 1114	Introduction to Animal Science
VS 1012	Careers in Veterinary Medicine
CVM 3112	Animal Handling, Husbandry, & Nutrition
CVM 3243	Basics of Practice Procedures & Management
CVM 3101	Veterinary Medical Technology Terminology
CVM 3014	Anatomy & Physiology for Vet. Technologists
CVM 3013	Small Animal Disease and Management
CVM 3022	Small Animal Technical Skills & Nursing Care
CVM 3032	Food Animal Diseases & Management
CVM 3031	Food Animal Technical Skills & Nursing Care
CVM 3042	Equine Disease & Management
CVM 3041	Equine Technical Skills & Nursing Care
CVM 3232	Pharmacology& Toxicology for Vet. Technologists

Parasitology for Veterinary Technologists CVM 3111 CVM 3121 Hematology & Immunology for Vet. Technologists Clinical Pathology Laboratory Techniques Anesthesiology for Veterinary Technologists CVM 3132 CVM 3212 CVM 3051 Laboratory Animal Health Management CVM 3061 Laboratory Animal Technical Skills CVM 3201 Dental Principles for Veterinary Technologists CVM 3202 Diagnostic Imaging for Veterinary Technologists CVM 3222 Surgical Skills & Nursing for Vet. Technologists CVM 3221 Surgical Nursing & Anesthetic Management Lab CVM 3141 Anatomical Pathology Laboratory Techniques CVM 4103 Large Animal Clinical Experience I CVM 4113 Large Animal Clinical Experience II OR CVM 4223 Small Animal Primary Care Experience CVM 4333 Small Animal Emer./Critical Care Clinical Exp. Small Animal Anesthesia/ Surgery Experience CVM 4213 CVM 4102 Professional Development CVM 4701 Application & Process for VTNE CVM 4206 Small Animal Clinical Experience I CVM 4003 Internship Experience CVM 4601 Animal Emergency & Referral Center Elective, Flowood, Miss.

Elective Experiences: Must choose 2 from the following:

- CVM 4101 Veterinary Technology Academic Elective
- CVM 4201 Clinical Experience Elective
- CVM 4501 Diagnostic and Research Laboratory Elective,
- Pearl, Miss. CVM 4511
- University Medical Center Biomedical Research Unit Elective, Jackson, Miss

### **GRADUATE PROGRAM**

The College of Veterinary Medicine (CVM) at Mississippi State University (MSU) provides M.S. and Ph.D. degrees in Veterinary Medical Sciences (VMS) and a Ph.D. in Environmental Toxicology (ENVT). These graduate programs provide advanced educational opportunities for students in a broad range of biomedical and veterinary sciences. A non-thesis Master's option in VMS is also offered with emphasis in food animal production medicine, i.e. dairy, beef, swine, poultry and aquacul-ture. The goal of the VMS and ENVT programs is to provide training for the next generation of scientists and educators who will be leaders in biomedical and veterinary research and education. Faculty in CVM's Department of Basic Sciences, Department of Clinical Sciences, and Department of Pathobiology & Population Medicine lead each student's graduate education. Involvement in ongoing research projects conducted by the faculty is an important part of each degree program. Students in the VMS program specialize in disciplines such as applied clinical research, biocomputing, epidemiology, health disparities, infectious diseases, and toxicology.

In addition to the traditional M.S. and Ph.D. programs in the College, students may pursue a DVM-PhD or DVM-MS dual degree. These programs allow students to simultaneously pursue the M.S. or Ph.D. degree while working toward completion of the DVM degree. Students wishing to pursue the DVM and a graduate degree simultaneously are carefully screened for admission because of the rigorous requirements and time commitments necessary to work on two degrees simultaneously. Information concerning the DVM dual degree programs can be found at the Combined DVM-Graduate Degree Programs site at http://www. cvm.msstate.edu/academics/dvm\_graduate\_programs.html.

For additional information about the CVM Graduate Programs, contact the CVM Graduate Studies Coordinator, Box 9825, Mississippi State, MS 39762, telephone (662) 325-1417.

# Office of Academic Affairs

Office: 608 Allen Hall 662-325-3742 P.O. Box BQ; Mississippi State, MS 39762

#### **Environment and Sustainability Certificate Program**

The Environment and Sustainability Certification (ENSC) is a 17 credit hour, multi-disciplinary program open to all undergraduate majors in good standing. From accountants to zoologists, and all majors in between, this certificate is designed to enhance your understanding of the complex environmental challenges humanity faces in the 21st century. It will also give students an opportunity to gain hands-on experience in an environmental area of interest. Students will study the technical aspects of issues such as climate change and energy, and learn how values, beliefs and policies affect how these issues are addressed. Students will also learn about sustainable practices and lifestyle choices that can reduce your own ecological footprint.

Two courses are required of all students: Introduction to Environmental Science (ENS 2103) and Environmental Science Practicum (ENS 4102). Of the remaining 12 hours, at least three must be taken from each of the three categories: Humanities, Social Sciences, and Science & Engineering. The remaining three credit hours must be taken from a category not directly related to the student's major course of study.

#### **Course Work**

ENS 2103	Intro to Environmental Science
ENS 4102	Environmental Science Practicum
3 hours	Approved Humanities course
3 hours	Approved Social Sciences course
3 hours	Approved Science & Engineering course
3 hours	Consult with Program Coordinator

Enrollment in ENS 4102 must be arranged with the Program Coordinator. The student may arrange to work with a faculty member conducting research in the environment and sustainability field, or the student may propose a project of relevance to the certificate. This must be arranged in consultation with the Program Coordinator prior to enrolling in ENS 4102.

For further information and enrollment forms, please contact the ENS program coordinator:

Dr. Joseph Massey Department of Plant and Soil Sciences 117 Dorman Hall 662-325-4725; jmassey@pss.msstate.edu

#### Geospatial and Remote Sensing Technologies Certificate Program

Technology revolutions have driven the expectations of remote sensing and geospatial technologies to an all-time high for a new generation of users across a vast number of disciplines. Advances in computational technologies, visualization products, and sensor technologies have led to the development of unprecedented capabilities in remote sensing, global position systems, and geographic information systems. With the recent launches of commercial and governmental remote sensing satellites, as well as the development of aerial remote sensing instruments that provide advanced spectral and radar technologies, the industry is poised to develop operational remote sensing applications that fundamentally impact management of resources. Mississippi State University has developed broad, multi-disciplinary efforts in spatial technologies of many types, and is a leader among universities in education and outreach activities to prepare the next generation for utilizing these technologies. One of the primary limitations to the development of this industry is the need for a better-educated workforce that can understand and utilize the tools of these spatial technologies. Education in geospatial and remote sensing technologies is by nature multi-disciplinary; therefore, a certificate program that crosses departmental and college boundaries has been developed to address these needs. This certificate can thus serve the needs of undergraduate and graduate students with diverse backgrounds from a variety of disciplines. Students may strategically assess which courses within their disciplinary academic program can be used for the certificate program, thus satisfying the needs of both and maximizing their educational experience. Non-traditional students may also receive the certificate in seeking professional credentials for career enhancement.

The certificate should represent a student's mastery of basic GIS and Remote Sensing coursework. A minimum of 3 hours of coursework is required in each of these areas:

Geographic Information Systems

Remote Sensing

Spatial Positioning Technologies

Students are required to complete 6 hours of additional coursework chosen from a list of restricted electives that are offered by several MSU departments.

Due to the multi-disciplinary nature of this program, the Office of Academic Affairs is the resident office for admission and administration. Thus, the program is not focused on a single college or department. A program coordinator, appointed by the Provost, advises students seeking the GRS certificate, and assists departmental advisors. The coordinator is also responsible for conducting the necessary transcript audits and authorizing the awarding of certificates.

A multi-disciplinary certificate program has also been developed in Geospatial and Remote Sensing Engineering. This is administered through the College of Engineering. See this listing under that college for more information.

For further information and enrollment information, contact the GRS program coordinator:

Dr. Bill Cooke, Director Geosystems Research Institute; A127 HPC 662-325-9575, whc5@geosci.msstate.edu

Dr. John Rodgers, Associate Director Department of Geosciences 662-325-3915, jcr100@msstate.edu

A total of 15 semester hours are required: nine selected from the list of required courses, and six selected from the list of elective courses.

#### **Required Courses (9 hours)**

Remote Sensing - choose one

ABE/PSS 4483/6	5483 Introduction to Remote Sensing OR	
ECE 4423/6423	Introduction to Remote Sensing	
	Remote Sensing of the Physical Environment	
FO 4452/6452 R	emote Sensing Applications AND	
FO 4451/6451 R	emote Sensing Applications Lab	
GIS - choose one		
GR 4303/6303 P	Principles of GIS	

WFA 4253/6253 GIS and GPS in Wildlife Management FO 4472/6472 GIS for Natural Resource Management AND FO 4471/6471 GIS for Natural Resource Management Lab

Positioning Technologies - choose one

PS	S 4373/6373	Geospatial Agronomic Management
GR	3303	Survey of Geospatial Technologies
FO	4313/6313	Spatial Technologies in Natural Res. Mgt.

#### **Electives - 6 hours**

See program coordinator for list of approved electives.

#### Leadership Studies Minor

The interdisciplinary minor in Leadership Studies provides academic and experiential knowledge and skills to prepare students for future leadership positions in communities, professions, and organizations. The Leadership Studies minor is open to Mississippi State University students in all Colleges, Schools, and majors. It requires 19 hours of approved coursework, including at least one experiential internship component. No more than two courses from the same academic Department may be applied to this minor. Students in the Leadership Studies minor must maintain grade point averages of 2.00 or higher overall and grade point averages of 2.50 or higher in courses applied to the minor. Students must earn a grade of C or higher in all minor courses. Admission and Graduation Standards: Entering freshmen may declare a Leadership Studies minor in the first semester by securing approval of a minor program of studies as outlined herein. Qualified students, including incoming transfer students, may declare the minor during any subsequent semester. After the first semester of college, students must have minimum overall GPAs of 2.00 or higher (including all course work taken, not just in the minor) to enter or remain in the minor. To graduate with a Minor in Leadership Studies, students must meet all course requirements on their approved programs of minor study, must have overall GPAs of 2.00 or higher on all coursework attempted, and must have 2.50 or higher GPAs over all minor courses. Students must earn grades of C or higher in all courses applied to the Leadership Studies minor.

Curriculum Outline: Each student will select one core course in each of three core areas: Ethics, which are essential for any leader; Social Science, which studies leadership directly and provides knowledge of direct relevance to leadership; and Communication, which involves skills that are critically important for leaders. (For students in majors with little room for electives, judicious selection of the core courses in the Leadership Studies minor may simultaneously fulfill certain General Education requirements., College or School Core Curriculum, or Departmental Major requirements.) Each student will further select from an approved list, in consultation with his or her Leadership Studies minor advisor, at least three more courses that facilitate the student's goals. Finally, each student will register for a 1-hour (48 contact hours during the semester) experiential internship.

- Area I: Ethics and Leadership. Choose One:
  - PHI 1123 Introduction to Ethics
  - MGT 3823 Socially Responsible Leadership
- Area II: Leadership and Social Science. Choose One:
  - MGT 3813 Organizational Behavior
  - PSY 3623 Social Psychology
  - PS 3013 Political Leadership
  - PS/GE 2713 Engineering and Public Policy
- Area III: Leadership and Communication Skills. Choose One:
  - CO 1003 Fundamentals of Public Speaking
  - CO 2213 Small Group Communication
  - CO 3803 Public Relations
- Area IV: Experiential internship component. Choose One: EXL 1191 Leadership Studies Internship
- Area V: Electives. Choose Three:

See advisor for a complete list of approved leadership electives. Additional courses listed in the Minor Core above can be taken as electives, if they are not used to fulfill Minor Core requirements.

For additional information, contact Robert Green, Chair, Leadership Studies Minor committee at green@bagley.msstate.edu

#### UNIVERSITY ACADEMIC ADVISING CENTER UNDECLARED (UND)

Director: Wesley Ammon; Associate Director Janet Odom Professional Academic Advisors: Ryan Colvin, Tim Fancher and Sandra Powe

25 Magruder Street; Mail Stop 9729; Web site at http://www.msstate.edu/dept/academic-advising Telephone (662) 325-4052; Fax (662) 325-4026; P.O. Box 6117, Mississippi State, MS 39762.

#### **UAAC Mission to Undeclared students**

The University Academic Advising Center was established to meet the needs of those students who have competing interest in more than one major area, as well as those who are uncertain of their career and educational goals. The professional staff and volunteers at the center offer one on one advising services to traditional and nontraditional undergraduate students and provide accurate information concerning specific curriculum requirements, university policies and procedures, campus resources and various programs of study. The center is committed to assisting students with the development of educational plans consistent with their life goals, objectives and abilities. Students normally remain UND "majors" for no more than two semesters during which time advisors recommend courses that meet basic core requirements in relation to "majors of interest" for each individual student. Students who have reached Junior status can remain undeclared for one (1) semester after accumulating 60 hours of academic credit.

UAAC advisors traditionally recommend that UND students enroll in 12-18 hours each fall and spring semester with careful considerations given to courses required in each student's majors of interest. It is the goal of the center to assist each UND student in enrolling in courses that satisfy the minimum core requirements for any major the student may later choose with respect to each department's right to specify more stringent requirements than the University as a whole. However, ultimate responsibility for taking the UAAC staff's advice rests with the student.

Visits to UAAC and responses to request for information through our Web site are subject to staff availability and the center's priority responsibilities during MSU's designated preregistration and orientation periods. Otherwise, UAAC urges students to make appointments with advisors at the center to establish a plan of action. The University Academic Advising Center staff encourages all UND "majors" to utilize services offered by the Career Center, the Counseling Center, the Learning Center, Student Support Services and other support programs offered by various units at MSU.

#### **Minor in International Studies**

The Minor in International Studies is designed to enhance students' understanding of the global environment in which they are living. Students completing this program will develop some proficiency in a foreign language, have experience living in another country, and have some general background of different cultures and societies. The Introduction to Global Studies course serves as an introduction to global concerns and responsibilities that can begin on the MSU campus. The Cross-Cultural Leadership course serves as a capstone to bring the ideas of students in the program together, addressing ways to use their experiences and knowledge to become leaders in the world. A total of 18 approved hours must be completed for this minor.

#### **International Studies Scholars**

Certain students will be chosen each spring, based on an application process, to become International Studies Scholars. Each scholar will receive one \$1000 scholarship to go towards a study abroad experience and will be expected to participate in a service project that supports new international students at MSU.

#### Requirements

A minimum of 18 semester hours with a grade of a "C" or above are required in the following component areas with at least three credit hours from a study abroad experience and six credit hours of foreign languages. The three-credit-hour Introduction to Global Studies (ISE 1103) and the three-credit-hour Cross-Cultural Leadership (4103) are required of all students.

# **Course Options:**

Required	
ISE 1103	Introduction to Global Studies
ISE 4103	Cross Cultural Leadership
6 Hours	Foreign Language Courses
3 Hours	Approved Study Abroad
3 Hours	Other MSU Courses

For additional information, contact Allison Noffsinger, anoffsinger@aoce.msstate.edu with International Education or visit the web site at www.inted.msstate.edu/mis.

# Office of the Graduate School

# LOUIS R. D'ABRAMO, Dean and Associate Vice President for Academic Affairs

Karen Coats, Associate Dean Office: 116 Allen Hall Telephone: (662) 325-7400 P.O. Box G, Mississippi State, MS 39762-5507

#### **ADMINISTRATION**

The Office of the Graduate School (OGS) is dedicated to providing necessary services to graduate students, both prospective and current, and graduate faculty. The mission of the Graduate School is to provide graduate students advanced academic study beyond the baccalaureate; provide graduate students opportunities in which to develop methods of independent and systematic investigation; and provide graduate students and faculty with an environment conducive to learning and scholarly activities. In fulfilling this mission, the Graduate School promotes, enhances, develops, and monitors graduate education at Mississippi State University and provides students with effective, efficient, and courteous assistance in admission, enrollment, academic progress, graduation, and post-graduation services. The OGS is guided by the academic policies recommended by the Graduate Council, the chief oversight body for all graduate programs, and approved by the Provost. For additional information about graduate education at Mississippi State University or the OGS, please visit http://www.grad.msstate.edu/.

#### DEGREES

# 1. MASTER of ARTS

a. The College of Arts and Sciences offers the Master of Arts degree in applied anthropology; English; foreign languages; history; and political science. The College of Business offers the Master of Arts degree in economics.

b. Two plans for the Master of Arts degree are offered. They are designated as Plan One and Plan Two. Plan One requires a minimum of 30 semester hours of graduate credits with at least 24 hours earned as course work and at least six hours earned as thesis. Plan Two is offered at the option of the department and requires a minimum of 30 semester hours of graduate-level course work.

c. A reading knowledge of one foreign language is required of students majoring in English and history (thesis option only).

#### 2. MASTER of SCIENCE

a. The Master of Science degree is offered by the

College of Agriculture and Life Sciences in

\*agricultural and extension education

\*agricultural life sciences (concentrations in animal physiology; biochemistry; entomology and plant pathology; genetics) \*agriculture (concentrations in agricultural economics; agronomy; animal nutrition; animal science; engineering technology;

horticulture; poultry science; weed science)

\*food science, nutrition and health promotion (concentrations in food science technology; health promotion; nutrition) \*horticulture

\* human development and family studies

College of Arts and Sciences in

\*biological sciences

\*chemistry

\*general biology

\*geoscience (concentrations in broadcast meteorology, environmental geosciences, geography, geology, geospatial sciences, professional meteorology/climatology, for distance students only: concentrations in applied meteorology; teachers in geosciences)

\*mathematics

\*physics

\*psychology

\*sociology

\*statistics

# College of Education in

\*counselor education

\*educational psychology

\*elementary education

\*kinesiology (concentrations in pedagogy, exercise physiology,

sports administration) \*school administration \*secondary education \*special education \*technology \*workforce educational leadership

#### Bagley College of Engineering in

\*aerospace engineering \*biological engineering \*biomedical engineering \*chemical engineering \*civil engineering \*computational engineering \*computer engineering \*computer science \*electrical engineering \*industrial engineering \*mechanical engineering **College of Forest Resources** in \*forestry

\*forest products

\*wildlife and fisheries science

- College of Veterinary Medicine in
  - \*veterinary medical science

b. Two plans for the Master of Science degree are offered. They are designated as Plan One and Plan Two. Plan One requires a minimum of 30 semester hours of graduate credits with at least 24 hours earned as course work and at least six hours earned as thesis. Plan Two is offered at the option of the department and requires a minimum of 30 semester hours of graduate-level course work.

3. MASTER of AGRIBUSINESS MANAGEMENT (M.A.B.M.)

a. The Master of Agribusiness Management is offered in Agribusiness Management.

b. The Master of Agribusiness Management is an interdisciplinary program between the College of Agriculture and Life Sciences and the College of Business and Industry.

# 4. MASTER OF ARTS in INTERDISCIPLINARY SCIENCES (M.A.I.S)

This interdisciplinary program designed for K-12 teachers allows students to choose an emphasis area from biological sciences, chemistry, geosciences, and mathematics & statistics and to choose electives from remaining areas.

5. MASTER of ARTS in TEACHING (M.A.T.)

a. The program is offered in the Leadership and Foundations department.

b. The major is Community College Education and requires 33-36 credit hours.

6. MASTER of ARTS in TEACHING - SECONDARY (M.A.T.S.)

a. The Master of Arts in Teaching-Secondary is an alternate route secondary licensure program offered by the Curriculum and Instruction Department.

b. Thirty-six semester hours of graduate-level course work is required.

7. MASTER of BUSINESS ADMINISTRATION (M.B.A.)

a. The Master of Business Administration, a graduate professional degree requires 30 semester hours of graduate course work; a thesis is not required.

b. The Master of Business Administration in Project Management is an interdisciplinary program between the College of Business and Industry and the College of Engineering. This program consists of 32 semester hours; no thesis is required.

c. The Master of Business Administration with a concentration in Accounting is available on the Meridian campus.

8. MASTER of ENGINEERING (M. Eng.)

a. The Master of Engineering is a 33-hour interdisciplinary program designed for the professional engineer.

b. All courses in this degree program are delivered via distance learning.

#### 9. MASTER of LANDSCAPE ARCHITECTURE (M.L.A.)

a. The Master of Landscape Architecture is offered in landscape architecture with three areas of concentration: watershed planning and management; landscape planning and management; and community based initiatives.

b. A minimum of 30 semester required, including a six hour thesis.

10. MASTER of PROFESSIONAL ACCOUNTANCY (M.P.A.)

A minimum of 30 semester hours of course work in graduate credit business courses is required. Those hours must include a minimum of

a. Twenty-one semester hours of accounting, and

b. Nine semester hours of other related business courses.

c. An accounting major with a concentration in systems is also available.

MASTER of PUBLIC POLICY and ADMINISTRATION (M.P.P.A.)
 a. The Master of Public Policy and Administration is a graduate

professional degree with admission open to students who have earned at least a B average in a relevant undergraduate major.

b. Forty-two semester hours, including a three-credit internship, are required. The internship may be waived for students with significant and relevant work experience as determined by the Department of Political Science.

12. MASTER of SCIENCE in BUSINESS ADMINISTRATION (M.S.B.A.) a. This business program is housed in the Department of Finance

and Economics and targets students with an interest in finance.

b. The 30-hour-minimum program includes 21 hours in the major with 9 hours in a minor area.

13. MASTER of SCIENCE in INFORMATION SYSTEMS (M.S.I.S.)

a. This degree is offered in the Management and Information Systems Department.

b. A minimum of 30 credit hours course work is required.

14. MASTER of SCIENCE in INSTRUCTIONAL TECHNOLOGY (M.S.I.T.)

a. The program is offered in the Instructional Systems and Workforce Development Department.

b. The non-thesis option requires 33 credit hours of graduate course work.

#### 15. MASTER of TAXATION (M.TX.)

a. The Master of Taxation is a graduate professional degree requiring 30 semester hours of graduate course work.

### b. A thesis is not required.

16. EDUCATIONAL SPECIALIST (Ed.S.)

The College of Education offers the Educational Specialist degree with a major in education and concentrations in counselor education, elementary education, school administration, school psychology, secondary education, special education, or technology. These programs may be completed only after the student has received the master's degree from Mississippi State University or another recognized institution.

A three-hour special problem or six-hour thesis is required, upon completion of which the student will be expected to pass an oral or written comprehensive examination, or both.

The Educational Specialist degree is a planned program of a minimum of thirty semester hours above the master's degree, pursued under the direction of a major advisor. It is designed to broaden leadership training by providing courses in fields and disciplines that are supplementary to the basic study in the major field. At least twenty-one of the hours must be earned on the main campus or the Meridian Center.

A student completing the degree must apply for the comprehensive examination in the office of the major advisor with notification to the Dean of the Graduate School.

#### 17. DOCTOR of PHILOSOPHY

The Doctor of Philosophy degree is offered by the:

#### College of Agriculture and Life Sciences in

\*agricultural sciences (concentrations in agricultural and extension education; agronomy; animal and dairy science; animal nutrition; engineering technology; horticulture; poultry science; weed science)

\*food science, nutrition and health promotion (concentrations in food science technology; nutrition)

\*human development and family studies

\*life sciences (concentrations in entomology and plant pathol-

ogy; genetics; animal physiology)

# \*molecular biology

College of Arts and Sciences in

\*biological sciences

\*chemistry

\*cognitive science

- \*earth and atmospheric sciences
- \*history

\*mathematical sciences

\*public policy and administration \*sociology

# College of Business

\*business administration (concentrations in accounting; business information systems; finance; management; marketing) \*graduate applied economics

#### College of Education in

\*college/post-secondary student counseling and personnel services

\*community college leadership

\*counselor education/student counseling and guidance services

- \*curriculum and instruction
- \*educational psychology

\*elementary, middle and secondary education administration \*instructional systems and workforce development

#### Bagley College of Engineering in

\*biomedical engineering

- \*computational engineering
- \*computer engineering
- \*computer science
- \*electrical engineering
- \*engineering (concentrations in aerospace; applied physics; biological; chemical; civil; mechanical)

# \*industrial engineering

College of Forest Resources in

\*forest resources (concentrations in forest products; forestry; wildlife and fisheries)

#### College of Veterinary Medicine in

\*environmental toxicology

\*veterinary medical sciences

# 18. DOCTOR of EDUCATION

The College of Education offers the Doctor of Education degree with a major in education and concentrations in either elementary education, technology, or secondary education.

#### **GRADUATE COURSES**

Courses numbered 8000 or higher are for graduate students only. Courses numbered 6000 and 7000 may be taken for graduate credit if approved by the Dean of the Graduate School.

# BULLETIN of the GRADUATE SCHOOL

Published annually, the Bulletin contains detailed descriptions of the requirements for advanced degrees at Mississippi State University as well as academic policy and procedures administered by the Office of the Graduate School. The Bulletin is available online by visiting http:// www.grad.msstate.edu/pdf/bulletin.pdf.

# Academic Outreach & Continuing Education

# Dr. Steve Taylor, Interim Executive Director

Offices: 301 Memorial Hall, (662) 325-3473 Mailing Address: P.O. Box 5247, Mississippi State, MS 39762 www.aoce.msstate.edu

# THE DIVISION OF ACADEMIC OUTREACH & CONTINUING EDUCATION

The Division of Academic Outreach & Continuing Education is an academic/service arm of the University and extends educational opportunities through a variety of learning options, to individuals, groups and agencies in non-traditional program formats. It provides leadership coordination and assistance in implementing lifelong learning opportunities sponsored by Mississippi State University. The central purpose of the Division of Academic Outreach & Continuing Education is to provide programs tailored to the needs of lifelong learners consistent with the overall objectives, resources and unique capabilities of the University. These programs are enhanced by a rich array of support services.

The mission of the Division of Academic Outreach & Continuing Education is to engage people in achieving their lifelong goals through dynamic partnerships, targeted programming, innovative technology, and quality customer service. The activities of the Division of Academic Outreach & Continuing Education are classified as the following: Academic Outreach (distance education), Continuing Education, and Independent Study (college and high school). The Division of Academic Outreach & Continuing Education is a member of the University Education Association (UCEA), Learning Resources Network (LERN), Advisory Council on Distance Learning and & Academic Outreach (ACDLAO), Association for Continuing Higher Education (ACHE), and NAFSA: Association of International Educators.

#### OFFICE OF ACADEMIC OUTREACH

Michael Busby, Interim Manager Offices: 210 Memorial Hall, (662) 325-9092

The Office of Academic Outreach is dedicated to providing support services for quality academic courses, certifications, and degree programs via distance learning at Mississippi State University. All courses are offered through the Mississippi State University Colleges and academic departments. All curricula provide accredited educational programs and courses that possess the same rigor and standards of the traditional campus. Delivery methods offered include Online delivery and hybrid delivery. Distance classes include course participation fees in addition to Tuition & Required Fees. These fees, which may vary by course, will be collected as part of registration.

# INDEPENDENT STUDY

Michael Busby, Interim Manager Offices: 210 Memorial Hall (662) 325-8382 (college) or (662) 325-2649 (high school)

The Online Independent Study Programs provide an educational opportunity for a diverse group of learners. Courses are designed to provide structure and content that parallels in-class and on-campus equivalents while providing flexibility of time, place, and delivery through the use of combinations of technology.

College or High School credit received upon successful completion of courses may be used for self-improvement or toward requirements leading to a diploma. All college independent study courses are online. In addition, high school courses are available to both traditional and home schooled students and are governed by the Mississippi Department of Education.

The objective of the Online Independent Study Programs are to provide a positive learning experience for individuals that are self-motivated and self-disciplined and to provide evidence of a self-directed learning capability. Details are available at http://www.is.msstate.edu.

#### **CONFERENCE CENTER**

The Division of Academic Outreach & Continuing Education is located in Memorial Hall near the center of the MSU campus. Memorial Hall is an attractive and functional setting for conference meetings. Coskrey Auditorium can accommodate up to 200 people. A variety of setup options are available. The patio space adjacent to the auditorium provides an outdoor reception area or dining area, with barbecue cooking facilities, three fountains, and lush garden landscaping. There is an adjacent conference room that will hold up to 20 people.

# **MSU-Meridian**

# Dr. Steven F. Brown, Dean and Associate Vice President

College Park Campus 1000 Hwy 19 North • Meridian, Mississippi 39307-5799 (601) 484-0100 • In State-Wats 1-800-824-5288

Downtown Campus 2212 5th Street • Meridian, MS 39301 (601) 484-0150

Mississippi State University-Meridian is a regional, upper-division, degree-granting campus of Mississippi State University. Located in east-central Mississippi, MSU-Meridian's campus is non-residential and provides site-based credit and non-credit course work, as well as classes through distance learning using resident faculty, MSU-Starkville campus faculty, and part-time adjunct instructors.

A friendly atmosphere, personal attention, two convenient locations, and a diverse student population flavor the educational experience at MSU-Meridian. Through the flexibility of day and evening classes, both nontraditional adult students and traditional college-age students are able to continue employment, maintain important roles in family life, contribute to their communities, and still obtain a quality Mississippi State University education.

Mississippi State-Meridian serves as a proud symbol of the university's heritage as "the people's university" and of its commitment to providing quality higher education through the missions of learning, research, and service.

#### Location

Mississippi State University-Meridian has two locations. The Downtown Campus houses the MSU-Riley Center at 2200 Fifth Street and the Division of Business at 2202 Fifth Street; the College Park Campus is located on a 25-acre campus at 1000 Highway 19 North in Meridian, Miss.

#### **Facilities**

Overlooking a beautiful lake, the College Park campus is a 60,000 square-foot, two-story complex is nestled among hardwoods and loblolly pines. A 90-foot tower stands watch over the main entrance and serves as the focal point and official symbol of the campus. The complex contains 24 classrooms and laboratories, a bookstore, academic suites, study lounges, an 800-person multi-purpose auditorium for campus and community use, and ample parking. Although there are no dorm facilities at either campus, apartments are located nearby and in other locations throughout the area.

Situated in a four-story historical landmark in the heart of downtown Meridian, the newly renovated Downtown campus is an architectural gem. The 20,175 square-foot facility, complete with a massive floor to roof sky light, houses MSU-Meridian's Division of Business faculty, state-of-the-art classrooms and computer lab, study rooms, conference rooms, and a stock ticker. It is adjacent to MSU-Riley Center for Education and the Performing Arts which offers theater and conference facilities

#### Students

Approximately one-half of the students who attend MSU-Meridian reside in Lauderdale County. The remainder commute from 32 other Mississippi counties and from Alabama, with a majority making their homes in the surrounding counties of Clarke, Jasper, Jones, Kemper, Leake, Neshoba, Newton, Scott, and Wayne. Advancements in course offerings, programs, and distance learning technology should expand the scope of service even further.

#### **Distance Learning**

Four interactive video conference classrooms allow students on the Meridian and Starkville campuses, and at downlink sites elsewhere in the world, to receive instruction and interact through two-way video and audio distance technologies. This greatly improves MSU-Meridian's ability to expand the scope of its service and still maintain courses of the highest quality.

The development of Web-based (direct-to-desktop) delivery systems is also being utilized to facilitate the delivery of asynchronous and synchronous real time audio and video through computer based technologies and the Internet.

#### Library Facilities

The MSU University Libraries, with an off-campus operation at MSU-Meridian, supports the teaching, research, and service needs of the Meridian community. MSU-Meridian faculty, students and staff have full access to all the electronic collections offered by the University Libraries including scholarly journals, government documents, books, newspapers and reference materials. Physical items located on the Starkville campus and through a network of other university libraries are accessible through Interlibrary Loan and the Library Express document delivery service at no charge to MSU-Meridian community.

An "Electronic Library Room" is available so that individuals on the MSU-Meridian campus may access these online resources and services including online workshops and podcasts. Materials selected and purchased by and for MSU-Meridian are added to the L.O. Todd Library and are available to both communities through a partnership between MSU-Meridian and the Meridian Community College.

#### **Degree Programs**

Junior, senior, and graduate-level courses offered at MSU-Meridian Campus students to fulfill requirements for Bachelor's, Master's, and Specialist's degrees. They may also elect to enroll in specific classes for professional or personal growth.

#### **Undergraduate Degrees**

Division of Arts and Sciences

- Bachelor of Arts in Communication
- (Concentration in Broadcasting) Bachelor of Criminology
- Bachelor of Arts in English Bachelor of Arts in General Liberal Arts
- Bachelor of Arts in History
- Bachelor of Arts in Psychology
- Bachelor of Science in Interdisciplinary Studies
- Bachelor of Social Work
- Division of Business
  - Bachelor of Business Administration with concentrations in: Accounting
    - **Business Administration**
    - Healthcare Administration
    - Information Systems
    - Management
    - Marketing
    - Technology Management
- Division of Education
  - Bachelor of Science in Education with majors in: Elementary Education Secondary Education, English or Social Studies Special Education

### Graduate Degrees

Division of Business Master of Business Administration

- MBA in Accounting
- Division of Education
  - Master of Science degree with majors in: Elementary Education
    - Secondary Education
    - Counselor Education
    - School Administration
    - Master of Arts in Teaching degree with major
    - in Comm. College Education Master of Arts in Teaching - Secondary Teaching Education
    - (Alternate Route program)
    - Educational Specialist with concentrations: Elementary Education

# DIVISION of ARTS and SCIENCES

#### Dr. Dennis J. Mitchell, Associate Dean

Assistant Professor & Director of Social Work Rhonda G. Carr Associate Professor of Social Work Marian Swindell, Ph.D. Assistant Professor of Psychology Vicki Gier Ph.D. Associate Professor of English James Kelley, Ph.D. Assistant Professor of History Toby G. Bates, Ph.D. Assistant Professor of Biology Jarrod Fogarty, Ph.D. Instructor of Mathematics Lin Ge, Ph.D. Lecturer Amanda F. Cook

The Division of Arts and Sciences offers five degree programs: the Bachelor of Science in Interdisciplinary Studies (BSIS), General Liberal Arts (GLA), History, Psychology, and the Bachelor of Social Work (BSW).

# Bachelor of Science in Interdisciplinary Studies (BSIS)

### Advisor: Dr. Jarod Fogarty

The Bachelor of Science in Interdisciplinary Studies is a universitywide degree coordinated through the Office of Academic Affairs by the Interdisciplinary Studies Committee. This multi-discipline academic program is appropriate for students motivated by specific interests not recognized in traditional majors and is not intended to compete with existing programs. All University requirements, including 32 hours of upper division course work and a year's residence, must be met for graduation.

The Bachelor of Science in Interdisciplinary Studies is intended to allow students maximum flexibility to custom-design a curriculum to meet their personal and career goals. Such a program of study must assure depth of study as well as breadth. Therefore, it must insure that students take at least 36 upper-division hours in the areas they have chosen for emphasis and that they select a minimum of 12 hours in each of three areas or 18 hours in two. Emphasis areas must be selected from at least two colleges. General education requirements (45 hours) must be met in addition to a general studies core of 15 hours. A total of 122 semester hours is required for graduation, along with an MSU and cumulative GPA of 2.0.

To insure coherence in the program, the student must construct and explain in writing the rationale for the interdisciplinary studies program's direct relationship to the student's personal and career goals. Each student will be required to find advisors in the academic disciplines who will agree to sponsor the student in drawing up the proposed curriculum, formulating the rationale, and presenting the case in writing to the Interdisciplinary Studies Committee. This should be done prior to the senior year.

If approved, the student may proceed with the curriculum. The Com-mittee will meet during the fall, spring and summer semesters, and students must make written application by September 15 or February 1. Application for a degree must be submitted to the Office of the Registrar. For further information, contact Dr. James Kelley, Office 088 of the MSU-Meridian Campus.

#### General Liberal Arts Program (GLA)

#### Advisor: Dr. James Kelley

Students who prefer to specialize in more than one field of study may earn a B.A. degree in General Liberal Arts. Requirements for this degree include all of the following: satisfactory completion of the University and College Core curriculum; satisfactory completion of the College of Arts and Sciences B.A. requirements; approval of the proposed G.L.A. program; satisfactory completion of twelve hours of upper-division courses (courses numbered 3000 and above) in each of three fields of study. The three fields may all be within the College of Arts and Sciences, or one of the three may be within another school/college of the University if that field is related to the student's educational or career goals. To insure an orderly progression of work toward the degree, interested students should meet with the program's advisor as early as possible. Furthermore, admittance into the program requires a GPA of at least 2.5 and the approval of the GLA Committee and the Associate Dean of the College of Arts and Sciences. General Liberal Arts is not suitable for students who are uncertain about their choice of a major; these students should see the Undecided listing in this section.

#### **General Education and College Requirements**

Otherar Education	and Conege Requirements			
English Composition (6 hours)				
EN 1103	English Comp I OR			
EN 1163	Accelerated Comp I			
EN 1113	English Comp II OR			
EN 1173	Accelerated Comp II			
Foreign Language (	9 hours)			
3 semesters	one Foreign Language (see advisor)			
Humanities (18 hou	rs)			
3 hours	Literature - see Major Core			
3 hours	History - see A&S listing			
3 hours	Philosophy Elective - see advisor			
9 hours	Humanities Electives - consult advisor			
Math (6 hours)				
MA 1313	College Algebra			
3 hours	Above College Algebra			
Fine Arts (3 hours)				
3 hours	See A&S listing			
Natural Sciences (9-12 hours)				
3-4 hours	Physical Science w/Lab*			
3-4 hours	Biological Science w/Lab**			
3-4 hours	Natural Science Elective***			
Social Sciences (18 hours)				
6 hours	See A&S Listing			
12 hours	Social Sciences Electives****			
Major Core				
Students must choose 3 areas with 12 upper division hours in				
area Consult advisor				

n each area. Consult advisor.

Oral Communication Requirement (3 hours)

CO 1003 Fundamentals of Public Speaking

Computer Requirement - consult advisor for approved courses

Writing Requirement - consult advisor for approved courses

Electives

8 or more hours to equal 124

Total hours needed for major: 124

CH\_GG\_or PH: see General Education courses

\*\* BIO, EPP, or PO; see General Education courses

\*\*\* Consult advisor.

\*\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor

### **History Program**

#### Advisor: Dr. Toby Bates

To earn a Bachelor of Arts degree with a major in history, a student must pass a minimum of 39 semester hours in history with a 2.50 average in those courses. All undergraduates majoring in history must complete two of the following basic sequences: HI 1063/1073; HI 1163/1173; HI 1213/1223; HI 1313/1323. Along with these basic sequences, students who began the major prior to Fall 2008 are required to take a minimum of two upper division courses in United States history, two upper division courses in European history, two upper division courses in African, Asian, Ancient, or Latin American history, plus two upper division electives in any area of history. Students who began the major after Summer 2008 are required to take a minimum of to upper division courses from Category I, two upper division courses from Category II, two upper division courses from Category III, plus two upper division courses from any Category.

**General Education and College Requirements** 

English Composition (6 hours)

- ΕN 1103 English Comp I OR
- EN 1163 Accelerated Comp I
- EN 1113 English Comp II OR EN 1173 Accelerated Comp II
- Foreign Language (9 hours)

3 semesters one Foreign Language - see advisor

Humanities (18 hours)

3 hours Literature - see General Education courses 3 hours History - see major 3 hours Philosophy Elective - see A&S requirements 9 hours Humanities Elective - see A&S core Must be from 2 different areas. Can be upper division hours; 6 hours may be HI courses; 3 hours must be from another area. Math (6 hours) MA 1313 College Algebra MA 1323 Trigonometry OR ST 2113 Intro to Statistics or higher math Fine Arts (3 hours) See A&S requirements Natural Sciences (9-12 hours) 3-4 hours Physical Science w/Lab\* Biological Science w/Lab\*\* 3-4 hours 3-4 hours Natural Science Elective\*\*\* Social Sciences (18 hours)\*\*\*\* 6 hours See A&S requirements Social Sciences Electives 12 hours **Major Core** Must choose two of the following sequences: HI 1163. HI 1173 World History HI 1213, HI 1223 Western World HI 1063, HI 1073 U.S. History HI 1313, HI 1323 East Asian Civ Students declaring a history major prior to Fall 2008 U.S. history U/D Electives 6 hours African, Ancient, Asian or Latin American U/D 6 hours Electives 6 hours European history U/D Electives 6 hours U/D Electives Students declaring a history major after Summer 2008 Category I History U/D Electives 6 hours 6 hours Category II History U/D Electives Category III History U/D Electives 6 hours 6 hours U/D Electives Oral Communication Requirement CO 1003 Fundamentals of Public Speaking Writing Requirement HI 3903 Historiography and Historical Method Computer Literacy BIS 1012 Intro to Business Information Systems OR TKT 1273 Computer Applications General Electives+ 12 hours Consult advisor Total hours needed for major: 124 (31 hours must be A&S 3000 or above) CH, GG, or PH; see General Education courses. BIO, EPP, or PO; see General Education courses

Consult advisor. \*\*\*

\*\*

\*\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Eco-nomics allowed. Can be upper division hours. See advisor.

13 hours of general electives required if BIS 1012 is chosen for computer requirement.

#### **Psychology Program**

Advisors: Dr. Vicki Gier or Dr. Carly Friedman Office: 090 or 089

MSU-Starkville faculty members may offer classes at Meridian.

Adjunct professors teach regularly in the program. They are:

- Alisha Gray Marlow, Ph.D., University of Southern Mississippi. Psychologist, Weems Mental Health Center, Meridian.

- James L. Shumate, Ph.D., University of Southern California. Psychologist, East Mississippi State Hospital, Meridian.

- Stephanie Cooper, Ph.D., Mississippi State Univ. Private Practice.

- Michelle D. Boucher, Ph.D., University of Southern Mississippi. Psychologist, Weems Mental Health Center, Meridian.

#### **Required Curriculum**

Undergraduate students wishing to major in psychology must have a minimum 2.0 grade point average on all college work attempted prior to entering the major. The Bachelor of Arts degree program in psychology is designated to provide training for advanced study in psychology or related fields. Advanced study is recommended for students desiring a career in psychology. Psychology majors must earn a C or better in all required psychology courses.

#### General Education and College Requirements

English Composition (6 hours) EN 1103 English Comp I OR Accelerated Comp I EN 1163 EN 1113 English Comp II OR EN 1173 Accelerated Comp II Foreign Language (9 hours) 3 semesters one Foreign Language - see advisor Humanities (6 hours) 3 hours Literature - see General Education courses 3 hours History - see General Education courses Philosophy Elective (3 hours) Consult advisor Humanities Elective (9 hours) (Must be from 2 different areas - see A&S Core) Mathematics (6 hours) MA 1313 College Algebra Trigonometry OR MA 1323 Intro to Statistics (or higher math) ST 2113 Fine Arts (3 hours) See A&S Core List Natural Sciences (9-12 hours) 3-4 hours Physical Sciences w/lab (CH, GG, PH)\* Biological Sciences w/lab (BIO, EPP, PO)\* 3-4 hours Natural Science Elective\*\* 3-4 hours Social Sciences Core (6 hours) PSY 1013 General Psychology See A&S Core listing 3 hours Social Sciences Electives (12 hours)\*\*\* **Major Core** PSY 1021 Careers in Psychology PSY 3103 PSY 3314 Intro Psychological Statistics Experimental Psychology Choose two of the following: PSY 3213 PSY 3623 Psy of Abnormal Behavior Social Psychology PSY 3803 Developmental Psychology Theories Personality PSY 4203 Choose one of the following: Psychology of Learning PSY 3343 PSY 3713 Cognitive Psychology Choose one of the following: PSY 4403 **Biological Psychology** PSY 4423 Sensation and Perception Choose one unused course from the groups above 3 hours 12 hours PSY Upper Division Electives Oral Communication Requirement CO 1003 Fundamentals of Public Speaking Writing Requirement Satisfied by successful completion of PSY 3314 Computer Literacy Satisfied by successful completion of PSY 3314 General Electives Consult advisor

### Total hours needed for major: 120

Humanities (6 hours)

- \* See General Education courses
- \*\* Consult advisor.

\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours (6 hours from the Social Science core and 12 hours of SS electives). Only one Economics allowed. See advisor.

#### Social Work Program

## Program Director: Rhonda G. Carr

The Social Work Program at Mississippi State University-Meridian is accredited by the Council on Social Work Education. The profession of social work recognizes the Bachelor of Social Work (BSW) degree as the first practice degree. The BSW graduate is prepared to work as a generalist social work practitioner in a variety of practice settings such as child welfare service agencies, nursing homes, medical hospitals, mental health hospitals/ clinics, public health clinics, industries, juvenile and family courts, shelters for battered women and children, neighborhood and community services.

The social work program integrates a liberal arts perspective into the social work curriculum. This liberal arts perspective enhances the person-in-environment focus of generalist social work practice. Mississippi State University-Meridian, an upper-division university, offers courses equivalent to the third and fourth years. The social work program does accept course credit through transfer (up to 62 hours) from other accredited universities and colleges.

Although students may enroll in social work as their major, there is a formal admission process into the social work program. Criteria for admission into the program include:

- 1. Cumulative GPA of 2.0
- 2. The following liberal arts requirements must be completed:
  - · English Composition I and II
  - College Algebra
  - Introduction to Sociology
  - · American Government
  - General Psychology
  - Anatomy & Physiology
  - Principles of Macroeconomics
  - · Fund. of Public Speaking
  - Basic Computer Concepts & Applications
  - Social Work with At-Risk Populations

3. Completion of the following social work courses with a minimum grade of B

- SW 3003 Social Work with At-Risk Populations
- SW 2313 Introduction to Social Work
- (including 20 hours of volunteer experience)
- SW 2303 Social Welfare Policy I
- SW 3013 Human Behavior in the Social Environment I

4. Completion of Application for Admission to the Social Work Program

5. Students must provide three reference letters on provided forms

6. Students must complete a personal interview with social work admissions committee

7. Students must be admitted to the Social Work Program before enrolling in further social work courses.

Additional courses, as noted in the application for admission form, must be completed prior to petition for admission to the major.

Before enrolling in any social work classes, it is the responsibility of the student to consult with their social work advisor regarding prerequisites for social work classes. The criteria for remaining in the program and entering field practicum include:

1. Maintain an overall GPA of 2.0, with a 3.0 GPA or better for all social work courses

2. Continue to demonstrate an aptitude for a social work career

3. Adhere to all academic expectations of the university and the social work program

4. Adhere to the National Assoc. of Social Workers Code of Ethics

#### **General Education and College Requirements**

English Composition (6 hours)

- EN 1103 English Composition OR
- EN 1163 Accelerated Comp I
- EN 1113 English Composition OR
- EN 1173 Accelerated Comp II

Foreign Language (6 hours)

2 semesters one Foreign Language - see advisor

3 hours Literature - see General Education courses 3 hours History - see General Education courses Philosophy (3 hours) PHI 1103 Introduction to Philosophy OR PHI 1113 Introduction to Logic Humanities Elective (9 hours)\* Literature Elective 3 hours History Elective 3 hours Humanities Elective 3 hours Mathematics (6 hours) MA 1313 ST 2113 College Algebra Introduction to Statistics Fine Arts (3 hours) See Arts & Sciences Core List Natural Sciences (9-12 hours) BIO 1004 Anatomy and Physiology Physical Sciences w/lab (CH, GG, PH) \*\* 3-4 hours 3-4 hours Natural Science Elective \* Social Sciences (6 hours) SO 1003 Intro to Sociology PS 1113 American Government Social Sciences Electives (12 hours) Required: PSY 1013 General Psychology EC 2113 Prin of Macroeconomics AN 1103 Intro to Anthropology OR AN 1143 Intro to Cultural Anthropology **Major Core** Social Work curriculum is completed as sequenced. SW 2313 Intro SW/Soc Welfare SW 2303 Social Welfare Policy I SW 3003 Populations at Risk \* SW 3013 Human Behav & Social Envir. I Students must successfully complete a formal admissions process prior to taking the following courses: SW 2323 Social Welfare Policy II\*\*\* SW 3023 Human Behav & Social Envir. II\*\*\* SW 3213 Research Methods in Social Work \*\*\* SW 4613 Child Welfare Services Social Work Practice I\*\*\* SW 3513 SW 3523 Social Work Practice II\*\*\* SW 3533 Social Work w/ Comm & Organizations\*\*\* Social Work Elective 3 hours Oral Communication Requirement CO 1003 Fundamentals of Public Speaking Writing Requirement SW 4713 Senior Seminar\*\*\*

Computer Literacy

- Consult Advisor
- General Electives

Consult Advisor

Field Work includes full-time placement for one semester in a supervised agency setting.

- SW 4916 SW Field Practicum and Seminar I\*\*\*
- SW 4926 SW Field Practicum and Seminar II\*\*\*

#### Total hours needed for major: 124

32 hours of course work must be A&S 3000/4000

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    Consult Advisor
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\*\* See General Education courses.

\*\*\* Course has prerequisite. Please check course description in back of catalog or consult advisor

# **DIVISION of BUSINESS**

# Interim Associate Dean Kevin Rogers

Associate Professors Kevin Ennis, William Hill, Doug McWilliams, and Natasha Randle; Assistant Professors Paul Spurlin and Carlton Young; Lecturer Harold White; Academic Advisor Regena Clark

The mission of the College of Business is to be a nationally recognized and respected college of business equipped to focus on dynamic and collaborative learning, innovative and distinctive research, and valued outreach activities in the state and region.

#### **BACHELOR of BUSINESS ADMINISTRATION**

(Concentrations in Accounting, Business Administration, Healthcare Administration, Information Systems, Management, Marketing, or Technology Management)

**Lower Division** - Lower division hours must be completed at another educational institution.

English - 6 hours				
EN	1103	English Composition		
EN	1113	English Composition		
Humanities -	6 hour	S		
3 hou	irs	Humanities Elective		
3 hou	irs	Humanities Elective		
Fine Arts - 3	hours	Choose one of the following:		
		Art Appreciation		
		Music Appreciation		
Mathematics	- 9 hou	Irs		
MA	1313	College Algebra		
MA	1613	Calculus for Business		
BQA	2113	Intro to Business Statistical Methods		
Science - 6 hours				
BIO,	GG, CI	H, or PH (with laboratory)		
Behavioral S	cience	- 3 hours (Choose one)		
		Introduction to Psychology		
		Introduction to Sociology		
		Introduction to Anthropology		
Additional R	equired	Lower Division Courses		
PS	1113	American Government		
	1003	Fundamentals of Public Speaking		
	2013	Principles of Financial Accounting		
	2023	Principles of Managerial Accounting		
	2413	The Legal Environment of Business		
	2113	Principles of Macroeconomics		
	2123	Principles of Microeconomics		
7 hou	irs	Electives		
<b>Total lower division hours 61</b>				
Upper Divis	ion			
	3233	Intro to Mgt Info Systems		
BIS	3713	Electronic Information Systems		
BQA	3123	Business Statistical Methods II		
	3113	Financial Systems		
FIN	3123	Financial Management		

Principles of Management & Production Organizational Communications I

Principles of Marketing

Total hours needed for degree: 124 \* Major elective hours by major: Accounting (24), Business Administration (24), Healthcare Administration (18), Information Systems (30), Management (18), Marketing (21), and Technology Management (24).

Choose enough general electives to bring the total number of hours to 124.

Business Policy (Senior course) International Elective

MGT 3114

MGT 3213 MKT 3013

GB 4853

3 hours Interna Major Electives\* General Electives\*\*

# **DIVISION of EDUCATION**

Dr. Sallie Harper, Interim Associate Dean

Associate Professors Julie Porter, Joshua Watson and Darren Wozny Assistant Professors Matthew Boggan, Janet McCarra, Lindon Ratliff, Kimberly Triplett, and Penny Wallin; Lecturer Tory Shirley

The Division of Education in Meridian offers degree programs in areas previously listed. Education programs offered at MSU-Meridian parallel those offered through the College of Education in Starkville. Specific degree program requirements may be obtained by referencing the College of Education section in this Bulletin.

Degree requirements may be found by referencing the corresponding degree program located within this general bulletin

# Reserve Officers' Training Corps

Office: 1<sup>st</sup> Floor, Middleton Hall Telephone: (662) 325-3503 www.armyrotc.msstate.edu Mailing Address: P.O. Box 5447, Mississippi State, MS 39762 MAJ Cardone, MAJ Bowman, Mr. Mike Harbor, Mr. Michael Hunter, Mr. Dustin Guadagno, MSG Wiley, SFC Bates

The Reserve Officers' Training Corps is under the administrative and academic supervision of the College of Arts and Sciences. Army ROTC (Military Science) courses are indicated by the prefix MS; Air Force ROTC (Aerospace Studies) courses are indicated by the prefix AS. All ROTC courses are bona fide University courses. The total number of ROTC hours allowed as elective credit toward a specific degree varies. Most schools and colleges at the University accept six (6) or more hours of ROTC courses offered toward degrees conferred. The advanced ROTC courses are options for meeting social/behavioral science core requirements. A student should contact the appropriate college, school, or department to determine allowable ROTC course credit toward a particular degree.

#### **PURPOSES and OBJECTIVES**

The general objective of the Reserve Officers' Training Corps is to develop in each student: (1) a basic understanding of associated professional knowledge necessary to be an officer in the US Armed Forces; (2) a strong sense of personal integrity, individual responsibility and honor; and, (3) an appreciation of the requirements of national security.

The Army ROTC Basic Course is designed to give the first and second year ROTC student an introduction to the Army and its career opportunities without incurring any obligation on the part of the student. The Advanced Course (third and fourth years) stresses the military skills and knowledge, and interpersonal skills required of commissioned officers of the Active Army, Army Reserve, or Army National Guard.

The Air Force ROTC General Military Course (GMC) is a two-year course normally taken during the freshman and sophomore years. The course covers two main themes - the development of air power and the contemporary Air Force in the context of military organization. A student can enroll in the GMC without military obligation (unless on an AFROTC Scholarship). The Professional Officer Course (POC) is a two-year course of instruction, normally taken during the junior and senior years. The curriculum covers Air Force leadership and management and American Defense Policy. A minor in Aerospace Studies is available to students completing the specified requirements in Air Force ROTC.

#### Army Program

**Army Program**. The Basic and Advanced Courses consist of 4 semesters each as shown below. See the "Description of Courses" section of this catalog for further information.

Basic Courses (2 hours each)

- MS 1112 Leader Development 1
- MS 1122 Leader Development 2
- MS 2113 Leader Development 3
- MS 2123 Leader Development 4

#### **Total of 10 hours**

Advanced Courses (3 hours each)

- MS 3113 Advanced Military Skills I
- MS 3123 Advanced Military Skills II
- MS 4114 Leader's Responsibilities
- MS 4124 Professional Development of the Leader

#### Total of 14 hours

**Professional Military Education (PME).** In addition to the above, each cadet must complete, as a minimum, one university approved course in each of the following subject areas; Written Communication Skills, Human Behavior, Military History (HI 4233), Computer Literacy, and Math Reasoning. The PME requirement is normally achieved by the cadet as part of a normal course of study. Students should coordinate with a Military Science instructor to determine a course of action to complete the PME requirement.

Requirements for commissioning as a Second Lieutenant in the United States Army include thirty-three days at the Leadership Development Assessment Course (normally between the junior and senior years), completion of the Advanced Course, satisfactory academic progress, and the recommendation of the Professor of Military Science (PMS). Office: 2<sup>nd</sup> Floor, Middleton Hall Telephone: (662) 325-3810 www.afrotc.msstate.edu Mailing Address: P.O. Box AF, Mississippi State MS 39762

Lieutenant Colonel Roberta L. Nicholson Professor of Aerospace Studies

#### ENTRANCE REQUIREMENTS

**Basic Course**. The Army Basic Course is an elective course requiring only that the individual be a full time student and a legal U. S. citizen. ROTC credit hours earned at other universities are transferable.

Entrance into the Advanced Course is on a selective and competitive basis. The primary requirements for entry into the advanced program are satisfactory completion of the basic course or equivalent, good academic standing, demonstrated leadership ability, an approved physical examination and completion of 60 semester hours of college credit.

**Two-Year Program**. Equivalent credit for the basic course may be obtained by students with 54 semester hours of college credit or more for direct enrollment in the advanced course, based on any one of the following.

(a) Satisfactory completion of the four week Leader's Training Course (LTC). LTC is an intensive introduction to Army life and leadership training of the Reserve Officers' Training Corps, the aim of the course is to motivate and qualify Cadets for entry into the Senior ROTC program. LTC is primarily intended for students who could not obtain the basic ROTC course during the freshman and sophomore years.

(b) at least 180 days of honorable service or active duty for training with the U.S. Armed Forces or Coast Guard.

(c) Substitute credit, which in varying amounts may be derived from attendance at service academies, junior ROTC courses, and National Defense Cadet Corps training.

(d) Successful completion of Basic Combat Training with the Army Reserve or the National Guard.

Interested students should consult the PMS during their first sophomore semester but not later than their junior year. Graduate students should apply prior to starting graduate work.

Simultaneous Membership program (SMP). Students who are members of a National Guard or Army Reserve unit may qualify for direct entry into the Army ROTC Advanced Course. Consult the PMS for additional information concerning the financial benefits of this program.

# Summer Training

# MS 2256 Leadership Training Course

The Army Leader's Training Course can be used by students desiring to enter the Advanced Course who are not eligible for advanced placement under any other process (e.g. Basic Course, veteran, four years of junior ROTC, completion of Basic Training, etc). The course is five weeks long and incurs no military obligation for attendance. The course is a substitute for the two year Basic Course. Students attending may compete for Army scholarships.

#### MS 3376 Advanced Leadership Course

The five-week Army Advanced Camp is required of all students enrolled in the Advanced Course and is normally attended between the junior and senior year.

#### Uniforms and Equipment

Uniforms and textbooks are issued without cost to students. However, all equipment and textbooks must be returned to the ROTC Department upon departure of the student, and any such article lost or damaged other than by fair wear and tear, must be paid for by the students. Each student enrolled in ROTC is responsible for the maintenance of his/her uniform. Students who fail to clear their accounts before leaving the institution will have their university records placed on hold.

#### Pay and Allowances

**On Campus.** Each student enrolled in the Army Advanced Course is paid a monthly subsistence allowance by the Federal Government of \$450.00 per month for juniors and \$500.00 per month for seniors.

**Summer Training**. While at the Leadership Training Course, the student receives pay at the rate of \$26.42 per day (approximately \$792.60 per month). Students attending the Leadership Development Assessment Course also receive pay at a rate of \$28.19 per day (approximately \$845.70 per month) less applicable taxes.

#### Army ROTC Scholarship Program

The Army awards ROTC scholarships to outstanding students each academic year. Army ROTC scholarships are for periods of two, three, or four years. They pay tuition, fees, books, and laboratory expenses incurred by the cadet and provide up to \$500 per month subsistence allowance to the cadet for the duration of the scholarship (except during the summer). Additionally, 4-year Scholarship Winners and 3-year Designees that attend MSU may receive up to \$2000 for room and board. The amount of the award depends on the number of scholarship winners and designees that attend MSU. All contracted cadets can compete for a scholarship. Both men and women are eligible to apply for these scholarships.

High school students should consult their guidance counselors early in September or October of their senior year to apply for the four year scholarship. College sophomores with a 2.5 GPA and greater who otherwise qualify may be eligible for a 2-year scholarship.

#### Obligations

Accepting a commission as a 2nd Lieutenant in the U.S. Army incurs a service obligation of eight years. This period may be served in a variety of ways to include: Active Duty, Reserves, National Guard, Individual Ready Reserve or a combination of these.

#### **AIR FORCE PROGRAM**

Air Force Course Program. The General Military Course (GMC) and the Professional Officer Course (POC) consist of four semesters as shown below. See the "Description of Courses" section of this catalog for further information. Each course has a mandatory laboratory.

General Military Courses (GMC) 2 hours each

- AS 1012 Foundations of USAF I
- AS 1022 Foundations of USAF II
- AS 2012 Air and Space Power I
- AS 2022 Air and Space Power II

#### **Total of 8 hours**

Professional Officer Course (POC) 3 hours each

- AS 3013 AF Leadership Studies I
- AS 3023 AF Leadership Studies II
- AS 4013 Nat. Security Affairs and Prep for Active Duty I
- AS 4023 Nat. Security Affairs and Prep for Active Duty II

#### **Total of 12 hours**

Requirements for commissioning as a USAF Second Lieutenant include completion of a degree according to the university's rules and regulations, completion of the Professional Officer Course, completion of AFROTC Field Training (normally during the summer between the sophomore and junior years), and approval of the Professor of Aerospace Studies. Officer candidates must be between 18 and 31 years of age for commissioning.

#### **Entrance Requirements**

GMC: To enter the GMC, a student must be full-time, be a U.S. citizen, be in good physical condition, and be of good moral character.

POC: In addition to the GMC requirements, POC cadets must have passed the AFROTC Physical Fitness Test. They must be selected by a board of USAF Officers, and have completed a five-week field training encampment.

While Aerospace Studies courses are designed to prepare eligible students for commissioning as Second Lieutenants in the USAF, the AS academic courses are open to all interested students, even those who do not meet GMC or POC entry requirements. There is no armed forces service obligation for joining the GMC. AFROTC detachment personnel will explain any commitments associated with POC entry of AFROTC scholarships.

**Field Training:** AFROTC cadets who have completed the GMC course work and meet other requirements for POC entry will normally attend the four-week USAF field training encampment between their sophomore and junior years. Field Training is a mentally and physically demanding period of concentrated USAF training.

**Uniforms and Equipment**: AFROTC issues uniforms and textbooks without cost to students. However, all equipment and textbooks remain property of AFROTC and must be returned before departure. Each student is responsible for the maintenance of his/her uniform.

Pay and Allowances: Each student enrolled in the POC is paid a monthly subsistence allowance of at least \$450 while enrolled in the

POC (maximum of 600 days). While at Field Training, students are paid at a rate of approximately \$20 per day.

# IN-COLLEGE SCHOLARSHIP PROGRAM

Full-time students are eligible to apply for Air Force ROTC threeor two-year scholarships. The majority of scholarships pay full college tuition, laboratory and incidental fees, book costs, plus at least \$350 per month, depending on academic year. Applicants are selected on the basis of college grade point average, ACT scores, and a recommendation from the Professor of Aerospace Studies. Final selection is made by a Central AFROTC selection board which considers qualified applicants nationwide. There is no maximum number of scholarships for any one school. Students who are not presently taking AFROTC courses may still apply for the in-college scholarships.

Inquiries about AFROTC scholarships may be made directly to the Admissions Officer, AFROTC Detachment 425, Box AF, Mississippi State, MS 39762.

Active Duty Obligations: Individuals who complete the AFROTC program and are commissioned a Second Lieutenant incur an active duty service commitment of four years.

#### ROTC EXTRACURRICULAR ACTIVITIES

**Cadet Military Societies.** Chapters of the Scabbard and Blade (Army and Air Force). Arnold Air Society (Air Force), and the Society of American Military Engineers (Army and Air Force) are chartered by appropriate national organizations. Selected Basic cadets with scholarships and Advanced cadets are eligible for membership in the Scabbard and Blade, and the Arnold Air Society, while the Society of American Military Engineers is open to all ROTC cadets and engineering students.

**Drill Teams.** The Blue Knights is a precision military drill team, composed of selected cadets from Air Force ROTC. The drill team participates in university and community events, as well as in state-wide competitions.

Lee's Rangers. The Army ROTC Lee's Rangers is made up of selected volunteers from the Army. This unit participates in extra training in small unit tactics and leadership under simulated combat conditions. Emphasis is placed on maintaining a high level of physical conditioning and developing self-confidence. Participants must be enrolled in Army ROTC. The Lee Ranger Company sponsors the ranger challenge team.

Army "Blades". The "Blades" were established in March 1969 to formalize the women's auxiliary of the Army ROTC Cadet Corps. These outstanding coeds serve the University and Cadet Corps as hostesses at social functions and in other ways to promote citizenship and interest in the Army ROTC program. They also undertake various service projects.

Silver Wings. Silver Wings is a nationwide honorary organization of college students dedicated to the interests of the United States Air Force and Air Force ROTC. Silver Wings evolved from the previously all-female auxiliary of the cadet corps, Angel Flight. Silver Wings exists to further the cause of the United States Air Force by promoting the interest of college men and women in the Air Force ROTC program. Members of Silver Wings are considered associated members of Arnold Air Society. Participation in worthwhile projects such as the Red Cross blood drives and orphanage parties, as well as hosting at Air Force ROTC functions makes these students an outstanding asset to the campus.

**Bulldog Battery**. The Army ROTC's Bulldog Battery exists to support military ceremonies and athletic events.

**Color Guard.** Both the Air Force and Army Programs have Color Guards. The cadets present the Colors at home football and SEC home basketball games. They also participate in various community events.

# III. DESCRIPTION of COURSES

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# COURSE NUMBERING SYSTEM

Courses are listed alphabetically by course symbol. Each department entry contains a list of faculty members, including designation of the department head, and a description of the courses.

### System of Course Numbers

All course numbers consist of four digits, of which the first (left) digit indicates the level of preparation required and the fourth (right) digit indicates the number of semester hours. The two middle digits are reserved for the departments to distinguish one course from another. A fourth digit of zero (0) means that credit is variable to be fixed in consultation with the professor: example, ACC 4000, Directed Individual Study.

Courses that are in close sequence, such as two semesters of a survey course or a sequence of numbers for a seminar in a particular field may be listed with a hyphen (-) between the two four digit numbers: example, PSS 4711-4731. Seminar.

Where the same course is offered on both undergraduate and graduate levels, two numbers are used to designate the two levels of credit; example, HI 4703/6703. England to 1485. Students enrolled for graduate credit will be required to complete assignments above and beyond those students enrolled for undergraduate credit.

Course Numbers	Level of Credit*
1001-2999	Lower division courses
	Undergraduate credit only
3001-4999	Upper division courses
	Undergraduate credit only
4000	Directed Individual Study (Undergraduate)
5011-5999	Fifth year undergraduate
	or Professional courses
6011-6999	Courses for graduate credit only
8011-8999	
9011-9999	
7000	Directed Individual Study (Graduate)
8000	Master's level research and thesis
9000	Ph.D. level research and dissertation

 Courses numbered 2000 or higher were upper division courses until Spring semester 1996.

#### **Special Courses**

While not listed under every subject, the following special courses are available under each subject prefix, and the course description is the same for each.

**2990.** Special Topics in (Subject). (1-9) Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years).

**4000. Directed Individual Study.** Hours and credits to be arranged.

**4990/6990.** Special Topics in (Subject). (1-9) Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years).

7000. Directed Individual Study. Hours and credits to be arranged.

8000. Thesis Research/Thesis. Hours and credits to be arranged.

**8990.** Special Topics in (Subject). (1-9) Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years).

9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

# Course Descriptions in Alphabetical Order by Course Symbol

# **AFRICAN AMERICAN STUDIES**

AAS 1063. Introduction to African American Studies. (3) Three hours lecture. An interdisciplinary examination of African-American history and culture, including the Diaspora, literature, music, reform movements, and black liberation in the U.S.

AAS 1103. African American Music. (3) Three hours lecture. A study of African musical and cultural traditions with focus on the impact of these traditions on the development and advancement of African American Music. (Same as MU 1103). AAS 2203. Cultural and Racial Minorities. (3) (Prerequisite: Three hours in an introductory social science). Three hours lecture. Origins of minority groups and racial attitudes. Biological and cultural concepts of race and minority groups; problems of adjustment in interracial and multi-ethnic societies. (Same as AN 2203 and SO 2203).

AAS 3013. African American History to 1865. (3). Three hours lecture An historical examination of the life and culture of African Americans in the United States from European colonization to the end of the Civil War. (Same as HI 3013).

AAS 3023. African American History since 1865. (3). Three hours lecture. An historical examination of the life and culture of African Americans in the United States from the beginning of Reconstruction to the present. (Same as HI 3023).

AAS 3153. African Art and Culture. (3) (Prerequisite: AN 1103 or consent of instructor). Three hours lecture. An examination of the role of traditional art in the beliefs and customs of representative African cultures. (Same as AN 3153 and ART 3153.)

AAS 4093. The African Diaspora. (3) Three hours lecture. An interdisciplinary and comparative analysis of the dispersal of Africans throughout the world by examining the cultural, philosophical, literacy, and historical development of the Diaspora.

AAS 4273. African American Politics. (3) (Prerequisite: PS 1113). Three hours lecture. The nature, processes, structures, and functions of African American politics in the domestic arena and international arena. (Same as PS 4273.)

AAS 4343. African American Literature. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of African American literature, especially that of the Twentieth Century. (Same as EN 4343.)

AAS 4363. African-American History and Culture. (3) (Prerequisite: Completion of any 1000 level history course). African-Americans from their African origins to the present, emphasizing black-white relations in the making of America. (Same as HI 4363.)

AAS 4373. History of Modern Civil Rights Movement. (3) (Prerequisite: Completion of any 1000 level history course). Three hours lecture. A history of the Black struggle for equality in the United States between 1930 and 1970. (Same as HI 4373.)

AAS 4383. African American Leadership in the Twentieth Century. (3) An interdisciplinary course that examines the evolution and sociopolitical impact of African American leadership during the late nineteenth and twentieth centuries.

AAS 4543. African Politics. (3) (Prerequisites: PS 1513 and junior standing). Three hours lecture. Contemporary sub-Saharan Black Africa; prospects for political development or decay. Role of parties, bureaucracy and military and their relation to elite formation and political integration. (Same as PS 4543).

AAS 4783. African Civilization to 1880. (3) (Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This is a survey course which traces the major developments in Africa to 1880. (Same as HI 4783.)

AAS 4793. Modern Africa. (3) (Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This course traces Africa's history from 1880 to the present. It discusses how Africa lost and regained its sovereignty and the dilemma of independence. (Same as HI 4793).

AAS 4983. African Americans and the Law. (3). Three hours lecture. Analysis of the legal and constitutional history of African Americans from the codification of slavery and discrimination in the North to the rise of segregation. (Same as HI 4983).

AAS 8603. Racism and the Color Line. (3) (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An analysis of race relations and racial inequality in the United States. Designed for online Diversity Certificate program students. (Same as HI 8603)

AAS 8793. Race and Cultural Diversity in the Workplace. (3) (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An analysis of concepts, issues, and laws relating to race and cultural diversity in public and private organizations. Designed for online Diversity Certificate program students. (Same as HI 8793)

# Department of AGRICULTURAL and BIOLOGICAL ENGINEERING

Office: 100 Agricultural and Biological Engineering Center

Professors Cathcart, Pote, and Smith; Associate Professors Elder and To; Assistant Professor Fernando and Warnock

#### **Biological Engineering**

ABE 1911. Engineering in the Life Sciences. (1) (Open to freshmen and sophomores or first-semester transfer students only). One hour lecture. Introduction to agricultural and biological engineering; survey of the engineering profession; elementary analysis of biological systems; creative engineering and design and synthesis.

**ABE 1921. Introduction to Engineering Design.** (1) (Prerequisite: ABE 1911). Two hours laboratory. Introduction to the process of engineering design, including project management, prototype assembly, engineering graphics, technical writing and oral presentation.

**ABE 2421. Analytical Methods.** (1) Two hours laboratory. The application of biostatistics to real experimental problems with emphasis on experimental design, sampling distribution, statistical hypotheses and decision rules.

**ABE 3303. Transport in Biological Engineering.** (3) (Prerequisite: PH 2233 and CSE 1213 or CSE 1233 or equivalent). Three hours lecture. Principles of steady state and unsteady state energy and mass transfer as applied to biological systems.

**ABE 3413. Bioinstrumentation I. (3)** (Prerequisite: PH 2223 or consent of instructor). Two hours lecture. Two hours laboratory. Applied circuit analysis, electrodes and transducers, stress and strain, temperature measurements, human physiology, digital and programmable instrumentation.

**ABE 3813. Biophysical Properties of Materials. (3)** (Prerequisite: PH 2213). Two hours lecture. Two hours laboratory. Physical properties of biological products and materials. Primary emphasis on measurement and evaluation of dimensional, mechanical, rheological, transport, thermal, electrical, and optical properties.

ABE 4111/6111. Biological Engineering Principles Laboratory. (1) (Corequisite: ABE 4812). Three hours laboratory. The theory and practice of applying engineering principles and approaches for solving problems in the design of biological systems. The student develops a design for a project in biological engineering.

**ABE 4313. Biological Treatment of Nonpoint Source Pollutants. (3)** Three hours lecture. Fundamental principles and design of biologically based treatment systems used to remove pollutants and protect receiving waters from agricultural and urban/suburban storm water runoff.

**ABE 4323.** Physiological Systems in Biomedical Engineering. (3) (Prerequisites: BIO 1504 or equivalent; EM 3313 or equivalent; ABE 3813; ABE 4803 or equivalent). Three hours lecture. Mathematical description and modeling of the behavior of physiological systems significant to biomedical engineers.

**ABE 4423/6423. Bioinstrumentation II. (3)** (Prerequisite: ABE 3413 or graduate standing). Two hours lecture. Two hours laboratory. Theory; application of automated measuring and control systems in biological sciences. Includes design/use of transducer interfaces; electronic signal conditioning; data logging; microprocessor based systems.

**ABE 4483/6483. Introduction to Remote Sensing Technologies. (3)** (Prerequisite: Senior or graduate standing, or consent of instructor). Three hours lecture. Electromagnetic interactions, passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR Lidar, digital image processing, natural resource applications. (Same as ECE 4423/6423 and PSS 4483/6483).

**ABE 4513/6513. Dynamics of Aging. (3)** (Prerequisite: BIO 1123 or BIO 1504 or consent of instructor). A broad based systematic, quantitatively oriented introduction to the dynamics of aging. Systems physiology of aging in relation to biomedical engineering.

**ABE 4523/6523. Biomedical Materials. (3)** (Prerequisites: One of the following: ABE 3813 or CHE 3413 or ME 3403). Three hours lecture. Emphasis is on applications, composition, testing, and biocompatibility of biomedical materials used in implant devices. This course may be used for honors credit.

**ABE 4533/6533. Rehabilitation Engineering (3)** (Prerequisites: Senior standing in College of Engineering). Three hours lecture. An introduction to rehabilitation engineering emphasizing applications of technology in prosthetics; orthotics, mobility, and sensory augmentation. This course may be used for honors credit.

ABE 4613/6613. Biomechanics. (3) (Prerequisites: EM 2413 and EM 2433). Three hours lecture. Force, motion, and deformation analysis of organisms and biological structures. Mechanical modeling techniques unique to biological materials.

ABE 4624/6624. Experimental Methods in Materials Research. (4) (Prerequisites: CHE 3413 or ABE 3813 or ME 3403 or consent of instructor). Three hours lecture. Three hours laboratory. Introduction to research methodologies commonly used in the evaluation of treatments, and mechanical testing. (Same as CHE 4624/6624 and ME 4624/6624).

**ABE 4723/6723. Tissue Engineering and Regeneration. (3).** (Prerequisite: ABE 3813). Three hours lecture. A comprehensive course covering the fundamental concepts, multidisciplinary approaches, and clinical applications of tissue engineering/regeneration.

**ABE 4803/6803. Biosystems Simulation. (3)** Three hours lecture. Spring semester. Application of engineering analysis, modeling and simulation to biological systems.

**ABE 4813. Principles of Engineering Design. (3).** (Prerequisite: senior standing in engineering) Two hours lecture. Two hours laboratory. First semester of the senior capstone design sequence. Students learn the fundamentals of the design process, select a design project, and complete a preliminary design.

**ABE 4833. Practices of Engineering Design. (3)**. (Prerequisite: ABE 4813). One hour lecture. Two hours laboratory. Second semester of the senior design sequence. Students continue learning about engineering design as they complete, construct, and test the design began in ABE 4813.

**ABE 4844/6844. Sustainable Communities. (4)** Three hours lecture. Two hours laboratory/studio. Theory and practices that minimize resource use and pollutant production in the human landscape (Same as LA 4844)

ABE 4911. Engineering Seminar. (1) (Prerequisite: Consent of instructor). One hour lecture. Discussion of current engineering developments, professional developments, ethics and their relation to agriculture and the life sciences.

**ABE 8314.** Corrosion of Biomedical Implants. (4) (Prerequisite: Graduate Standing). Three hours lecture & three hours laboratory. Basic concepts of electronics, especially related to corrosion. Development of corrosion mechanisms and evaluation of corrosion susceptibility of implant metals/alloys in dentistry and orthopedics.

**ABE 8501-8511. Journal Reviews in Biomedical Engineering.** (1) One hour lecture. Current Journal articles relevant to Biomedical Engineering topics are read and reviewed.

**ABE 8723. Cellular and Tissue Biomechanics. (3)** Three hours lecture. Fundamental concepts, experimental and theoretical approaches of biomechanics and their applications in modern biomedical engineering (e.g. mechanotransduction, tissue/engineering/regeneration, surgical intervention.).

ABE 8801. Clinical Experience for Biomedical Engineering. (1) (Prerequisites: Graduate standing in the Biomedical Program and permission of the instructor.) Three hours experiential learning. This course will provide graduate students with exposure, understanding and insight into the clinical environment and/or treatment modalities of clinical (human and/or animal) patients.

ABE 8911. Agricultural and Biological Engineering Seminar. (1) Discussion of research needs, review of literature, and development of research work plans.

#### Agricultural Engineering Technology and Business

ABE 1073. Agricultural Mechanics. (3) One hour lecture. Four hours laboratory. Developing skills in hot and cold metal work; welding, carpentry practices, painting and finishing wood, concrete and concrete masonry; and basic electric wiring.

**ABE 1863. Engineering Technology in Agriculture.** (3) Three hours lecture. Introductory course emphasizing use of fundamentals for solving problems related to soil and water management, electrical power and control, agricultural machinery, and environmental control.

**ABE 2173. Internal Combustion Engine Technology. (3)** Two hours lecture. Three hours laboratory. Principles of operation of gasoline, diesel and LP gas engines; engine types; ignition, fuel, valve, and cooling systems; transmission; power trains; power measurement; and tune-up.

ABE 2873. Land Surveying. (3) (Prerequisite: MA 1323 or equivalent). Two hours lecture. Three hours laboratory. Fundamentals of measurements and traverse computations. Public land surveys. Surveying practice in traverse and topographic surveys.

ABE 3513. The Global Positioning System and Geographic Information Systems in Agriculture and Engineering. (3) (Prerequisite: MA 1313 and MA 1323, or equivalent). Two hours lecture. Four hours laboratory. Basic theory and hands-on application of global positioning system (GPS) technology/hardware, and geographic information systems (GIS) software, for precise positioning in agriculture and engineering.

**ABE 3700.** Internship in Gin Management and Technology. (1-6) (Prerequisite: Minimum of junior standing or permission of instructor). Credits to be arranged. Work experience in approved cotton gins for Agricultural Engineering Technology and Business majors with an emphasis in Gin Management and Technology.

ABE 4163/6163. Machinery Management for Agro-Ecosystems. (3) (Prerequisite: Junior standing or consent of instructor). Two hours lecture. Two hours laboratory. Basic principles of operation and management of agricultural, landscape, and turf power machinery; selection of machinery based on power requirements, economy, and suitability for Agro-Ecosystems.

ABE 4263/6263. Soil and Water Management. (3) (Prerequisite: ABE 2873. Students with credit in ABE 2263 will not receive credit in this course). Two hours lecture. Three hours laboratory. Introduction to soil and water management principles; elementary hydrology, basic fundamentals of erosion control, surface and subsurface drainage, and water control for irrigation.

ABE 4383/6383. Building Construction. (3) (Prerequisites: EG 1143, junior standing.) Three hours lecture. An introduction to building terms, construction materials, structural components, construction methods, and mechanical systems pertaining to residential and commercial structures.

ABE 4453/6453. Cotton Ginning Systems and Management. (3) Three hours lecture. An in-depth exposure to the modern cotton ginning industry, including the basics of the operation of a cotton gin and management of the ginning process.

**ABE 4473/6473. Electrical Applications. (3)** Two hours lecture. Two hours laboratory. Fundamental electricity, wiring, and control of agricultural operations. Includes use of computer tools, programmable logic controllers, safety, and sensors.

**ABE 4483/6483. Introduction to Remote Sensing Technologies. (3)** (Prerequisite: Senior or graduate standing, or consent of instructor). Three hours lecture. Electromagnetic interactions, passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR Lidar, digital image processing, natural resource applications. (Same as ECE 4423/6423 and PSS 4483/6483).

**ABE 4823. Capstone Surveying. (3).** Three hours lecture. The course teaches students proper selection of equipment for a given job, how to make correct field decisions and proper preparation of accompanying client reports

**ABE 4961. Seminar.** (1) (Prerequisite: Consent of instructor). One hour lecture. Review of current literature dealing with the technical problems in the agricultural industry.

# ADKERSON SCHOOL of ACCOUNTANCY

#### Office: 300 McCool Hall

Director Scheiner, Professors Dawkins and McNair; Associate Professors Addy, Lehman, Rigsby, and Watson; Assistant Professor Carver, Henderson, Trinkle, Usrey, and Webb

ACC 1111. Contemporary Accounting Topics. (1) (Prerequisites: Freshman standing or consent of instructor). One hour lecture. An introduction to the accounting curriculum, the accounting profession, career opportunities, and fundamental accounting concepts.

ACC 2013. Principles of Financial Accounting. (3) (Prerequisite: Sophomore standing) Three hours lecture. Financial accounting fundamentals including accounting cycle, accounting systems, cash flow, assets, liabilities, equity, and forms of business organizations. Honors section available through invitation only.

ACC 2023. Principles of Managerial Accounting. (3) (Prerequisite: ACC 2013, PACC majors must have grade of B or better in ACC 2013). (Prerequisite: Sophomore standing) Three hours lecture. Managerial accounting fundamentals including interpretation and use of management reports, cost behavior, cost accumulation, budgeting, financial statement analysis, responsibility accounting. Honors section available through invitation only.

ACC 2203. Survey of Accounting. (3) Three hours lecture. Fundamentals of financial, managerial, and cost accounting for interpreting accounting reports. Designed primarily for engineering and pre-MBA students. (Not open to undergrad accounting or business majors.)

ACC 3003. Accounting Information Systems I. (3) (Prerequisite: ACC 2023, PACC majors must have grade of B or better in ACC 2023). Three hours lecture. Using computerized information systems, including word processing, spreadsheet, database, network, and Internet software. Documenting accounting information system processes and establishing effective internal controls.

ACC 3013. Cost Accounting. (3) (Prerequisite: ACC 2023, PACC majors must have grade of B or better in ACC 2023). Three hours lecture. Cost accounting principles and techniques as applied to job order and continuous process types of industry; determination of unit costs; preparation of cost reports.

ACC 3023. Intermediate Accounting I. (3) (Prerequisite: ACC 2023, PACC majors must have grade of B or better in ACC 2023). Three hours lecture. Financial accounting and reporting related to the development of accounting standards, financial statements, income measurement, cash, receivables, inventory, property, plant, and equipment, intangibles, and investments.

ACC 3033. Intermediate Accounting II. (3) (Prerequisite: Grade of C or better in ACC 3023). Financial accounting and reporting related to liabilities, leases, pensions, income taxes, stockholder's equity, accounting changes, errors, cash flows, and earnings per share.

ACC 3053. Accounting Information Systems II. (3) (Prerequisite: Grade of C or better in ACC 3003). Three hours lecture. Designing and using accounting information systems in both computerized general ledger and database processing environments.

ACC 3203. Financial Statement Analysis. (3) (Prerequisite: ACC 2023). Three hours lecture. For non-accounting majors. A study of financial statements from an external users perspective; an analysis of statements for purposes of determining loan and investment potential. (Same as FIN 3203)

ACC 4013. Income Tax I. (3) (Prerequisite: ACC 2013; not open to PACC students). Three hours lecture. An analysis of the Federal Income Tax Law with emphasis on its application to the individual taxpayer.

ACC 4023/6023. Advanced Accounting. (3) (Prerequisite: Grade of C or better in ACC 3033; not open to PACC). Three hours lecture. Financial accounting and reporting related to consolidations, partnerships and international business issues.

ACC 4033. Auditing. (3) (Prerequisite: Grade of C or better in ACC 3003; not open to PACC students). Three hours lecture. Fundamentals of auditing, including evaluating controls, assessing risk, designing audit programs, statistical sampling, professional ethics, and collecting evidence for financial, internal, operational, and compliance audits.

ACC 4043/6043. Municipal and Governmental Accounting. (3) (Prerequisite: ACC 2023). (Not open to PACC students). Three hours lecture. Accounting theory and practice applied to governmental units, state operated schools and colleges; classification and use of funds; fiscal procedures; budgetary control; financial statements; reports.

ACC 4053/6053. International Accounting. (3) (Prerequisite: ACC 2023). (Not open to PACC students). Three hours lecture. A study of the international dimension of accounting as it relates to multinational corporations and the international environment.

ACC 4063/6063. Income Tax II. (3) (Prerequisite: Grade of C or better in ACC 4013; not open to PACC students). Three hours lecture. Discussion of the Federal Income Tax treatment of taxpayers other than individuals and the treatment of property transfers which are subject to Federal and State gift and death taxes.

ACC 4200/6200. Accounting Internship. (1-6) (Prerequisites: Senior standing and approval by the Internship Director prior to the internship). Credit to be arranged based on time and circumstances of the internship providing professional experience in audit, tax and other accounting related areas.

ACC 8013. Seminar in Financial Accounting Theory. (3) (Prerequisite: ACC 3033). Examination of the theoretical concepts, definitions, and models espoused in the accounting literature and relevant to analyzing various contemporary issues in financial accounting and reporting.

**ACC 8023.** Advanced Managerial Accounting. (3) (Prerequisite: ACC 3013). Three hours lecture. The study of theoretical conceptual and technical issues in planning, control and decision making.

ACC 8033. Business Assurance Services. (3) (Prerequisite: ACC 4033). Three hours lecture. Financial statement auditing practices, including professional standards, ethical responsibilities, legal liability, and reporting requirements.

ACC 8043. Fraud Examination. (3) (Prerequisite ACC 3053 and ACC 4033). Three hours lecture. Developing and executing a program of procedures to detect errors and frauds using information generated by computerized accounting systems.

ACC 8053. Financial Accounting Policy. (3) (Prerequisites: ACC 3033). Three hours lecture. Integrative course examining recent trends and developments in public accounting. Various problems and cases in financial reporting issues, ethics, and other accounting topics.

ACC 8063. Research in Tax Practice and Procedures. (3) (Prerequisite: ACC 4013). Three hours lecture. Preparation of tax protests, tax planning; use of tax services; client representation; structure of Internal Revenue Service; and research problems in taxation.

ACC 8073. Taxation of Corporations and Shareholders. (3) (Prerequisite: ACC 4013). Examination of federal income tax laws as applied to corporations and shareholders with an emphasis of how research issues deal with these topics.

ACC 8083. Federal Estate and Gift Taxation. (3) (Prerequisite: ACC 4013). An examination of the Federal Estate and Gift tax laws with an emphasis on how to research issues dealing with these topics.

ACC 8093. Taxation of Partnerships, S Corporations, Trusts, and Estates. (3) (Prerequisite: ACC 4013). Three hours lecture. An examination of the income taxation of partnerships, S corporations, trusts, and estates with an emphasis on how to research issues dealing with these topics.

ACC 8101. Analysis of Accounting Data. (1). One hour lecture. The analysis of accounting data extracted from an enterprise resource planning system to monitor business activities and support managerial decision making.

ACC 8112. Financial Statement and Management Accounting Report Analysis for Decision Making. (2) (Prerequisite: ACC 8303 or equivalent). Two hours lecture. Analysis of financial statements and internal accounting reports to help management make decisions.

ACC 8113. Advanced Individual Taxation and Wealth Management. (3) (Prerequisite: ACC 4013 or consent of instructor). Three hours lecture. An in-depth analysis of taxation of individuals with an emphasis on how to research issues dealing with these topics.

ACC 8123. Tax Topics. (3) (Prerequisite: ACC 4013). Three hours lecture. An examination of specialized taxation topics such as real estate taxation, state and local taxation, and bank taxation.

ACC 8203. Advanced Accounting Analysis for Decision Making. (3) (Prerequisite: ACC 2023). Three hours lecture. Application of accounting principles and concepts to alternative business possibilities as an aid to management decision making.

ACC 8303. Survey of Accounting. (3) Prerequisite: Graduate Standing). Three hours lecture. Introduction to financial and managerial accounting: including accounting process, cash flow, elements, business organizations, analysis of management reports and financial statements, cost planning and control.

ACC 9013. Seminar in Financial Accounting. (3) (Prerequisite: ACC 8013). Review and analysis of historical and current research in financial accounting theory. Emphasis on developing critical analytical skills for evaluating financial accounting research.

ACC 9023. Seminar in Management Accounting Research. (3) (Prerequisite: ACC 8023.) Three lecture/discussion. A survey of the theory and practice of management accounting research.

ACC 9033. Seminar in Accounting Research. (3) (Prerequisite: Consent of the instructor) Evaluation and analysis of academic research strategies and methodologies, emphasis on (1) understanding and evaluating empirical research results and (2) formulating and writing research proposals.

#### Department of ANIMAL and DAIRY SCIENCES

#### Office: 4025 Wise Center

Professors Rude and Ryan; Associate Professors Crenshaw, Memili, Nicodemus, Parish, Vann and Willard; Assistant Professors Boland, Jousan, Larson, Martin, Rivera, Schmidt, Smith, and Ward Instructors Adams and Huntington

ADS 1111. Orientation to Animal Science. (1) One hour lecture. Introduction to career choices within the animal science industry.

**ADS 1114. Animal Science. (4)** Three hours lecture. Two hours laboratory. Fundamental principles and practical application of livestock, dairy, and poultry science. (ADS majors must earn a C or better to graduate.)

**ADS 1132. Introduction to Horsemanship. (2)** One hour lecture. Two hour laboratory. Principles of riding, managing and training pleasure horses.

**ADS 2102. Equine Conformation and Performance Evaluation. (2)** Four hours laboratory. Individual evaluation of horses with an in-depth study of anatomy and its relationship to function, plus methods used in evaluating performance classes.

ADS 2111. Animal Science Career Planning. (1) (Prerequisites: ADS 1111, sophomore or junior standing) One hour lecture. Development of life skills with focus on career preparation for animal and dairy sciences' industries.

**ADS 2122.** Advanced Equine Evaluation. (2) (Prerequisite: ADS 2102 or consent of instructor). Four hours laboratory. Advanced evaluations of equine conformation and performance classes. Develop more extensive oral reason presentations to defend conformation and performance placings.

**ADS 2212. Equine Behavior and Training. (2)** (Prerequisite: ADS 1132 and consent of instructor). Four hours laboratory. Equine behavior and application of psychology principles for training horses. Systematic approaches to horse training emphasizing learning principles and training methods for specific equine activities.

ADS 2223. Companion Animal. (3) (Prerequisite: Sophomore standing or consent of instructor). Three hours lecture. Focus on companion animal dogs and cats regarding breed selection, nutrition, reproductive biology, management and responsibilities.

ADS 2312. Advanced Horsemanship. (2) (Prerequisite: consent of instructor). Advanced equine training and riding. Developing and implementing a training regime using upper-level riding skills to produce an advanced performance horse for competition.

ADS 3142. Meats Judging I. (2) Four hours laboratory. Grading and judging meat carcasses and cuts, study of packing house operation. (Same as FNH 3142)

**ADS 3213. Livestock Growth, Development and Evaluation. (3)** (Prerequisite: ADS 1114). Two hours lecture. Two hours laboratory. Growth and development of livestock animals from embryo to harvest. The evaluation of meat animals related to the livestock industry and the value of production..

ADS 3223. Horse Management. (2) Two hours lecture. Two hours laboratory. Breeding, feeding, management, and training of horses.

**ADS 3233. Equine Assisted Therapy. (3)** (Prerequisite: ADS 1132 or consent of instructor). Two hours lecture. Two hours laboratory. Introduction to equine assisted therapy discussing the equine activities team, facilities and equipment, standards and accreditation, and special needs of the rider.

**ADS 3312. Livestock Management Practices. (2)** (Prerequisite: ADS 1114 and junior standing or consent of instructor). Four hours laboratory. Modern techniques used in proper vocational management of beef cattle, sheep, swine, and horses.

**ADS 3314. Introduction to Meat Science. (4)** (Prerequisite: ADS 1114 or FNH 1103) Three hours lecture. Two hours laboratory. Introductory survey of the muscle food industry including history, production of meat including harvesting, inspection, ecluation and fabrication, storage and value added manufacturing of meat. (Same as FNH 3314)

ADS 3812. Dairy Cattle Appraisal. (2) Four hours laboratory. Phenotypic appraisal; breed programs; performance record systems.

ADS 4112/6112. Equine Reproduction. (2) One hour lecture. Two hours laboratory. A study of equine reproductive activities and the principles for managing the mare, stallion, and foal. (Same as PHY 6112).

**ADS 4113. Swine Science. (3)** (Prerequisites: ADS 1114). Three hours lecture. Feeding, management, breeding, production, and marketing of swine. Fall semester.

ADS 4115/6115. Animal Nutrition. (5) (Prerequisites: CH 2503 and CH 2501 or CH 4513 and CH 4511). Five hours lecture. Nutrition of monogastric and ruminant species. Anatomy, physiology, digestion and absorption pertaining to monogastric and ruminants. Description, functions, sources, deficiency symptoms.

**ADS 4123/6123. Animal Breeding. (3)** (Prerequisite: PO 3103). Three hours lecture. The basis for genetic improvement of livestock, including the study of variation, heritable characteristics, mating systems and methods of estimating breeding values. (Same as GNS 6123.)

**ADS 4212. Livestock Evaluation. (2)** Four hours laboratory. Evaluation of individuals and representative groups of livestock from the standpoint of the breeder, the market, and the consumer.

ADS 4213/6213. Livestock Nutrient Requirements and Formulation of Rations. (3) Application of knowledge of feedstuffs and nutrient requirements in ration formulation for all classes of livestock.

**ADS 4221. Animal and Dairy Sciences Senior Seminar.** (1) One hour lecture. Review and oral presentation of animal science research and related production problems.

ADS 4222/6222. Small Ruminant and Diversified Livestock Production. (2) (Prerequisite: ADS 1114, junior or senior standing, or consent of instructor). Two hours lecture. History, management, and marketing of small ruminants and diversified livestock species in relation to the production enterprise (fiber, meat, milk, breeding, stock, etc.)

**ADS 4232.** Advanced Livestock Evaluation. (2) (Prerequisite: ADS 4212/6212). Four hours laboratory. Advanced study of animal evaluation in functional efficiency.

**ADS 4243/6243. Composition and Chemical Reactions of Foods. (3)** (Prerequisites: CH 1053 and CH 2503 or equivalent). Three hours lecture. Nature and chemical behavior of food constituents including proteins, lipids, carbohydrates, minerals, water, enzymes and pigments; properties of food systems as related to commercial preparation. (Same as FNH 4243/6243.)

ADS 4313/6313. Advanced Science of Muscle Foods. (3) Three hour lecture. Exploration of the ultra-structure of muscle (pre and post harvest), and the microbiology, inspection and safety, nutritional properties, and sensory characteristics of muscle. (Same as FNH 4313/6313)

**ADS 4324/6324. Beef Cattle Production. (3)** (Prerequisites: ADS 1114). Three hours lecture. Two hours lecture. Breeding, feeding, management, and marketing of beef cattle.

ADS 4333/6333. Equine Exercise Physiology. (3) (Prerequisite: ADS 3223). Three hours lecture. Evaluation of research in equine exercise science. Physical, physiologic, metabolic, behavioral and locomotive adaptations of the equine athlete to athletic training.

ADS 4412. Managing Livestock Sales I. (2) (Prerequisites: Instructor approval). Four hours laboratory. Course in preparation, structure and management of livestock sales. Emphasis will be on cattle and horse sales. Students will prepare for and conduct sale.

ADS 4423. Animal and Dairy Sciences Internship. (3) (Prerequisite: Consent of instructor). Individual work experience with the farm animal species either in animal production, meat production or product promotion with an industry commodity representative under faculty supervision.

ADS 4433/6433. Advanced Beef Cattle Production. (3) (Prerequisites: ADS 1114, ADS 4324) Two hours lecture. Two hours laboratory. Management, marketing, and utilization of beef animals associated with cow-calf and stocker cattle production in the U.S.

**ADS 4611/6611. Practices in Physiology of Reproduction. (1)** (Prerequisite: BIO 1134 and BIO 1144). Three hours laboratory. Artificial insemination and rectal palpation of reproductive organs of cattle; semen collection, evaluation, processing and handling. (Same as PHY 6611).

**ADS 4613/6613.** Physiology of Reproduction. (3) (Prerequisite: BIO 1134 and BIO 1144). Three hours lecture. Anatomy and physiology; reproductive cycles; production, evaluation and preservation of gametes; gestation; endocrine regulation; managed reproduction. (Same as PHY 6613.)

**ADS 4623/6623.** Physiology of Lactation. (3) (Prerequisite: BIO 1134 and BIO 1144). Two hours lecture. Two hours laboratory. Anatomy, physiology, and pathology of the mammary gland; nervous and hormonal control of lactation, theories of milk secretion, modern methods of milking, factors affecting lactation. (Same as PHY 6623.)

**ADS 4814/6814. Dairy Farm Management. (3)** (Prerequisites: ADS 1114). Three hours lecture. Two hours laboratory. Planning and integrating dairy farm operations; management principles applied to dairy herd operations.

ADS 4823/6823. Advanced Dairy Farm Management. (3) (Prerequisite: ADS 4814) Two hours lecture. Four hours lab. Advanced principles of dairy science as applied to the whole farm. Management of specific groups of cattle including nutrition, breeding, and milking management.

ADS 8153. Ruminant Nutrition. (3) Three hours lecture. In-depth treatment of rumen function and recent concepts in ruminant nutrition.

**ADS 8162.** Monogastric Nutrition. (2) Two hours lecture. Monogastric nutritional relationships with special emphasis on swine nutrition. Metabolic functions, dietary requirements, deficiency symptoms and distribution of nutrients in feedstuffs.

**ADS 8233. Advanced Breeding. (3)** (Prerequisites: ADS 4123/6123 or PO 4303/6303, ST 8114). Three hours lecture. Describing, measuring and partitioning phenotypic variances and covariances. Estimating parameters, predicting response, systems of breeding, and methods of selection. (Same as GNS 8233.)

**ADS 8243. Advanced Physiology of Reproduction. (3)** (Prerequisite: ADS 4613/6613 or its equivalent). Three hours lecture. An advanced study of the reproductive process with emphasis on reproductive endocrinology and the physiology of germ cells. (Same as PHY 8243.)

**ADS 8423. Meat Science. (3)** (Prerequisites: CH 4513/6513 or equivalent and BIO 3304 or equivalent). Three hours lecture. Basic study of the value of meat and how this information is applied to the evaluation, processing and preservation of meat, meat products and meat by-products. (Same as FNH 8423.)

**ADS 8433. Bone, Muscle and Fat Deposition in Animals. (3)** (Prerequisite: BCH 4613/6613). Three hours lecture. Study of deposition of various tissues from embryonic differentiation through maturity of animals. (Same as PHY 8433).

ADS 8453. Statistical Genetics. (3) (Prerequisites: ST 8114, ADS 4123/6123). Three hours lecture. Probability and its application to genetics; partitioning of genotypic variance; covariances among relatives; regression and correlation; linear functions, variances; the analysis of variance. (Same as GNS 8453.)

**ADS 8463. Advanced Animal Nutrition. (3)** Two hours lecture. Two hours laboratory. Develop an understanding of nutritional physiology, metabolism, and utilization of nutrients by animal species.

**ADS 8473. Micro-Nutrient Nutrition. (3)** Three hours lecture. Detailed study of functions, deficiency symptoms, dietary considerations necessary to the nutrition of fish, dogs, cats, horses, mink, rabbits, and laboratory animals.

**ADS 8633. Homeostatic Regulation and Physiological Stress. (3)** (Prerequisites: PHY 6514 and PHY 8131, 8133 or consent of instructor). Three hours lecture. An integration of the physiological mechanisms involved in the control of homeostasis in mammals is emphasized with discussion of the effect of specific stressors on these mechanisms. (Same as PHY 8633.)

**ADS 8973. Scientific Writing. (3).** (Prerequisite: Graduate standing and consent of instructor). Three hours lecture. The course provides advanced training in research proposal, grant proposal, and manuscript writing. (Same as FO 8973 and CVM 8973).

# Department of AGRICULTURAL ECONOMICS and AGRIBUSINESS

Office: 325-2750

Professors Turner (Head), Allen, Barefield, Barnett, Beaulieu, Coble, Hood, Little, Martin, Myles and Posadas; Associate Professor Ibendahl; Assistant Professors Coatney, Freeman, Harri, Interis, Morgan, Petrolia, Riley and Tack

AEC 1223. Computer Applications for Agriculturists and Life Scientists. (3) Two hours lecture. Two hours laboratory. Basic agricultural microcomputer applications and computing logic; creating reports using word processors; developing presentations on agricultural subjects using multimedia software; and agricultural calculations using spreadsheets.

AEC 2611. Seminar I. (1) One hour lecture. Planning and preparing for careers in agricultural economics and agribusiness.

AEC 2713. Introduction to Food and Resource Economics. (3) Three hours lecture. Each semester. Prerequisite to other Agricultural Economics courses. Economic principles applied to production, value, prices, credit, taxation, land tenure, marketing, international trade, and related problems affecting agriculture.

**AEC 3113. Introduction to Quantitative Economics. (3)** (Prerequisites: AEC 2713, MA 1613 or MA 1463). Three hours lecture. Each semester. Introduction to techniques and procedures for the quantitative analysis of economic problems related to the production and distribution of agricultural products.

**AEC 3133. Introductory Agribusiness Management. (3)** Three hours lecture. Study of marketing, production, risk, and financial management in agribusiness firms. Emphasis on application of economic principles to management of agrimarketing and farm supply firms.

**AEC 3213. International Trade in Agriculture. (3)** (Prerequisites: AEC 2713 or EC 2123 or consent of instructor). Three hours lecture. Examination of the importance of international agricultural trade, the economic basis of trade, and the policies affecting agricultural trade.

**AEC 3233. Introduction to Environmental Economics and Policy. (3)** (Prerequisites: AEC 2713 or EC 2123). Three hours lecture. Examines how economic forces, in concert with other processes, influence environmental quality through private markets and public policy.

**AEC 3413. Introduction to Food Marketing. (3)** (Prerequisites: AEC 2713 or EC 2123). Three hours lecture. Describes the principles, functions, agencies, and methods of farm and food product and input marketing.

**AEC 3513. Economics of Food and Fiber Production. (3)** (Prerequisite: AEC 3113). Three hours lecture. Economic principles applied to food and fiber production situations; emphasis on firm-level decision analysis.

**AEC 4113/6113. Agribusiness Firm Management. (3)** (Prerequisites: EC 3123 or EC 3333). Three hours lecture. Examination and study of the organization, management, and operation of agricultural business with special reference to the application of managerial principles for effective decision-making.

**AEC 4123/6123. Financial and Commodity Futures Marketing. (3)** (Prerequisite: Junior standing). Three hours lecture. Discussion of the purpose, function, mechanics, analysis, and application of commodity and financial futures markets in pricing and hedging opportunities. (Same as FIN 4123/6123).

AEC 4133/6133. Analysis of Food Markets and Prices. (3) (Prerequisites: AEC 3113 and EC 3123). Three hours lecture. Application of economic theory to agricultural prices and agricultural markets in price estimation, discovery, and determination. Emphasis on marketing management and pricing in agricultural firms.

AEC 4223/6223. Applied Quantitative Analysis in Agricultural Economics. (3). (Prerequisite: AEC 3113 and BQA 2113). Three hours lecture. Emphasized the intuitive understanding and practical application of basic quantitative, statistical, econometric, and optimization techniques as they relate to problem solving in agricultural economics.

AEC 4233/6233. Environmental Economics. (3) (Prerequisites: AEC 3233 and EC 3123) Three hours lecture. Identifies topics lying on the frontier of environmental economics; demonstrates contributions that economics can make in understanding the problems and in providing guidance on solutions.

AEC 4243/6243. Natural Resource Economics. (3). (Prerequisites: Either AEC 3233 or consent of instructor, and EC 3123). Three hours lecture. Study of the economics of renewable and nonrenewable natural resource use. Emphasis on applying microeconomic concepts to land use, water, fisheries, minerals, and forest.

AEC 4333/6333. Economics of Aquaculture. (3) (Prerequisite: AEC 2713 or consent of instructor). Three hours lecture. Application of economic principles to understand aquacultural production systems, with emphasis on farm management, resource allocation, industry market structure, food safety and environmental issues.

**AEC 4343/6343. Advanced Farm Management. (3)** (Prerequisite: Senior standing, EC 3123, and AEC 4523). Three hours lecture. Techniques and procedures used for decision-making in the farm business as related to the determination of optimum enterprise choice and resource combination in both a static and dynamic framework.

**AEC 4413/6413. Public Problems of Agriculture. (3)** (Prerequisite: Senior standing and EC 3123 and AEC 3113). Three hours lecture. Major public and private problems of agriculture policies and action programs of government and individuals to deal with them; limitations encountered; appraisal of results.

AEC 4511/6511. Agricultural and Resource Legislative Policy. (1) (Prerequisites: AEC 2713 or consent of instructor). One hour lecture. Discusses agricultural policy history and development, roles of consumer, producer, and environmental groups in policy development, and congressional organization and procedures in the policy process.

**AEC 4523/6523. Farm Financial Management. (3)** (Prerequisites: ACC 2023 and AEC 3133). Three hours lecture. Financial analysis and decision making, including farm records, marginal analysis and enterprise budgeting, financial statement analysis, capital budgeting, and financial intermediation in agriculture.

AEC 4530/6530. Agribusiness Management Internship. (1-6) (Prerequisite: Consent of instructor). Individual work experience with approved agribusiness companies for agricultural economics or agribusiness students.

AEC 4623/6623. Economics of Export and Import Traffic Management in Agriculture. (3) (Prerequisites: Senior-Graduate level standing or consent of instructor). Examination of the ocean shipping industry, import-export agricultural traffic management techniques, government regulations, documentation, and financial considerations.

**AEC 4713/6713. Quantitative Economics. (3)** (Prerequisites: AEC 3113, EC 3113, and EC 3123). Three hours lecture. Investigation of the basic mathematical methods and techniques currently used to analyze economic problems.

**AEC 4733/6733. Econometric Analysis in Agriculture Economics. (3)** (Prerequisite: AEC 3113) Three hours lecture. Applications of single-equation estimation techniques to problems in agriculture.

AEC 4711. Agri-Marketing Practicum. (1) Two hours laboratory. Design and preparation of marketing plan for presentation at National Agri-Marketing Association meeting. Development of plan includes market research, budgeting, and advertising layouts.

**AEC 8123. Market Organization and Structure. (3)** Three hours lecture. Spring semester. Analysis of the conduct and performance of agricultural firms under imperfect market conditions. Sources of imperfections, managerial strategies and welfare considerations under imperfect market conditions.

**AEC 8143. Agricultural Production Economics. (3)** (Prerequisites: EC 3123 or EC 3333 and AEC 4343/6343). Three hours lecture. Theory of production as related to agricultural production and resource use. Emphasis upon optimal organization of agricultural firms.

**AEC 8163.** Consumers, Producers, and Markets. (3) (Prerequisite: EC 3123). Three hours lecture. Focuses on economic theory related to production, consumption, and markets for products. Extension into market structure, welfare economics, and non-market goods will also be discussed.

AEC 8312. Economic and Social Environment of the Agribusiness Firm. (2) (Prerequisites: EC 8103 or equivalent). Two hours lecture. The course focuses on the economic, social/political and legal forces which shape the environment in which agribusiness firms compete.

AEC 8403. Game Theory. (3). (Prerequisites: AEC 8163 or EC 8163; or consent of instructor). Three hours lecture. An exploration of how agencies interact strategically. (Same as EC 8403)

**AEC 8522. Decision Modeling for Agribusiness Management. (2)** Two hours lecture. Application of models for improving managerial decision making. Emphasis on problem formulation and identification, solution procedures, and interpretation of results.

**AEC 8532. International Agricultural Trade and Policy. (2)** (Prerequisite: EC 8163). Two hours lecture. Examination of international trade theories, policies affecting agriculture, international trade, world trade negotiations, barriers to trade, and the role of agricultural trade in economic development.

AEC 8542. Agribusiness Risk Management. (2) (Prerequisite: EC 8103 or equivalent). A review of risk management concepts and techniques for managing risks faced by agribusiness firms, with emphasis on futures and options.

AEC 8611. Research Seminar I. (1) Selection of the research topic, development of the research proposal. Each semester.

**AEC 8621. Research Seminar II.** (1) Final preparation of the research proposal and presentation of the proposal. Each semester.

**AEC 8713. Rural Community and Economic Development. (3)** Three hours lecture. The central focus in this course is on the set of social and economic components that constitute the fabric of rural communities in the U.S.

**AEC 8843. Survey Design and Experimental Economics. (3)** (Prerequisite: Consent of instructor). Three hours lecture. An exploration of economists' use of data collection techniques, such as surveys and experiments, with emphasis on analysis of non-market valuation problems.

# AGRICULTURAL INFORMATION SCIENCE and EDUCATION

#### Office: 325-2950

Professors: Browning, Newman, Swortzel, Taylor, and White

AIS 2413. Introduction to Agricultural Information Science. (3) Three hours lecture. History and principles of education programs; program development; management, and community involvement; career opportunities in agricultural education.

AIS 2613. Introduction to Information and Decision Science in Agroecosystems. (3) Three hours lecture. Introductory course to the science of helping people learn how to access, analyze, apply and amend information to solve problems in agriculture.

AIS 3003. Information Interpretation in Agriculture and Life Sciences. (3) (Prerequisite: ST 2113 or ST 3123). Three hours lecture. Understanding and interpreting research-based information to enable students to create, utilize and disseminate information to solve problems in agriculture and the life sciences.

AIS 3203. Introduction to Technical Writing in Agricommunication. (3) (Prerequisite: Completion of EN 1103 and 1113 or equivalent and Junior standing). Three hours lecture. Basic principles of and techniques in communicating information relevant to agriculture/agribusiness, natural resources, and human sciences.

AIS 3333. Professional Presentations in Agriculture and Life Sciences. (3) (Prerequisite: CO 1003). Two hours lecture. Two hours laboratory. Strategies and techniques for effective presentations in agriculture, life sciences and natural resources. Emphasis on oral and visual techniques for formal and non-formal situations.

AIS 3500. Internship in Agricultural Information Science. (1-6) (Hours and credit to be arranged and shall not exceed a total of six hours). Supervised field experiences shall center around experiences related to participation in professional activities relating to problems, methods, and skills basic to agricultural and extension education.

AIS 3803. Leadership Development in Agriculture and Life Sciences. (3) Three hours lecture. Fall semester. Dynamic interactions of personal characteristics, knowledge and expertise; interpersonal influence; professional commitment; organizational planning and goals; and power for effective leadership in agricultural professions.

AIS 4103/6103. Objectives and Procedures of Programs in Agricultural Information Science and Education. (3) (Prerequisite: Junior standing). Three hours lecture. Identification and development of objectives; techniques used in Agricultural and Extension educational procedures; relationships with U.S.D.A., experiment stations, and other agricultural agencies.

AIS 4113/6113. Methods of Teaching Agriscience. (3) (Prerequisite: AIS 4203/6203 or consent of instructor). Two hours lecture. Four hours laboratory. Objectives, materials, and teaching methods for planning, organizing, and managing agricultural science programs.

AIS 4203/6203. Applications of Computer Technology to Agricultural Information Science and Education. (3) (Prerequisites: CSE 1013 or BIS 3713 or equivalent). Two hours lecture and two hours laboratory. Application of microcomputer technology in agricultural and extension education; data storage and retrieval; and use of canned computer programs in agricultural and educational settings.

AIS 4303/6303. Applications of Information Technologies in Agricultural Learning Systems. (3) (Prerequisites: AIS 4203/6203 or consent of instructor). Two hours lecture. Three hours laboratory. Advanced applications of computer and related information technologies in agricultural learning systems; designing and developing hypermedia-based materials for formal and nonformal agricultural instructional programs.

AIS 4403/6403. Development of Youth Programs. (3) Three hours lecture. Needs and interests of youth; developing, managing, and evaluating formal and informal youth education programs; volunteer and paraprofessional staff development; securing and developing supportive resources. AIS 4424. Teaching Methods in Agriculture & Human Sciences. (4) (Prerequisite: Junior standing in CALS major). Three hours lecture. Two hours laboratory. Planning instruction; selecting teaching techniques; developing teaching plans; teaching agricultural/human science topics; using instructional technologies; and evaluating learner progress. (Same as HS 4424).

AIS 4503/6503. International Agricultural Education. (3) Three hours lecture. Examination of formal and non-formal agricultural education systems and related situations and processes which influence agricultural development in developing countries.

AIS 4873. Professional Seminar in Agricultural Information Science and Education. (3) (Prerequisites: Admission to Teacher Education and senior standing). Three hours lecture. Legal, professional, administrative and curricular issues in agricultural and extension education. Includes needs assessment, community involvement and problem solving to plan formal and informal programs.

AIS 4886, 4896. Teaching internship in Agriculture Information Science and Education (6,6) (Both courses to be taken concurrently). (Prerequisites: Admission to Teacher Education and senior standing). Supervised observation and directed teaching in respective field of endorsement.

AIS 8203. Advanced Communication in Agricultural Information Science and Education. (3) Two hours lecture. (1 1/2 hours each). Updating of principles of communicating information in the fields of agriculture/agribusiness, natural resources, and home economics; review and updating of communications techniques.

AIS 8243. Administration and Supervision in Agricultural Information Science and Education. (3) Three hours lecture. Principles in developing and administering programs in agricultural and extension education with attention to federal-state-local relationships and supervisory procedures.

AIS 8263. Public Relations in Agricultural Information Science and Education. (3) Three hours lecture. Publics to be dealt with, public relations media; methods and techniques of establishing and maintaining desirable public relations.

AIS 8403. Directing Learning Experiences in Agricultural Information Science and Education. (3) Two hours lecture. Two hours laboratory. Theory and practice in directing learning activities. Using instructional technology. Delivering instruction for formal and non-formal groups.

AIS 8413. Methods of Planned Change in Agricultural and Extension Education. (3). A study of the theories and processes used by change agents to plan, influence and accomplish change is social, educational and corporate environments.

AIS 8503. Program Planning and Development in Agricultural Information Science and Education. (3) Three hours lecture. Principles, theory, and practice in developing local and state programs of vocational, technical, and extension education.

AIS 8513. Volunteer Development in Agricultural and Extension Education. (3) Three hours lecture. Principles, theory and practice of volunteer development in extension education, high schools, communities, and/or non-profit organizations.

AIS 8523. Teaching Out-of-School Groups in Agricultural Information Science and Education. (3) Three hours lecture. Organizing, planning, and instructing out-of-school groups in agricultural and extension education; identifying and assessing needs of clientele; and evaluating effectiveness.

AIS 8533-8543. Workshop in Agricultural Information Science and Education. (3-3) (A total of six semester hours may be earned in AIS 8533-8543). One hour lecture. Four hours laboratory. Studying current problems in agricultural and extension education; investigating and analyzing problems; preparing comprehensive reports on problems; planning for local application.

AIS 8593. Historical Foundations of Agriculture and Human Science. (3) Three hours lecture. Philosophy, history, and development of Agricultural and Extension Education; implications, influences, and evaluation of forces and policies impacting Agricultural and Extension Education.

AIS 8606. Teaching internship in Agricultural Information Science and Education. (6) (Prerequisites: Admission to the graduate certification program, teacher education and teaching internship). Supervised observation and directed teaching in Agricultural Information Science and Education.

AIS 8693. Philosophical Foundations of Agriculture and Human Sciences. (3). Three hours lecture. Philosophies, foundational theories, and research on teaching and learning processes applied to formal and non-formal programs in agricultural education and human sciences.

AIS 8703. Evaluation of Agricultural Information Science and Education Programs. (3) Three hours lecture. Evaluation principles and procedures used in developing and analyzing vocational, technical, and extension education programs.

AIS 8801. Graduate Professional Seminar in AIS. (1) One hour lecture. Preparing research and programs for publication and dissemination and participating as a professional in the publication process.

AIS 8803. Applying Research Methods to Agricultural Information Science and Education. (3) Three hours lecture. Principles and techniques for planning, conducting, and reporting research; development of effective design of research problems; emphasis on understanding and evaluating scientific reports.

AIS 9583. Analysis and Interpretation of Data in Ag and Extension Education Research. (3). (Prerequisite: consent of instructor). Three hours lecture. Principles and techniques for collecting, analyzing, and reporting research in agricultural and extension education. Emphasis on student research project development, student authorship.

### ANTHROPOLOGY

#### Office: 204 Cobb Institute of Archaeology

Professors Rafferty and Peacock; Associate Professor Hardin; Assistant Professors Copeland, Herrman, Hoffman and Zuckerman; Instructor Marcus

**AN 1103. Introduction to Anthropology. (3)** Three hours lecture. The fields, theories, and methods of anthropology; man's biological and cultural development; survey of technological, economic, political, social, religious, and linguistic systems.

**AN 1143. Introduction to Cultural Anthropology. (3)** Three hours lecture. Introduction to the study of social, political, and economic organization, magic and religion, personality, and art.

**AN 1173. Introduction to Gender Studies. (3)** Three hours lecture. An introduction to theoretical concepts in Gender Studies. This course will examine the influence of the women's movement on the academic development of Gender Studies (Same as GS 1173 and SO 1173).

AN 1344. Introduction to Biological Anthropology. (4) Three hours lecture. Two hours laboratory. The biology of evolution, the mechanism of speciation, concepts of race, primate order are explored, appreciation of paleoanthropology, human evolution, genetics, and modern human variation.

**AN 1543. Introduction to Archaeology. (3)** Three hours lecture. A survey of early cultural development throughout the world; emphasis on archaeological techniques, interpretations and theories of development.

AN 2203. Cultural and Racial Minorities. (3) (Prerequisite: Three hours in an introductory social science). Three hours lecture. Origins of minority groups and racial attitudes. Biological and cultural concepts of race and minority groups; problems of adjustment in interracial and multiethnic societies. (Same as AAS 2203 and SO 2203).

AN 2510. Archaeological Field Methods: Survey. (1-6) Credit to be arranged. Archaeological surface survey methods in field setting, including mapreading, shovel-testing, collection techniques, controlled surface collection, artifact recognition.

AN 3113. Societies of the World. (3) (Prerequisite: AN 1103 or its equivalent or consent of instructor). Three hours lecture. A survey of principal culture types and their distribution.

AN 3123. North American Indians. (3) (Prerequisite: AN 1103 or consent of instructor). Three hours lecture. Ethnographic survey of the Indians of North and Mesoamerica.

AN 3133. Anthropology of Latin America. (3) Three hours lecture. A survey of societies in Latin America with an emphasis on indigenous peoples, their relationship to contemporary social and economic development.

AN 3153. African Art and Culture. (3) (Prerequisite: AN 1103 or consent of instructor). Three hours lecture. An examination of the role of traditional art in the beliefs and customs of representative African cultures. (Same as AAS 3153 and ART 3153).

**AN 3323. Contemporary Woman. (3)** Three hours lecture. Introductory course for the Concentration in Women's Studies. Major topics are women's heritage, identity, culture, and vulnerabilities. (Same as SO 3323).

**AN 3333. Primate Behavior. (3)** Three hours lecture. In-depth study of nonhuman primate evolution, social behavior, and communication. Field studies and conservation efforts will be examined.

**AN 3510.** Archaeological Field Methods: Excavation. (1-6) Credit to be arranged. Excavation methods in field setting, including mapping, recording, recovery and proveniencing techniques, field research strategies.

AN 3513. Artifact Analysis. (3) Two hours lecture. Two hours laboratory. Introduction to artifact recognition and analysis, focusing on prehistoric and historic ceramics, stone tools and debris, glass, nails, animal bones, shell, and environmental indicators.

AN 3523. North American Archaeology. (3) (Prerequisite: AN 1103 or consent of instructor). Three hours lecture. A survey of the prehistoric cultures of North America including the influences of the high civilizations of Mesoamerica.

AN 3533 Rise of Civilization. (3) Three hours lecture. Survey of prehistoric cultures and their contributions to the rise of civilizations in Latin America, China, Africa, India and the Middle East.

**AN 3540.** Archaeological Travel and Participation Program. (1-6) Participation in excavations in the Near East and related lecture program. (Same as MEC 3540 and REL 3540).

AN 3553. Near Eastern Archaeology. (3) Three hours lecture. Introduction to the contributions made by archaeological research to ancient Near Eastern history and prehistory, with special emphasis on the Syro-Palestinian area. (Same as MEC 3553 and REL 3553).

AN 4123/6123. Anthropological Theory. (3) (Prerequisite: AN 1103 or its equivalent or consent of instructor). Three hours lecture. A history of the development of anthropological theory; an analysis of contemporary theoretical formulations and approaches.

AN 4133/6133. Medical Anthropology. (3) (Prerequisite: AN 1103 or consent of instructor). Three hours lecture. The cross-cultural study of health, sickness, and medicine from a holistic perspective emphasizing interactions between culture and biology and between biomedicine and local healing traditions.

AN 4143/6143. Ethnographic Methods. (3) (Prerequisites: AN 1103 or AN 1143 or consent of instructor). Three hours lecture. An overview of methods and techniques for conducting ethnographic research.

**AN 4163/6163. Anthropology of International Development. (3)** (Prerequisite: Senior standing or consent of instructor). Three hours lecture. Role of anthropology in international development including origins of the Third World, development theory, current issues in international development, case studies.

**AN 4173/6173. Environment and Society. (3)** (Prerequisite: AN 1103, SO 1003 or consent of instructor). Three hours lecture. A study of the interaction between human society and the environment including the social aspects of environmental problems. (Same as SO 4173/6173).

AN 4303/6303. Human Variation and Origins. (3) Three hours lecture. An examination of human origins, genetics, and other principal factors that contribute to physical variation within and between human populations.

**AN 4313/6313. Forensic Anthropology.** (3) Two hours lecture and three hours laboratory. Identification of each human bone and its fragments. Study of sex differences, age changes in bone and dentition, dermatoglyphics, blood group systems, and paleopathology.

**AN 4403/6403. Introduction to Linguistics. (3)** (Prerequisite: AN 1103 or its equivalent or consent of instructor). Three hours lecture. The descriptive and historical study of language; linguistic analysis and comparison; language classification; language in its social and cultural setting. (Same as EN 4403/6403).

AN 4523/6523. Public Archaeology. (3) (Prerequisite: AN 1543 or consent of instructor). Three hours lecture. Survey of cultural resource management practices, Federal and State historic preservation laws, research proposal design, significance assessments, professional ethics, employee/client relationships, and public education.

AN 4623/6623. Language and Culture. (3) (Prerequisite: AN 1103 or consent of instructor). Three hours lecture. Examination of language as a part of culture, a source of knowledge about other aspects of culture, and a social behavior. (Same as EN 4623/6623 and SO 4623/6623).

**AN 4633/6633. Sociolinguistics. (3)** (Prerequisites: AN 1103 or consent of instructor). Three hours lecture. Examination of relationship between language and society, and how, when, and why people in speech communities use language varieties. (Same as EN 4633/6633 and SO 4633/6633).

**AN 8011.** Professionalization in Applied Anthropology. (1) One hour seminar. Students are introduced to norms of professional behavior in applied anthropology, with focus on success in graduate school and preparation for the job market.

AN 8013. Quantitative Methods in Anthropology. (3) Three hours lecture. Students are introduced to quantitative methods utilized in anthropological research. Students will examine anthropological research design, sampling strategies, probability theory, and various statistical approaches.

AN 8103. Applied Cultural Anthropology. (3) (Prerequisites: AN 1103 or AN 1143 or consent of instructor). Three hours lecture. An overview of the application of anthropological theory and method of contemporary social problems.

AN 8203. Reading and Research in Applied Anthropology. (3) Three hours lecture. An overview of sub-disciplines within applied anthropology, including medical anthropology, development, forensics, education and cultural resource management.

AN 8215. Internship in Applied Anthropology. (5) A minimum of nine weeks of supervised professional anthropology experience in an appropriate setting.

AN 8303. Seminar in Bio-archaeology. (3) Three hours lecture. Overview of applications in bio-archaeology, including paleodemography, paleopathology, and paleonutrition.

AN 8513. Southeastern Archaeology. (3) Three hours lecture. Prehistory of Southeastern U.S. from entry of first people to European contact. Changes in technology, settlement, subsistence, demography, and environment examined using archaeological evidence.

AN 8523. Environmental Archaeology. (3) Three hours lecture. Coverage of method and theory in environmental archaeology, including elements of palynology, geoarchaeology, floral and faunal analysis, landscape ecology, historical ecology, cultural ecology, and taphonomy.

AN 8533. Readings in Archaeology: Theory. (3) Three hours lecture. Archaeological theory and its implications for practice, focusing on evolutionary archaeology but also including culture history, processual, reconstructionist, and post-processual approaches.

AN 8553. Readings in Archaeology: Applications. (3) Three hours lecture. Review of literature related to materials science in archaeology, including thinsectioning and petrography, raw material sourcing, organic residues, dating techniques, and preservation technology.

### SCHOOL of ARCHITECTURE

Professors West (Dean), Berk (Director), Lewis (Associate Dean), and McCann; Associate Professors Callender, Greenwood, Perkes, Poros, and Watson; Assistant Professors Gregory, Herrmann, Hsu, Taylor and Tripp

**ARC 1003.** Concept and Form. (3) (Prerequisites: ART 1213 or ART 1123 or ARC 1536 or BCS 2116). Three hours lecture. Introduction and practice for developing and presenting concepts and criticism.

**ARC 1013.** Architectural Appreciation. (3) Three hours lecture. Illustrated study of architecture's role in shaping the quality of man's environment. Architectural history, design theory, and process as it affects daily life. Intended for non-majors. (Same as BCS 1013)

ARC 1536-1546. Architectural Design I-A and I-B. (6,6) (Prerequisites: Letters of Acceptance into design studio and consent of Associate Dean of Architecture). Two hours lecture. Ten hours studio. Introduction to creative process, design principles and methods. Design projects emphasize verbal and visual communication; observing, analyzing, representing, and making of form, space, materials.

ARC 2313. History of Architecture I. (3) Three hours lecture. A survey of man's effort to mold his environment from prehistory through the Early Middle Ages.

ARC 2536-2546. Architectural Design II-A and II-B. (6,6) (Prerequisite: ARC 1546 or equivalent or consent of the dean). One hour lecture. Eleven hours studio. Introduction to fundamental aspects of building including structural-spatial ordering systems. Projects emphasize linkages between people and spaces through investigation of perceptual-conceptual issues.

ARC 2713. Passive Building Systems. (3) (Prerequisite: For architecture majors- ARC 1546 and PH 1123; for non-architecture majors- consent of instructor). Three hours lecture. Investigation of the morphological impacts of various environmental energies on building forms and systems. Included are light, climatic, structural, and ecological factors. (Same as BCS 2713)

ARC 2723. Materials. (3) (Prerequisites: Architecture majors: ARC 2536 and ARC 2713; non-architecture majors: ARC 1013). Three hours lecture. Analyzing how materials and systems are designed to respond to both environmental energies and needs. Included are soils, concrete, wood, masonry, and metals.

**ARC 3313. History of Architecture II. (3)** (Prerequisite: ARC 2313). Three hours lecture. Survey of major developments in architecture and city planning from the Fourteenth through the Eighteenth Centuries.

ARC 3323. History of Architecture III. (3) (Prerequisite: ARC 3313). Three hours lecture. Survey of major developments in American architecture and survey of major developments in European architecture during the Nineteenth and Twentieth Centuries.

ARC 3536-3546. Architectural Design III-A and III-B. (6,6) (Prerequisite: ARC 2546 or equivalent or consent of the dean). One hour lecture. Eleven hours laboratory. The development of building design as a synthesis of environmental concerns, behavioral responses, functional requirements, and technical systems. Studies using small and intermediate scale projects.

ARC 3556-3566. Accelerated Studies in Architectural Design III-A and III-B. (6,6) (Prerequisite: ARC 2546 or equivalent or consent of dean). One hour lecture. Eleven hours studio. Individualized studies in architectural design for students enrolled in Accelerated Studies Program.

ARC 3573. The Art/Architecture of Packaging. (3) Three hours lecture. Investigations into theories, techniques, and procedures of packaging (with emphasis on portfolio design) through traditional, mechanical, and digital means.

**ARC 3713.** Assemblages. (3) (Prerequisites: ARC 2546 or BCS 2126 and ARC 2723). Two hours lecture and one field study. Fabrication and construction are explored in the relationship between nature of materials and methods of assembly. (Same as BCS 3713)

ARC 3723. Active Building Systems. (3) (Prerequisites: ARC 3536, ARC 3566 and ARC 3713; for non-architecture majors - ARC 2713 and BCS 2116 or consent of instructor). Three hours lecture. Concentrates on defining the mechanical and electrical (active) techniques available to architects for integrating thermal comfort and life safety into the built form. (Same as BCS 3723

**ARC 3813. Study Abroad Seminar I. (3)** (Prerequisite: ART 1213 or consent of instructor). Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor. (Same as ART 3813 and ID 3813).

**ARC 3823. Study Abroad Seminar II. (3)** (Prerequisite: ART 1213 or consent of instructor). Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor. (Same as ART 3823 and ID 3823).

**ARC 3904.** Architectural Structures I. (4) (Prerequisite: MA 1613 and either ARC 2546 or BCS 2126). Three hours lecture. Three hours laboratory. Application of the principles of statics and the strength of materials on structural elements. (Same as BCS 3904)

**ARC 3914. Structures II. (4)** (Prerequisite: ARC 3904). Three hours lecture. Three hours laboratory. Design and analysis of structural elements as part of frames and other structural systems. (Same as BCS 3914)

**ARC 4114/6114. Professional Practice Strategies. (4)** Four hours lecture. Exploration of the students' career goals relative to emerging technology impact and design/architectural practice trends.

ARC 4142/6142. Digital Design Fundamentals Laboratory. (2) (Prerequisite: Undergraduates-consent of instructor; Graduates-none. Co-requisite: ARC 8104). Four hours laboratory. Exploration of digital input and output devise exploring digital design and fabrication techniques.

ARC 4152/6152. Digital Design I Laboratory. (2) (Prerequisite: Undergraduate-consent of instructor; graduate-none). Four hours laboratory. Laboratory exploration of digital input and output devices concentrating on conceptual design, design development, and manufacturing/construction CADCAM processes using automated machines and devices.

ARC 4162/6162. Digital Design II Laboratory. (2) (Prerequisite: ARC 4152/6152). Four hours laboratory. Advanced laboratory exploration of digital input and output devices concentrating on conceptual design, design development, and manufacturing/construction CADCAM processes using automated machines and devices.

**ARC 4313.** Architectural Theory. (3) (Prerequisite: ARC 3323 or ARC 3313 and consent of instructor). Three hours lecture. A critical investigation of writings that have shaped architectural theory.

ARC 4333/6333. Contemporary Philosophy and Architecture. (3) (Prerequisites: Junior standing or permission of instructor). Three hours lecture. An examination of modernism and postmodernism in philosophy and architecture. (Same as PHI 4013/6013).

ARC 4536-4546. Architectural Design IV-A and IV-B. (6,6) (Prerequisite: ARC 3546 or equivalent or consent of dean). One hour lecture. Eleven hours laboratory. Design of architectural elements integrating building systems, social concerns, and environmental factors. Studies involve intermediate to large scale projects in realistic architectural situations.

**ARC 4633/6633.** Architecture and Virtual Spaces. (3) Three hours lecture. Exploration of physical and virtual worlds from a theoretical, technical, communication, and design perspective.

**ARC 4733. Site Planning for Architects. (3)** (Prerequisite: ARC 2546). Three hours lecture. Introduces the natural ecological systems as they relate to human's impact on them, along with the natural systems' resistance to human's impact.

ARC 4763/6763. Introduction to Industrial Design. (3) (Prerequisites: consent of instructor). Three hour lecture. Introduction to industrial design and design exploration using different methods, tools and techniques for problem solving in product design in its various applications.

ARC 4764/6764. Furniture Designs for Manufacturing and Marketing. (4). (Prerequisites: Undergraduates: permission of instructor; Graduates: none). Three hour lecture. Two hours laboratory. Introduction to need-based design approach for industrial, commercial and residential clients, general precepts to design products/furniture that balance innovative design, functional requirements and aesthetic appeal.

**ARC 5353. Philosophy of Architecture.** (3) Three hours lecture and field visits. The philosophical issues of meaning, appreciation, and the distinctive characteristics of the artistic creation.

**ARC 5383. Legal Aspects of Architecture. (3)** Three hours lecture. Investigation and research regarding architectural issues including architectural law, contracts, litigation, case studies and other topical issues.

**ARC 5443.** Architectural Programming. (3) One hour lecture. Six hours laboratory. Advanced study of analytical and intuitive methods of programming, leading to development of terminal project program to be used in ARC 5589.

ARC 5493. Architectural Practice. (3) Three hours lecture. Investigation into issues facing the graduate architect including: responsibilities to the community and the profession; project and business management; client relations; and delivery of services.

**ARC 5576.** Architectural Design V-A. (6) (Prerequisite: ARC 4546). One hour lecture. Fifteen hours laboratory. Theory and application of architectural problems at urban scale. Investigation of social, economic, political issues effecting architectural programming and design.

**ARC 5589.** Architectural Design V-B. (9) (Prerequisite: ARC 5576). Two hours lecture. Twenty hours laboratory. Development of architectural project of complex and comprehensive nature. Emphasis upon thorough examination of all aspects of building.

**ARC 5623. Theory of Urban Design. (3)** Three hours lecture. General introduction into field of urban design. Course divided into two areas of theory and practice as they relate to contemporary urban development.

**ARC 6813.** Public Design Seminar I. (3) (Prerequisite: Acceptance in Public Design Intern Program) Three hours lecture. Public practice theory, limitations of standard practice to meet contemporary social, economic and environmental needs; values and leadership of community organizations; examples of alternative practice.

**ARC 6823. Public Design Seminar II. (3)** (Prerequisite: ARC 6813) Three hours lecture. Understanding community; local services and economic problems and global environmental risks; understanding minority subcultures, poverty, and the role of non-profit organizations.

**ARC 6833. Public Design Seminar III. (3)** (Prerequisite: ARC 6823) Three hours lecture. Creating and using tools of public practice to help communities address social, economic and environmental problems; leadership skills, advocacy planning, sustaining a non-profit practice.

**ARC 6853. Public Practice and Projects I. (3)** (Prerequisite: Acceptance in Public Design Intern Program) Two hours lecture. Two hours laboratory. Various models of design practice presented by ten outside practitioners. Parallel studio team project.

**ARC 6863. Public Practice and Projects II. (3)** (Prerequisite: ARC 6853) Two hours lecture. Two hours laboratory. Survey of governmental and non-profit organizations that work in the community presented by ten outside practitioners. Parallel studio team project.

**ARC 6873. Public Practice and Projects III. (3)** (Prerequisite: ARC 6863) Two hours lecture. Two hours laboratory. Challenging the status-quo; presentations by ten visionary people. Parallel studio team projects.

**ARC 8114. Digital Design I. (4)** Four hours lecture. Exploration of digital input and output devices concentrating on conceptual design/visualization processes using 3D/4D software and augmenting hardware devices.

**ARC 8124. Digital Design II. (4)** (Prerequisite: ARC 8114). Four hours lecture. Exploration of digital input and output devices concentrating on conceptual design, design development, and manufacturing/construction CADCAM processes using automated machines and devices.

ARC 8224. Research and Writing in Architecture. (4) Four hours lecture. Provides the student with a general grounding in the process of research, problem identification, writing and development of a formal argument in design and architecture.

**ARC 8444. Interactive Media. (4)** (Prerequisite: ARC 6633). Three hours lecture. Two hours laboratory. Exploration of media and interaction design solutions through case studies and congruent design concepts.

**ARC 8463. Story Telling in Computer Animation. (3)** (Prerequisite: Consent of the instructor). One hour lecture. Four hours laboratory. Customization of existing software/production tools for the transformation of a script into computer graphics imagery.

#### Department of ART

Office: 102 Freeman Hall

Professors Funderburk, Gootee, Haupt, Long, McCourt, Mixon, and Seckinger;

Associate Professors Thompson (Head), Bostic, Bourgeois, Harvey, Ngoh and Runnels; Assistant Professors Baine, Campbell, and Landry

**ART 1013.** Art History I. (3) Three hours lecture. The study of art from prehistoric times to the Renaissance through the architecture, sculpture, painting and minor arts of the western world.

**ART 1023. Art History II. (3)** Three hours lecture. Art from the Renaissance to the present studied chronologically through the architecture, painting, sculpture, and minor arts of the western world.

**ART 1113. Art Appreciation. (3)** Three hours lecture. An illustrated lecture course dealing with periods, styles, and personalities in painting, sculpture, and architecture. Honors section available through invitation only.

**ART 1123. Design I. (3)** Six hours studio. A basic study of the fundamental elements and principles of design with an emphasis on composition.

**ART 1133. Design II. (3)** (Prerequisite: ART 1123). Six hours studio. A continued study of the fundamental elements and principles of design with an emphasis on the theory and application of color.

**ART 1153. Three-Dimensional Design. (3)** (Prerequisites: ART 1123 or ARC 2536). Six hours studio. A study of the organization of the principles and elements of art as they apply to three-dimensional artwork.

**ART 1213. Drawing I. (3)** Six hours studio. A freehand drawing course for students interested in visual arts. Basic vocabulary for graphic notation is explored utilizing observation, black and white media, and perspective.

**ART 1223. Drawing II. (3)** (Prerequisite: ART 1213). Six hours studio. A continuation of ART 1213 further developing conceptual and perceptual use of drawing tools, processes and materials. Black and white, and color media explored.

**ART 2013. Painting Survey. (3)** (Prerequisites: ART 1123 and ART 1213). Six hours studio. The fundamentals of oil painting and composition.

**ART 2103. Photography Survey. (3)** (Prerequisites: ART 1123 and ART 1213). One hour lecture. Four hours studio. The fundamentals and aesthetics of black and white photography relating to graphic design and the fine arts.

**ART 2213. Life Drawing I. (3)** (Prerequisites: ART 1213 and ART 1223). Six hours studio. A drawing class with emphasis on the basic forms and proportions of the human figure.

**ART 2233. Drawing III. (3)** (Prerequisite: ART 1223). Six hours studio. A continuation of ART 1223 to develop further drawing skills, use of mixed-media, surface variety and explorative concepts for advanced students.

**ART 2303. Printmaking Survey. (3)** (Prerequisites: ART 1123, ART 1133 and ART 1223). Six hours studio. Introduction to the basic techniques and concepts of lithography, relief print-woodcut and linocut.

ART 2403. Sculpture Survey. (3) (Prerequisite: ART 1123 and ART 1153

or permission of instructor). Six hours studio. Introduction to the basic concepts, materials, and processes of sculpture by exploring modeling, casting, carving and constructing.

ART 2503. Ceramic Art Survey. (3) Six hours studio. Introduction to the processes of ceramic art including hand built forms, wheel thrown pottery and glazing.

**ART 2803. Introduction to Computing for Art. (3)** (Prerequisites: ART 1133 and ART 1223 or permission of instructor). One hour lecture. Four hours studio. Introduction to desktop computer hardware, operating systems, and application software in the visual arts and design.

**ART 2813.** Intermediate Computing for Designers. (3) (Prerequisites: Pass second year portfolio review, open only to Graphic Design Majors or consent of instructor). One hour lecture. Four hours studio. Further instruction about desktop computer hardware, operating systems, application software and beginning concept development specific to the graphic design industry for graphic design majors.

**ART 3023.** Painting II. (3) (Prerequisite: ART 2013). Six hours studio. Observation-based painting. A study of mediums and techniques in painting in continuation of ART 2013.

**ART 3033.** Non-Representational Painting. (3) (Prerequisite: ART 2013). Six hours studio. Introduction to nonrepresentational painting. Intermediate painting with further emphasis on the skills and techniques of painting.

**ART 3043. Figurative Painting. (3)** (Prerequisites: ART 2013 and ART 2213). Six hours studio. Introduction to painting the figure. A continuation of ART 2013 to further develop skill in the use of the medium and formal organization of subject matter in painting.

**ART 3053. Watercolor Painting. (3)** (Prerequisites: ART 1133 and ART 1223). Six hours studio. The technique and use of various water-soluble painting mediums.

**ART 3143. Italian Renaissance Art History. (3)** Three hours lecture. The history of art in Italy in the fifteenth and sixteenth centuries, emphasizing the religious monuments of the period.

ART 3153. African Art and Culture. (3) (Prerequisite: AN 1103 or consent of instructor). Three hours lecture. An examination of the role of traditional art in the beliefs and customs of representative African cultures. (Same as AN 3153 and AAS 3153.)

**ART 3163. History of Graphic Design. (3)**. (Prerequisite: Pass second year portfolio review, open only to Graphic Design Majors or consent of instructor). Three hours lecture. A survey of the history of graphic design from pre-writing to digital.

**ART 3213. Life Drawing II (3)** (Prerequisite: ART 2213). Six hours studio. Further study in rendering the human figure.

**ART 3223. Darkroom Basics. (3)** (Prerequisites: ART 2103 or consent of instructor). Six hours studio. The course is an introduction to the traditional photographic darkroom.

**ART 3233. Studio Lighting. (3).** (Prerequisites: ART 2103 or permission of instructor). Six hours studio. The course is an introduction to the professional studio lighting techniques.

**ART 3243. Intermediate Darkroom. (3)** (Prerequisite: ART 2103 and ART 3223, or permission of instructor). One hour lecture. Four hours studio. Advanced techniques of photographic processes in black and white with emphasis on aesthetics.

**ART 3303. Printmaking II. (3)** (Prerequisite: ART 2303). Six hours studio. Continued exploration of the print as a medium of creative expression.

**ART 3313.** Graphic Art Design I. (3) (Prerequisites: ART 1123, ART 1213 and ART 1223). Six hours studio. Introduction to the processes and techniques of commercial art. Beginning lettering and layout.

**ART 3323.** Graphic Art Design II. (3) (Prerequisite: ART 3313). Six hours studio. The execution of a series of design projects promoting an awareness of different forms of printed visual communication.

**ART 3403. Printmaking III. (3)** (Prerequisites: ART 2303 and ART 3303) Six hours studio. Exploration of traditional and contemporary relief printmaking techniques, with emphasis on woodcut and collograph methods. Aesthetic, technical, and conceptual development stressed.

**ART 3443. Illustration. (3)** (Prerequisites: ART 2013 and ART 3053). Six hours studio. A course introducing issues and instrumentations related to standards in the professional field of illustration emphasizing mixed-media processes.

ART 3503. Ceramic Art II. (3) (Prerequisite: ART 2503). Six hours studio. Elementary glaze formulation, surface decoration, kiln firing, wheel thrown and hand built form.

**ART 3513. Sculpture II. (3)** (Prerequisite: ART 2403). Six hours studio. Further exploration of concepts and processes of sculpture, including mold making and armature building. Beginning development of personal language of expression.

**ART 3523. 3D Seminar. (3)** (Prerequisites: ART 2403 or ART 2503). Six hours studio. Research and investigation of the origins, community, processes, and message of contemporary three-dimensional art and craft.

**ART 3603. Directed Writings in Modern Art History. (3)** (Prerequisites: ART 1013 and ART 1023). Three hours lecture. History of 20th Century art with emphasis on scholarly writing, reading, and analysis of contemporary models and varieties of writing.

ART 3613. Art and Film. (3) Three hours lecture. This course explores the rich and complex relationship between the visual arts and film.

**ART 3623.** Art in France: 1850-1900. (3) Three hours lecture. This class explores one of the most dynamic periods of artistic production in the entire history of art.

**ART 3633. History of Photography. (3)** Three hours lecture. The history of still photography as a fine art from its beginning to present.

ART 3653. Roman Baroque Art. (3) Three hours lecture. An examination of the art and architecture created in Rome in the 17th century.

**ART 3663. Medieval Stained Glass. (3)** An examination of the history of Medieval stained glass from the points of view of technique, material, style, and cultural/historical significance.

**ART 3673. The Gothic Cathedral.** (3) Three hours lecture. An examination of the art, architecture, religion, politics, and culture of 13th century French Gothic Cathedrals.

**ART 3683. The History of Art and Religion.** (3) An examination of the histories, functions, and controversies of visual imagery created in the service of religion/spirituality around the world.

**ART 3803. Gallery Management. (3)** (Prerequisite: ART 1123 and ART 1213). One hour lecture. Four hours laboratory. The study of gallery operations, techniques of curation, artists ethics, installation procedures and management of an art gallery.

**ART 3813. Study Abroad Seminar I. (3)** (Prerequisite: ART 1213 or consent of instructor). Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor. (Same as ARC 3813 and ID 3813).

**ART 3823. Study Abroad Seminar II. (3)** (Prerequisite: ART 1213 or consent of instructor). Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor. (Same as ARC 3823 and ID 3823).

**ART 3873. Digital Photography. (3)** (Prerequisites: ART 2103 or permission of instructor). Six hours studio. The techniques and aesthetics of digital imagery emphasizing the use of digital photographic input and output processes.

**ART 3913. Introduction to Print Production. (3).** (Prerequisites: ART 3323 or consent of instructor). Six hours studio. This class is an introduction to digital print techniques, client work, and the responsibilities and role of graphic designers.

**ART 4053. Watermedia Painting. (3)** (Prerequisite: ART 3053) Six hours studio. An in-depth exploration of water-based painting media utilizing watercolor and acrylic mediums in the creation of a body of two dimensional artworks.

**ART 4083. Senior Research. (3)** (Prerequisites: Senior standing, and consent of instructor. Co-requisites: enrollment in ART 4600, 4610, 4620, 4630, 4650, 4453, 4463, 4473, or 4483). Three hours lecture. The application of research methods for the fine artist in contemporary society.

**ART 4093. Senior Thesis. (3)** (Prerequisites: Senior standing and ART 4083; Co-requisites: enrollment in ART 4600, 4610, 4620, 4630, 4650, 4453, 4463, 4473 or4483). Three hours lecture. Execution of a thesis exhibition and portfolio materials.

**ART 4103/6103. The Art of Typography and Layout I. (3)** Six hours studio. The art and process of presenting written communication in graphic form.

**ART 4113/6113. The Art of Typography and Layout II. (3)** (Prerequisite: ART 4103/6103). Six hours studio. Advanced problems in presenting written communication in graphic form. Advanced problems as well as additional projects will be required for graduate credit.

**ART 4123.** Screen Printing for Graphic Design. (3). (Prerequisite: ART 3313, ART 4103, or permission of Instructor). Six hours studio. An in-depth look at contemporary methods in designing and screen printing posters and shirts.

**ART 4223/6223.** Alternative Photography. (3) (Prerequisite: ART 2103 or permission of the instructor). One hour lecture. Four hours studio. Alternative photographic processes in black and white with emphasis on aesthetics.

**ART 4323.** Advanced Painting. (3) (Prerequisite: ART 2303, ART 3303, and ART 3403). Six hours studio. Exploration of advanced printmaking concepts and techniques. Emphasizes refining a personal aesthetic using previously learned print processes with plate lithographic techniques.

**ART 4343/6343. Drawing IV. (3)** (Prerequisite: ART 2233 at both levels and consent of instructor for 6343). Six hours studio. A continuation of ART 2233 to develop further skills for advanced students.

**ART 4403/6403.** Advertising Design I. (3) (Prerequisite: ART 3323, ART 4103/6103, and consent of instructor). Six hours studio. Course requiring ideational, image making, graphic design and typographic skills to meet rigorous conceptual/visual standards pertinent to creating a brand of a company's identity.

**ART 4413/6413. Advertising Design II. (3)** (Prerequisite: ART 4403/6403 and consent of instructor). Six hours studio. An advanced course requiring interaction on a professional level, working with realistic agency-client situations in order to develop efficient, distinguishable and competitive promotional campaigns.

**ART 4443/6443. Alternative Color. (3)** (Prerequisites: ART 2103 or permission of instructor). One hour lecture. Four hours studio. Alternative photographic processes in color with emphasis on aesthetics.

**ART 4453. Ceramics-Handbuilding. (3)** (Prerequisites: ART 2503 or consent of instructor). Six hours studio. Advanced skills and professional practices focused on non-wheel forming techniques for creative expression in clay. May be taken twice for credit.

**ART 4463. Ceramics-Wheel Technique. (3)** (Prerequisites: ART 2503 or consent of instructor. Six hours studio. Advanced skills and professional practices focuses on the potter's wheel as a tool for creative expression. May be taken twice for credit.

**ART 4473. Ceramics- Glaze Formation. (3)** (Prerequisites: ART 2503 or consent of instructor). Six hours studio. Advanced skills and professional practices focused on the chemistry of ceramic glazes and developing various application techniques. May be taken twice for credit.

**ART 4483. Ceramics- Professional Practices. (3)** (Prerequisites: ART 2503 or consent of instructor). Six hours studio. Advanced skills with a focus on the development of a marketable aesthetic and professional practices. May be taken twice for credit.

**ART 4523/6523. Internship in Graphic Art Design. (3)** (Prerequisites: ART 3313, senior standing and consent of the instructor). Supervised instruction in graphic design. Advanced problems will be required for graduate credit. May be taken for credit more than once.

ART 4533. Ceramic Art III. (3) (Prerequisites: ART 3503). Six hours studio. Advanced problems in glaze formulation, kiln technology and wheel thrown and hand built forms.

ART 4573/6573. Critical Issues in Recent Art. (3) (Prerequisite: ART 3603 or an equivalent course on 20th century art and consent of the instructor). Three hours lecture. Discussion of major developments and issues in contemporary art, focusing on the period 1980 to present.

**ART 4583.** Photographic Portfolio I. (3) (Prerequisites: senior standing, Photography concentration majors or permission of instructor). Six hours studio. This course is an introduction to the professional practices in photography and the development of a portfolio.

**ART 4593.** Photographic Portfolio II. (3) (Prerequisites: ART 4583 or consent of instructor). Six hours studio. This course is an extension of the professional practices in photography and the completion with an exhibition of a portfolio from ART 4593.

ART 4600/6600. Advanced Studio - Drawing. (3-9) May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studies in any one semester. (Prerequisites: ART 4343 and permission of instructor). Six hours studio. Advanced study in drawing. Further development of studio skills. Course encourages analysis and criticism, development of personal aesthetic, and further exploration of content and expression.

ART 4610/6610. Advanced Studio - Painting. (3-9) May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studies in any one semester. (Prerequisite: consent of instructor). Six hours studio. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues.

**ART 4620/6620.** Advanced Studio - Printmaking. (3-9) May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studies in any one semester. (Prerequisite: consent of instructor). Six hours studio. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues.

**ART 4630/6630. Advanced Studio - Sculpture. (3-9)** May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studies in any one semester. (Prerequisite: ART 3513). Six hours studio. Further development of a personal sculptural aesthetic through media of choice.

**ART 4640/6640. Advanced Studio - Graphic Design. (3-9)** May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studies in any one semester. (Prerequisite: consent of instructor). Six hours studio. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues.

ART 4650/6650. Advanced Studio - Ceramics. (3-9) May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studies in any one semester. (Prerequisite: consent of instructor). Six hours studio. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues.

ART 4660/6660. Advanced Studio - Photography. (3-9) May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studies in any one semester. (Prerequisite: Consent of instructor). Six hours studio. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues.

**ART 4670/6670. Advanced Art History. (3-9)** May be taken for credit more than once. Hours and credit to be arranged. (Prerequisite: consent of instructor). Three hours lecture. This course encourages analysis and criticism of aesthetic, social, ethical and related issues.

**ART 4693/6693.** Internship in Fine Art. (3) May be taken for credit more than once. (Prerequisite: Consent of department head). Six hours laboratory. Supervised instruction and experience for professional art practice.

**ART 4713. Advanced Print Production. (3)** (Prerequisite: ART 3713). Six hours studio. A more in-depth look at digital printing techniques through comprehensive work and the responsibilities and roles of graphic designers.

**ART 4723. Advanced Concept Development. (3)** (Prerequisite: ART 3323 and ART 4103) Six hours studio. Conceptual development is the primary goal, additionally students will have more comprehensive campaigns in their portfolios. The techniques can be applied to all design courses.

**ART 4733. Sculpture- Furniture Making. (3)** (Prerequisites: ART 2403 or ID 4693 or permission of instructor). Six hours studio. An in-depth investigation into the design and execution of contemporary studio furniture. May be taken twice for credit.

**ART 4743. Sculpture- Metal Fabrication. (3)** (Prerequisites: ART 2403 or consent of instructor). 6 hours studio. Introduction to the history and techniques of metalworking including cutting, forming, welding, brazing, finishing, mechanics, kinetics and armature making. May be taken twice for credit.

**ART 4753. Sculpture- Materials & Processes. (3)** (Prerequisites: ART 2403 or consent of instructor). Six hours studio. Introduction and exploration of materials and processes used in design and production of contemporary objectives. May be taken twice for credit.

ART 4813/6813. Introduction to Multimedia I Design and Authoring. (3) (Prerequisite: Consent of instructor). One hour lecture, five hours laboratory. The design and authoring of interactive multimedia for fine and applied arts using desktop computers. Course encourages analysis and criticism of aesthetic and related issues.

ART 4823/6823. Multimedia II and Electronic Publishing. (3) (Prerequisite: ART 4813/6813 and consent of instructor). Six hours laboratory. Interactive multimedia and electronic publication for fine and applied arts using desktop computers. Course encourages analysis and criticism of aesthetic, social, ethical and related issues.

**ART 4833/6833. Computer Animation I. (3)** (Prerequisite: Consent of instructor). Six hours lecture and laboratory. An introduction to Computer Animation. Basic concepts in the building of 3D objects, color, texture mapping, lighting, ray-tracing, and the writing of motion data.

ART 4843/6843. Computer Animation II. (3) (Prerequisite: ART 4833/6833). Six hours lecture and lab. Advanced techniques and special effects: customizing directory structures in the unix environment, complex modeling techniques, animation of object attributes, and creation of motion data.

**ART 4863/6863.** Advanced Studio - Computer Art and Design. (3) May be taken for credit more than once. (Prerequisite: Consent of instructor). Six hours laboratory. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues.

**ART 4873/6873. Digital Imaging I. (3)** (Prerequisite: ART 2103 or consent of instructor) Six hours laboratory. Application of computer software to generate electronic images captured by traditional photographic means. Advanced problems and additional projects will be required for graduate credit.

**ART 4883/6883. Graphic Design for the Internet. (3)** (Prerequisite: ART 3313, ART 3323, open only to graphic design majors or by consent of instructor.) One hour lecture. Five hours laboratory. An introduction to graphic design for the Internet, Internet history, HTML, image manipulation, and the use of software to facilitate the Web site design.

**ART 8013.** Computer Animation III. (3) (Prerequisite: ART 6833 and ART 6843). Six hours studio. Image processing, compositing, and managing complexity with basic programming techniques for computer-generated images and animations.

**ART 8023.** Computer Animation IV. (3) (Prerequisites: ART 6833, ART 6843, and ART 8013). Six hours studio. Based upon readings within the historical, critical, philosophical and applied contexts of computer graphics, animation and art, students focus on content development in their work.

**ART 8033. Experimental Animation. (3)** (Prerequisites: ART 6873, ART 6763, ART 8043 or consent of instructor). One hour lecture. Four hours laboratory. Course exercises and individual projects extend the technical palette and visual vocabulary of the experimental animator, with emphasis on the maturation of personal vision/aesthetic.

ART 8073. Advanced Studio: Computer Art and Design. (3) (Prerequisite: ART 6863. Must be taken with co-requisite, ART 6823, ART 6843, ART 8013, ART 8023, or ART 8103). Class assignments for this course will coincide with those assigned for Animation II, Animation IV, Multimedia II, Multimedia III. This class will serve as a laboratory for these classes.

**ART 8083. Theory of Visual Communication. (3)** Three hours lecture. Study of the theories of sign and visual communication.

ART 8103. Multimedia III. (3) (Prerequisite: ART 6813 and ART 6823 or permission of the instructor). Two hours lecture. Four hours studio. Independent assignments in interactive multimedia authoring incorporating multiple elements: content development, graphic design, image editing and compositing, digital video, sound editing.

**ART 8163. Advanced Digital Imaging. (3)** Six hours studio. Application of existing software to generate electronic images captured by traditional and non-traditional photographic means.

# AIR FORCE AEROSPACE STUDIES

Office: Second Floor, Middleton Hall

Lt. Col. Dickensheet, Capt. Mobley and Capt. Mitre

AS 1012. Foundations of U.S. Air Force-I. (2) Fall semester. One hour lecture. One hour practicum. Surveys Air Force's role in contemporary world. Emphasis on strategic offensive and defensive forces.

AS 1022. Foundations of U.S. Air Force-II. (2) Spring Semester. One hour lecture. One hour practicum. A continuation of AS 1012 with emphasis on general purpose and support forces.

AS 2012. Air and Space Power-I. (2) Fall semester. One hour lecture. One hour practicum. Study of air power development and employment in support of national objectives and an examination of the evolution of air power concepts and doctrine.

AS 2022. Air and Space Power-II. (2) Spring semester. One hour lecture. One hour practicum. A continuation of AS 2012 with emphasis on air power since WWII.

AS 2523. Military Leadership 1. (3). Three hours lecture. A study of leadership skills and concepts. This course is designed for students who are not pursuing a military commission. (MS 2523).

AS 3013. Air Force Leadership Studies-I. (3) (Prerequisites: AS 1012, AS 1022, AS 2012, and AS 2022 or permission of instructor). Fall semester. Three hours lecture. Two hours practicum. An integrated management course emphasizing leadership/management concepts and skills. Examines motivational and behavioral processes, leadership communication, decision making, ethics, organizational power, and managerial strategy.

AS 3023. Air Force Leadership Studies-II. (3) (Prerequisites: AS 1012, AS 1022, AS 2012, AS 2022, and AS 3013 or permission of instructor). Spring semester. Three hours lecture. Two hours practicum. A continuation of AS 3013.

AS 4013. National Security Affairs and Preparation for Active Duty-I. (3) (Prerequisites: AS 1012, AS 1022, AS 2012, AS 2022, AS 3013, and AS 3023 or permission of instructor). Fall semester. Three hours lecture. Two hours practicum. Study of U.S. National Security Policy. Examines formulation, organization, and implementation of national security. Includes ethics, civil-military interaction, technology, and Laws of War.

AS 4023. National Security Affairs and Preparation for Active Duty-II. (3) (Prerequisites: AS 1012, AS 1022, AS 2012, AS 2022, AS 3013, AS 3023, and AS 4013 or permission of instructor). Spring semester. Three hours lecture. Two hours practicum. A continuation of AS 4013.

# Department of AEROSPACE ENGINEERING

#### Office: 330 Walker Engineering Laboratories

Professors Cinnella (Interim Head), Koenig, Newman, Jr., Rais-Rohani; Associate Professors Bridges, Janus, Lacy, Newman III, Thompson; Assistant Professors Cheng, Sullivan, Xin; Instructors Hannigan, Walters

ASE 1013. Introduction to Aerospace Engineering. (3) (Prerequisite: credit or co-registration in MA 1713). Three hours lecture. Three hours laboratory. Historical perspectives of aerospace engineering and fundamentals of aerodynamics, the standard atmosphere, computer modeling and manufacturing, information technology, programming environments, computational tools.

ASE 1023. Introduction to Flight Mechanics. (3) (Prerequisite: ASE 1013, grade of C of better in MA 1713, and current enrollment or grade of C or better in both MA 1723 and PH 2213). Three hours lecture. Three hours laboratory. Introduction to airfoils, wings, and other aerodynamic shapes, elements of airplane performance, principles of stability and control, applications of computer modeling, computational tools, historical perspectives.

ASE 1501. Student Design Competition. (1) (Pre/co-requisite: ASE student with MSU GPA 2.5 or greater or consent of instructor). One hour practicum. Students participate in a department-sponsored design competition, contributing to design and fabrication tasks, writing weekly progress reports, contributing to competitive report and giving presentations.

ASE 2013. Astrodynamics, Propulsion and Structures. (3) (Prerequisite: ASE 1013 and a grade of C or better in MA 1713 and credit or registration in MA 1723 and PH 2213). Three hours lecture. Three hours laboratory. Introduction to space flight (astronautics), propulsion, flight vehicle structures and materials, and hypersonic vehicles, applications of computer modeling, computational tools, with historical perspectives.

ASE 2113. Introduction to Aircraft and Spacecraft Performance. (3) (Prerequisite: ASE 2013 and grade of C or better in MA 1723 and PH 2213). Three hours lecture. Introduction to general aerodynamics, propulsive and structural considerations of flight mechanics, quasi-steady flight; accelerated and maneuvering flight; launch vehicle performance; re-entry.

ASE 3123. Aircraft Attitude Dynamics. (3) (Prerequisites: ASE 2113 and grade of C or better in EM 3413). Three hours lecture. Longitudinal, directional, and lateral static stability and control; related aerodynamics; maneuvering flight;

introduction to dynamic stability and control analysis methods; general equation of unsteady motion.

ASE 3213. Mechanics of Deformable Structures. (3) (Prerequisite: grade of C or better in EM 3213 and MA 3113). Three hours lecture. Introduction to structural materials and loads. Deflection analysis using energy, flexibility-based matrix, and the finite element methods. Design effect on deflection and vice versa.

ASE 3223. Aerospace Structural Analysis. (3) (Prerequisite: grade of C or better in EM 3213). Three hours lecture. Stress analysis of elastic and inelastic structures under different loading conditions. Shear flow distribution in thin-wall structures. Influence of design on stress and shear flow distributions.

**ASE 3313. Incompressible Aerodynamics. (3)** (Prerequisite: grade of C or better in EM 3313). Three hours lecture. Potential theory of bodies; airfoil theory and applications; finite wing theory and applications; introduction to Navier-Stokes equations; laminar boundary layers; turbulent boundary layers.

**ASE 3333.** Aerothermodynamics. (3) (Prerequisites: grade of C or better in MA 2733 and PH 2213). Three hours lecture. Energy; first and second laws of thermodynamics; entropy; properties of ideal gases; gas power cycles; introduction to heat transfer.

**ASE 3813. Introduction to Orbital Mechanics. (3)** (Prerequisites: grade of C or better in all of EM 2433, MA 3253 and MA 3113). Three hours lecture. Twobody orbital mechanics; geometry of spatial orbits; fundamental orbit determination; orbital maneuvers; introduction to rendezvous and interplanetary trajectories.

**ASE 3823. Spacecraft Attitude Dynamics. (3)** (Prerequisite: ASE 3813) Three hours lecture. Motion of spacecraft about center of gravity. Rigid body dynamics and rotational kinematics. Mission pointing requirements and design of the attitude determination and control system.

ASE 4113. Aerospace Engineering Laboratory I. (3) (Prerequisites: Credit or registration in EM 3413 and GE 3513). Six hours laboratory. Experimental techniques used in aerospace engineering.

ASE 4123. Aerospace Controls. (3) (Prerequisite: ASE 3123 or ASE 3823). Three hours lecture. Methods of dynamic analysis; stability of steady flight; response to actuation of the controls (open loop); closed-loop control; human crew/ vehicle interactions.

ASE 4133/6133. Automatic Control of Aerospace Vehicles. (3) (Prerequisite: ASE 4123). Three hours lecture. Optimization techniques; structural flexibility effects; statistical design; sample-data control systems.

ASE 4153/6153. Advanced Performance. (3) (Prerequisite: ASE 2113 or consent of instructor). Three hours lecture. Performance methods used for current aeronautical vehicles. Configurations considered are sailplanes, V/STOL aircraft, subsonic/supersonic transports, and fighters.

ASE 4163/6163. Introduction to Flight Test Engineering. (3) (Prerequisite: ASE 3313, ASE 4123). Three hours lecture. Introduction to the techniques of aeronautical flight test engineering. Supplements Aerospace curriculum Pitot/ static systems, and introduces fixed-wing flight test engineering, data reduction, certification, flight-test risk assessment/mitigation, and flight crew-station analysis procedures.

**ASE 4233/6233. Structural Dynamics. (3)** (Prerequisite: EM 3413) Three hours lecture. Influence coefficients; matrix methods; Lagrange's equations of motion; divergence of an airfoil; introduction to flutter.

ASE 4333/6333. Helicopter Aerodynamics and Performance. (3) (Prerequisite: Consent of instructor). Three hours lecture. Hover, vertical, and forward flight aerodynamics. Momentum and blade element methods. Hover, climb, and cruise performance analysis. Introduction to equilibrium flight trim equations.

**ASE 4343. Compressible Aerodynamics. (3)** (Prerequisites: ASE 3333 and grade of C or better in EM 3313). Three hours lecture. Equations of motion for multidimensional flow; oblique shock waves; Prandtl Meyer flow; internal flow; method of characteristics; linearized flows; compressible wing theory; compressible boundary layers.

ASE 4413. Aircraft Propulsion. (3) (Prerequisites: ASE 3333 and ASE 4343). Three hours lecture. Aerothermodynamics of aircraft jet engines and gas turbine engine components; nozzles; turbines; compressors; diffusers; introduction to piston engines; propellers and propeller performance estimation.

ASE 4423/6423. Introduction to Computational Fluid Dynamics. (3) (Prerequisite: Consent of instructor). Three hours lecture. Elementary aspects of computational fluid dynamics (CFD); review of numerical analysis and fluid mechanics as pertinent to CFD; numerical solution of selected fluid dynamic problems.

ASE 4433/6433. Fundamentals of Numerical Grid Generation. (3) (Prerequisite: Consent of instructor). Three hours lecture. Grid generation strategies; effects of grid quality on discretization errors; structured and unstructured grid generation algorithms; solution adaptive grid generation; surface grid generation.

ASE 4443. Spacecraft Propulsion. (3) (Prerequisites: ASE 3333 and ASE 4343) Three hours lecture. Nozzles and thermochemistry. Components, design and performance of liquid propellant, solid propellant, hybrid and electric rocket propulsion systems.

ASE 4513. Aircraft Design I. (3) (Prerequisites: ASE 3123, ASE 3313, ASE 3223). Two hours lecture. Three hours laboratory. Introduction to the principles and techniques of aircraft design. Introduction to systems engineering and requirements analysis; design optimization; layout; weight; performance.

ASE 4523. Aircraft Design II. (3) (Prerequisite: ASE 4513). One hour lecture. Five hours laboratory. Continuation of ASE 4513. Students make use of principles and techniques covered in ASE 4513 to create a design of an aircraft.

ASE 4533. Spacecraft Design I. (3) (Prerequisites: ASE 3223, ASE 3813, ASE 3823) Two hours lecture. Three hours laboratory. Introduction to the principles and techniques of spacecraft and mission design. Systems engineering and requirement analysis, spacecraft system characteristics and mission phases.

ASE 4543. Spacecraft Design II. (3) (Prerequisite: ASE 4533) One hour lecture. Five hours laboratory. Continuation of ASE 4533, Spacecraft Design I. Application of design concepts and principles. Concentration on systems engineering, detail design, life cycle cost, manufacturing and operations.

ASE 4553/6553. Engineering Design Optimization. (3) (Prerequisite: Consent of instructor). Three hours lecture. Introduction to optimality criteria and optimization techniques for solving constrained or unconstrained optimization problems. Sensitivity analysis and approximation. Computer application in optimization. Introduction in MDO. (Same as EM 4143/6143 and IE 4743/6743).

**ASE 4623. Aerospace Structural Design. (3)** (Prerequisite: ASE 3223). Three hours lecture. Principles of design and manufacture of aerospace structures. General theories of stability and failure with applications. Design optimization, fabrication, and testing of structural members.

ASE 4721. Aerospace Engineering Laboratory II. (1) (Prerequisite: ASE 4113). Three hours laboratory. Experimental techniques used in aerospace engineering; course requirements include individual research and formal research papers.

**ASE 4813/6813. Advanced Orbital Mechanics. (3)** (Prerequisite: ASE 3813). Three hours lecture. Orbital mechanics, perturbations and numerical integration; introduction to statistical orbit determination; the Global Positioning System. Application of orbital mechanics to mission design problems.

ASE 4833/6833. Space Mission Operations. (3) (Prerequisite: ASE 3813 or consent of instructor). Three hours lecture. Overview of spacecraft operations functions. Designing spacecraft for efficient operations. Operations concept development, ground systems specification, training and certification, Mission case studies.

ASE 6013. Directed Project in Aerospace Engineering. (3). Contact hours and title to be arranged. An individual professional project open only to candidates for the Master of Science degree (non-thesis option). Formal written and oral project reports are required.

ASE 8313. Advanced Compressible Aerodynamics I. (3) (Prerequisite: ASE 4343 or equivalent). Three hours lecture. Derivation of complete equations for compressible fluid flow; unsteady one-dimensional flows; method of characteristics; flow about two-dimensional, and axis-symmetric shapes; integral methods.

ASE 8323. Advanced Compressible Aerodynamics II. (3) (Prerequisite: ASE 8313). Three hours lecture. Perturbation theory for wings and bodies; optimum wing and body shapes; wing-body interference; transonic flows, hypersonic flows.

ASE 8343. Incompressible Viscous Laminar Flow. (3) (Prerequisite: Consent of instructor). Three hours lecture. Incompressible Navier-Stokes equations; properties and exact solutions; laminar boundary layer equations; two- and threedimensional solutions; time-dependent solutions; approximate solutions; boundary layer control.

ASE 8353. Turbulent Flow. (3) (Prerequisite: ASE 8343). Three hours lecture. Origins of turbulence; stability statistical theory of turbulence; isotropic and non-isotropic turbulence; equations of turbulent flow; turbulent boundary layer; free turbulent flow.

**ASE 8363. Computational Heat Transfer. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Application of numerical techniques to elliptic and parabolic problems in engineering heat transfer and fluid flow. Discretization techniques; linearization; stability analysis. (Same as ME 8363).

ASE 8413. Computational Fluid Dynamics I. (3) (Prerequisite: Consent of instructor). Three hours lecture. Review of relevant numerical analysis; one dimensional methods; compressible inviscid methods, Euler Equation methods, inviscid-viscous interaction methods; current literature.

ASE 8423. Computational Fluid Dynamics II. (3) (Prerequisite: ASE 8413 or equivalent). Three hours lecture. Compressible viscous methods; Navier-Stokes equation methods; turbulence models; incompressible methods; panel methods; finite element methods, current literature.

ASE 8713. Space Environments and Effects. (3) (Prerequisite: ASE 4533 and ASE 4543 or consent of instructor). Three hours lecture. Overview of the space environment and its effect on spacecraft. Modeling of the radiation and solid particulate environments. Designing survivable spacecraft.

ASE 8843. Advanced Mission Design. (3) (Prerequisite: ASE 4813/6813 or consent of instructor). Three hours lecture. In-depth application of orbital mechanics to design of various classes of space missions. Use of state-of-the-art software and techniques.

ASE 8853. Statistical Orbit Determination. (3) (Prerequisite: ASE 4813/6813 or consent of instructor). Three hours lecture. Review of matrix and statistical concepts. Overview of orbit determination problem. Least squares; sequential and batch processors; square-foot filters; discrete and continuous Kalman filters.

ASE 8863. Optimal Control of Dynamic Systems. (3) (Prerequisite: ASE 4123 or ECE 4913/6913 or equivalent). Three hours lecture. State variable description of systems; maximum principle of Pantryagin, dynamic programming, optimization of linear systems with quadratic performance measures; time optimal and fuel optimal systems. (Same as ECE 8943).

ASE 8883. Spacecraft Dynamics, Design and Operations. (3) (Prerequisite: Graduate standing in College of Engineering). Three hours lecture. Introduction to astrodynamics and satellite design. Intensive survey of orbital mechanics, attitude dynamics, satellite subsystems and operational considerations. Prepares engineers for advanced courses in astronautics.

# Department of BIOCHEMISTRY, MOLECULAR BIOLOGY, ENTOMOLOGY and PLANT PATHOLOGY

Office: 402 Dorman Hall

Professors Jenkins\*, Luthe\*, Ma, Willard (head), Willeford and Williams\*; Associate Professor Li and Peng; Assistant Professors Brown, Hoffman, Meyer, Ray, Sparks and Wubben\* (\*- adjunct)

**BCH 1001. Introduction to Biochemistry.** (1) One hour lecture. A course to acquaint the beginning students with the overall concepts of biochemistry and molecular biology. Current research will be described. Offered every year.

BCH 2013. Introduction to Forensic Science. (3). (Prerequisites: BIO 1134, BIO 1144, or consent of instructor). Three hours lecture. Introduction to the field of forensic science, including areas of trace evidence, DNA, drug analysis, and an overview of forensic science techniques and technologies.

**BCH 3901.** Senior Seminar. (1) (Prerequisite: BCH 4613/6613). Each student will prepare and present a formal paper based on independent study of the literature and undergraduate research investigations.

BCH 4013/6013. Principles of Biochemistry. (3) (Prerequisites: CH 2503, BIO 1134 or equivalent). Three hours lecture. A survey of biochemistry designed to provide the non-major with a comprehensive background in the field. (Credit will not be given to students matriculating in the Biochemistry or Molecular Biology degree programs.)

BCH 4100. Biochemistry and Molecular Biology Internship. (1-6). Internship. Credit hours to be arranged. Supervised work, career shadowing, or research experience in disciplines related to biochemistry and molecular biology in an appropriate setting approved by the faculty advisor.

**BCH 4113/6113. Essentials of Molecular Genetics. (3)** Three hours lecture. A survey of molecular biology and genetics designed to provide the non-major with a comprehensive background in the field. (Credit will not be given to students matriculating in the Biochemistry or Molecular Biology degree programs).

**BCH 4253/6253. Nutritional Biochemistry of Foods. (3)** (Prerequisite: CH 2503 or equivalent with consent of instructor). Three hours lecture. In depth study of the chemistry and functionality of macronutrients in food systems and their biochemical impact on the human body. (Same as FNH 4253/6253)

**BCH 4333/6333. Advanced Forensic Science. (3).** (Prerequisites: BCH 4013/6013 or BCH 4603/6603 and BCH 4613/6613; or consent of instructor). Three hours lecture. An advanced study of the central concepts in forensic science as they relate to physiology, biochemistry and statistics.

**BCH 4414/6414. Protein Methods. (4)** (Prerequisite: Co-registration in BCH 4603/6603). Two hours lecture. Four hours laboratory. A comprehensive course to teach the student the modern methods of protein biochemistry.

BCH 4503/6503. Scientific Communication Skills.(3) (Prerequisites: Undergraduate, non-BCH majors - junior or senior standing; BCH majors - co-registration in BCH 4414 or consent of instructor; or Graduate standing.) Three hours lecture. Introduction to developing information literature and survey of data manipulation and presentation skills.

**BCH 4603-4613/6603-6613. General Biochemistry. (3-3)** (Prerequisites: CH 4523/6523 or consent of instructor). Three hours lecture. BCH 4603/6603 must be completed before student may enroll in BCH 4613/6613. Detailed studies of the structure and metabolism of carbohydrates, lipids, proteins, nucleic acids, enzymes, and coenzymes.

BCH 4623/6623. Biochemistry of Specialized Tissues. (3) (Prerequisite: Co-registration in BCH 4613/6613). A continuation of BCH 4613/6613 to include a study of specialized tissues, hormones, acid-base balance in animals and other physiological parameters of biochemistry.

BCH 4713/6713. Molecular Biology (3) (Prerequisite: Co-registration in BCH 4613/6613). Three hours lecture. A study of basic molecular process such as synthesis of DNA, RNA, and protein in both prokaryotic and eukaryotic cells. Offered fall semester. (Same as GNS 6713).

BCH 4804/6804. Molecular Biology Methods. (4) (Prerequisite: Co-registration in BCH 4613/6613). Two hours lecture. Four hours laboratory. A comprehensive course to teach the student the modern methods of molecular biology. (Same as GNS 4804/6804).

BCH 8101. Seminar. (1) Review of current literature; individual presentation of research or classical topics.

**BCH 8243.** Molecular Biology of Plants. (3) (Prerequisite: Co-registration in BCH 4613/6613). Three hours lecture. A study of plant development at the molecular level. Emphasis will be placed on the influence of nucleic acid metabolism on plant development.

BCH 8631. Topics in Genomics. (1) (Prerequisites: PSS/BCH 8623 or BCH 4713/6713 or BCH 8643 or consent of instructor). Two hour discussion and presenta-

tion. Review and discussion of classic and current genomics literature; individual presentation of a seminar highlighting an area of genomics research. (Same as PSS 8631)

BCH 8633. Enzymes. (3) (Prerequisites: BCH 4613/6613). Three hours lecture. A study of enzymes; their purification, classification, kinetics and mechanisms.

BCH 8643. Molecular Genetics. (3) (Prerequisites: PO 3103, or BIO 3103, and Co-registration in BCH 4613/6613). Three hours lecture. Study of the gene and its expression with emphasis on structure and function in higher organisms. (Same as GNS 8643).

**BCH 8653.** Genomes and Genomics. (3) (Prerequisites: BCH 4113/6113 or BCH 4713/6713 or BCH 8643 or consent of instructor). Overview of genome structure and evolution with emphasis on genomics, the use of molecular biology, robotics, and advanced computational methods to efficiently study genomes. (Same as PSS 8653)

**BCH 8654.** Intermediary Metabolism. (4) (Prerequisite: BCH 4613/6613). Four hours lecture. An advanced in-depth study of anabolic and catabolic pathways involved in cellular metabolism. Bioenergetics and control mechanisms will be emphasized.

# **BUILDING CONSTRUCTION SCIENCE**

Associate Professors Haupt (Director) and Monson; Lecturer Herrmann

**BCS 1013.** Architecture Appreciation. (3). Three hours lecture. Illustrated study of architecture's role in shaping the quality of man's environment. Architectural history, design theory, and process as it affects daily life. Intended for non-majors. (Same as ARC 1013).

**BCS 2116. Building Construction Studio 1. (6)** (Prerequisites: BCS 1003, BCS 2733 and PH 1113, PH 1123). Six hours laboratory. In depth examination of the construction process; project life cycles; building construction materials and methods; systems; construction drawing and details; and construction finishes.

**BCS 2126. Building Construction Studio 2.** (6) (Prerequisites: BCS 2116). Six hours laboratory. In depth study of construction-related applications including health and safety, human resource management, industrial relations, environmental management, sustainability and disaster risk management.

BCS 2713. Passive Building Systems. (3). (Prerequisite: For architecture majors-ARC 1546 and PH 1123; for non-architecture majors-consent of instructor). Three hours lecture. Investigation of the morphological impacts of various environments energies on building forms and systems. Included are light, climatic, structural, and ecological factors. (Same as ARC 2713).

BCS 3116. Building Construction Studio 3. (6) (Prerequisites: BCS 2126) Six hours laboratory. In depth study of project management, construction management, plant and equipment management, logistics and operations management, and building pathology.

**BCS 3126. Building Construction Studio 4. (6)** (Prerequisites: BCS 3116). Six hours laboratory. In depth evaluation of the principles and applications of construction productivity, estimating and bidding procedures, cost alternatives, scheduling, sequencing, budgeting and project cashflow management.

**BCS 3213. Electrical Systems.** (3) (Prerequisite: BCS 3723). Three hours lecture. A detailed examination of the design and construction of building electrical systems.

**BCS 3323. High Performance Construction. (3)** (Prerequisites: BCS 3116 and BCS 3213) Three hours lecture. Advanced building fabrication and construction systems are explored including high-performance construction materials such as fiber-reinforced cement, fiber-reinforced plastics, polymeric materials, geosynthetics, masonry materials and coatings.

**BCS 3713.** Assemblages. (3). (Prerequisites: ARC 2546 or BCS 2126 and ARC/BCS 2723). Two hours lecture and one field study. Fabrication and construction are explored in the relationship between nature of materials and methods of assembly. (Same as ARC 3713).

**BCS 3723.** Active Building Systems. (3). (Prerequisites: ARC 3536 and ARC 35366 and ARC 3713 or non-architecture majors-BCS 2713 and BCS 2116 or consent of instructor). Three hours lecture. Concentrates on defining the mechanical and electrical (active) techniques available to architects for integrating thermal comfort and life safety into the built form. (Same as ARC 3723).

**BCS 3904.** Structures I. (4). (Prerequisite: MA 1613 and either ARC 2546 or BCS 2126). Three hours lecture. Three hours laboratory. Principles of statically application of the principles of statics and the strength of materials on structural elements. Construction material. (Same as ARC 3904).

**BCS 3914. Structures II. (4).** (Prerequisite: BCS 3904). Three hours lecture. Three hours laboratory. Design and analysis structural elements as part of frames and other structural systems. (Same as ARC 3914).

**BCS 4116. Building Construction Studio 5.** (6) (Prerequisites: BCS 3126). Six hours laboratory. In depth evaluation of the legal and contractual environment for construction activities/projects. Emphasis on specifications; dispute resolution; construction contracts and procurement systems; and project delivery modeling.

BCS 4126. Building Construction Studio 6. (6) (Prerequisites: BCS 4116) Six hours laboratory. In depth study of project controls, risk management, strategic management, construction accounting, facilities and maintenance management, and international construction and contracting. **BCS 4223. Professional Practice. (3)** (Prerequisites: BCS 3126) Three hours lecture. Construction ethics are reviewed in the broader context of architecture relative to social responsibility. Additional exploration includes professional ethics and emerging best practices.

#### Department of BIOLOGICAL SCIENCES

#### Office: 218 Harned Hall

Professors Coats, Diehl, Ervin, Reichert (head), and Wise; Associate Professor Wallace; Assistant Professors Brooks, Chevalier, Counterman, Donaldson, Gordon, Klink, Lopez, Outlaw, Stewart, Thornton, and Welch; Instructors Doffitt, Holder, Self, and Williamson Instructor and Director of Undergraduate Advising: Reese Instructor and Director of Lab Operations: Echols

**BIO 1004.** Anatomy and Physiology. (4) Three hours lecture. Two hours laboratory. For non-science majors. The structure and function of the human body with special emphasis on the muscular, nervous, circulatory, respiratory, digestive, urinary and reproductive systems.

**BIO 1023. Plants and Humans. (3)** Two hours lecture. Two hours laboratory. For non-science majors. Students may not have credit for both BIO 1023 and BIO 2113 nor for both BIO 1023 and general biology courses transferred from other institutions. A survey of botany intended to introduce students to the world of plants, particularly emphasizing their relationships with humans and society.

**BIO 1123.** Animal Biology. (3) Two hours lecture. Two hours laboratory. For non-science majors. Basic understanding of life processes, diversity, inheritance, reproduction, ecology, and evolution.

**BIO 1134. Biology I. (4)** Three hours lecture. Two hours laboratory. Principles of biology including nature of science, chemistry of life, cell structure & division, cellular respiration, photosynthesis, Mendelian, chromosomal & molecular genetics, evolution, and ecology.

**BIO 1144.** Biology II. (4) Three hours lecture. Two hours laboratory. Form and function of organisms including body plans and phylogeny, human evolution, plant anatomy and physiology, animal anatomy and physiology, reproduction, development, and animal behavior.

**BIO 1301.** Perspectives in Medical Technology. (1) One hour lecture. A survey of all aspects of medical technology.

**BIO 2103. Cell Biology. (3)** (Prerequisites: BIO 1134, BIO 1144 and CH 1223). Three hours lecture. A comparative study of cell structure among plant, animal and bacterial systems.

**BIO 2113. Plant Biology. (3)** (Prerequisite: Sophomore standing.) Two hours lecture. Three hours laboratory. An introduction to the biology of vascular plants, including physiology, anatomy and morphology, development, genetics, evolution and diversity, ecology, and applied botany.

**BIO 2213. Survey Plant Kingdom. (3)** Two hours lecture. Two hours laboratory. A survey of algae, bryophytes, vascular plants, and fungi, with emphasis on morphology, internal anatomy, life cycles fossil record, and evolutionary relationships.

**BIO 2503. Environmental Quality. (3)** (Prerequisite: One course in biology). Three hours lecture. Relevance of ecological principles to environmental problems and relationships of humans with their environment with emphasis on preservation of environmental quality.

**BIO 3004. Human Anatomy. (4)** Three hours lecture. Two hours laboratory. The study of the human body with emphasis in anatomical terminology, overview of tissues, and body organization from cellular level to body system level.

**BIO 3013.** Professional Writing for Biologists. (3) (Prerequisite: Junior/ Senior standing in BIO, MIC, or MDT, or consent of instructor). Three hours lecture. Refinement of writing skills for more effective communications. Assignments to include routine and specialized correspondence, technical reports, and speech preparation and delivery.

**BIO 3014. Human Physiology. (4)** (Prerequisites: BIO 1134 and CH 1213, or BIO 3004 and CH 1043 or equivalent). Three hours lecture. Two hours laboratory. Comprehensive examination of the function and regulation of the human body and physiological integration of organ systems to maintain homeostasis.

BIO 3103. Genetics I. (3) (Prerequisites: MA 1313. BIO 1134 or BIO 2113 or equivalents). (Same as PO 3103 and GNS 3103).

**BIO 3104. Ecology. (4)** (Prerequisite: BIO 1134). Three hours lecture. Three hours laboratory. A general survey of ecological principles and concepts pertaining to plants and animals with reference to ecosystem structure and function, and interactions among ecosystem components.

**BIO 3113. Marine Biology. (3)** (Prerequisite: BIO 1134 or equivalent.) Three hours lecture. An introduction to marine environments, the diversity of life in the different marine habitats and human utilization of marine resources.

**BIO 3303.** Parasitology. (3) (Prerequisite: BIO 1134 or equivalent). Two hours lecture. Three hours laboratory. A survey of parasitology to include parasites of importance to the health of humans and domestic animals.

**BIO 3304. General Microbiology. (4)** (Prerequisites: CH 1053 or CH 1223). Two hours lecture. Four hours laboratory. For science majors. Fundamentals; techniques in staining and culture of microorganisms.

**BIO 3404. Bacterial Cultivation. (4)** (Prerequisites: BIO 3304 and CH 4513 or co-registration in CH 4513). Two hours lecture. Four hours laboratory. A continuation of 3304. General principles of microbiology with emphasis on cultivation of bacteria.

**BIO 3504.** Comparative Anatomy. (4) (Prerequisites: BIO 1134 and BIO 1144). Two hours lecture. Six hours of laboratory. The vertebrate animals; relationships of organs and systems; and their phylogenetic significance. (Fall).

**BIO 3524. Biology of Vertebrates.** (4) Two hours lecture, three hours laboratory. Evolution, systematics, ecology and behavior of vertebrates. Laboratory includes classification of major groups, identification of species, field trips, and experiments in behavior and physiological ecology.

**BIO 4011. Senior Thesis in Biological Sciences. (1)** (Prerequisites: BIO 4013 with a grade of B or better and consent of department head and thesis committee). Writing of the undergraduate thesis under the direction of the major advisor.

**BIO 4013. Senior Research in Biological Sciences**. (3) (Prerequisites: Senior standing, consent of department head, 3.00 GPA in biology courses, and major in biological sciences). Conduct original research for eventual writing of undergraduate thesis.

BIO 4100. Med Tech Clinicals. (3-19) (Prerequisite: consent of instructor). Medical Technology Clinical Internship.

**BIO 4113/6113. Evolution. (3)** (Prerequisites: MA 1313 or equivalent, BIO 1134 and BIO 1144, and either BIO 3103 or BIO 4133) Three hours lecture. Historical development of evolutionary theory; phylogeny and systematics; history of organic evolution; molecular and phenotypic variation in populations; genetic drift and natural selection; speciation.

**BIO 4114/6114. Cellular Physiology (4)** (Prerequisites: Seven hours of biological sciences and two semesters of organic chemistry). Three hours laboratory. A study of the morphology and function of the cell. (Fall). (Same as PHY 6114).

**BIO 4133/6133. Human Genetics. (3)** (Prerequisites: BIO 1134, and BIO 1144 or BIO 2113 or consent of instructor). Three hours lecture. Principles of Mendelian and molecular genetics as applied to humans. Description and causes of human genetic diseases and other anomalies. (Same as GNS 4133/6166).

**BIO 4143/6143. Population Genetics. (3).** (Prerequisites: Both BIO 1134 and BIO 1144, or BIO 2113, or consent of instructor). Three hours lecture. Study of the structure of genetic variation in populations and its applications in life sciences.

**BIO 4203/6203. Taxonomy of Spermatophytes. (3)** (Prerequisites: BIO 2113 and BIO 2213). Two hours lecture. Three hours laboratory. Classification and nomenclature of seed plants; introductory methods of collection; laboratory studies of representative plant families.

**BIO 4204/6204. Plant Anatomy. (4)** (Prerequisites: BIO 2113 and BIO 2213). Two hours lecture. Four hours laboratory. Structure and development of cell types, tissues, roots, stems, leaves, flowers, and fruits of seed plants, with emphasis on angiosperms.

**BIO 4213/6213. Plant Ecology. (3)** (Prerequisite: BIO 4203). Two hours lecture. Three hours laboratory. Plant behavior in relation to environment; developmental variations; successional trends; stabilization of plant communities.

**BIO 4214/6214. General Plant Physiology. (4)** (Prerequisites: BIO 2113 and CH 1213). Three hours lecture. Three hours laboratory. Chemical and physical activities of the plant; absorption; transpiration; mineral nutrition; photosynthesis; translocation; growth processes.

**BIO 4224/6224. Aquatic Botany. (4)** (Prerequisites: BIO 2113 and one of the following: BIO 3104, BIO 4213, WFA 3133; or graduate standing or consent of instructor). Three hours lecture. Four hours laboratory, every other week. Growth forms, taxonomy and morphology, and physiological adaptations of hydrophytic vegetation; ecological interactions involving hydrophytes; function of plants in aquatic ecosystems.

**BIO 4303/6303. Bioinstrumentation. (3)** Two hours lecture. Two hours laboratory and demonstrations. Theory and practical application of electrical, optical and other instruments employed in microbiology and medical technology.

**BIO 4304/6304. Quantitative Methods I.** (4) Three hours lecture. Two hours laboratory. Application of mathematical and statistical techniques to problem solving in the laboratory.

**BIO 4314/6314. Quantitative Methods II. (4)** (Prerequisite: BIO 4304/6304). Two hours lecture. Four hours laboratory. Theory and application of selected clinical laboratory methods.

**BIO 4324/6324. Microbiology and Ecology of Soil.** (4) (Prerequisite: BIO 3304). Three hours lecture. Three hours laboratory. The study of diverse soil microbial communities and how they influence the structure and function of ecosystems (natural and managed) and the global biosphere. (Same as PSS 4314/6314)

**BIO 4404/6404. Environmental Microbiology.** (4) (Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Terrestrial, aquatic, and subsurface microbial ecosystems. Microbiology of water and wastewater treatment, solid waste disposal, land farming, impact of hazardous waste, and environmental reclamation.

**BIO 4405/6405.** Pathogenic Microbiology. (5) (Prerequisite: BIO 3304). Three hours lecture. Four hours laboratory. The microorganisms producing disease in man and lower animals; means of transmission; protection against disease.

**BIO 4413/6413. Immunology. (3)** (Prerequisite: BIO 3304 and CH 4513). Three hours lecture. Survey of the functions of the immune system. Emphasis on mammalian immunology, including T- and B-cell interactions in humoral and cell mediated immunity.

**BIO 4414/6414. Microbiology of Foods. (4)** (Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Isolation and classification of the microorganisms associated with spoilage of commercial and domestic preserved foods. (Same as FNH 4414/6414).

**BIO 4433/6433. Principles of Virology. (4)** (Prerequisites: BCH 4603, BIO 3103 and BIO 3304 or equivalents). Three hours lecture. Principles of viral infectivity, multiplication, and chemical constitution.

**BIO 4442/6442. Bacterial Genetics Laboratory. (2)** (Prerequisite: BCH 4603, BIO 3304 and concurrent enrollment in BIO 4443/6443). Four hours laboratory. The genetic and molecular manipulation of bacteria and their viruses.

**BIO 4443/6443. Bacterial Genetics. (3)** (Prerequisites: BCH 4603 and BIO 3304 or consent of instructor). Three hours lecture. The genetics of bacteria and their viruses including: replication, rearrangement, repair, transfer, regulation, and methods of manipulation and analysis of DNA.

**BIO 4463/6463. Bacterial Physiology. (3)** (Prerequisites: BIO 3404 and BCH 4603). Three hours lecture. Structure and function relationships and major aerobic and anaerobic metabolic pathways in microorganisms.

**BIO 4473/6473. Medical Virology. (3).** (Prerequisite: BIO 3304). Three hours lecture. A study of pathogenesis of human diseases caused by viruses, diagnostic virology, antiviral therapy, current literature in medical virology.

**BIO 4503/6503. Vertebrate Histology. (3)** (Prerequisites: BIO 1134 and BIO 1144). Two hours lecture. Three hours laboratory. Study of the microscopic anatomy, structure, and function of major cell types and tissues.

**BIO 4504/6504. Comparative Vertebrate Embryology. (4)** (Prerequisite: BIO 1134 and BIO 1144). Two hours lecture. Six hours laboratory. The embryology of the vertebrates; the fertilization of the egg; stages of cleavage and the development of organs and systems.

**BIO 4514/6514. Animal Physiology. (4)** (Prerequisites: Ten hours of biological sciences and organic chemistry). Three hours lecture. Three hours laboratory. Function and interrelationship of the systems of the body. (Same as PHY 6514).

**BIO 4603/6603. Ethnobotany. (3)** (Prerequisites: BIO 1134 and BIO 1144, or AN 1143 and AN 1343) Three hours lecture. Relationships between plants and humans through examination of human cultures, uses of plants, paleoethnobotany, and the science of botany.

**BIO 4673/6673. Industrial Microbiology. (3)** Three hours lecture. Introduction to microbial anatomy, physiology, and genetics. Use of microorganisms and their by-products. Identification and control of biofouling, biocorrosion, and biodegradation of products and processes. (Same as CHE 4673/6673).

**BIO 8011. Seminar.** (1) One hour. Weekly seminar on current research in the Biological Sciences. Attendance is mandatory for on-campus Biological Sciences students not enrolled in BIO 8021.

**BIO 8013. Scientific Writing for Biological Scientists.** (2) Three hours lecture. Preparation of the journal article, thesis, and dissertation; searching the literature; scientific illustration; oral presentation of a scientific paper.

**BIO 8021. Seminar.** (1). One hour seminar. Weekly seminar on current research in the Biological Sciences and one formal presentation of the student's research; serves as the student's public exit seminar.

**BIO 8103.** Advanced Ecology. (3) (Prerequisite: BIO 3104). Two hours lecture. Three hours laboratory. Selected topics with special references to bioenergetics, population and human ecology; with student research project.

**BIO 8113. Biogeography. (3)** Three hours lecture. Study of the geographic distribution of life. Emphasis placed on climatic, geologic, and human influence, dispersal mechanisms and evolutionary history.

**BIO 8163 Invasion Ecology. (3)** Three hours lecture. Theoretical and empirical ecology of species invasion. Discussion-based with an emphasis on understanding the invasion process from ecological, evolutionary and biogeographical perspectives.

**BIO 8213.** Plant Water and Mineral Relations. (3) (Prerequisite: BIO 4214). Three hours lecture. Membrane structure and functions; plant and soil water relationships; absorption; translocation; transpiration; iron transport and mineral nutrition.

**BIO 8223. Plant Metabolism. (3)** (Prerequisites: BIO 4214 and organic chemistry). Three hours lecture. Photosynthesis, respiration, nitrogen metabolism, and other metabolic processes.

**BIO 8233. Molecular Applications. (3)** Two hours lecture. Two hours laboratory. Discussion of the fundamental principles behind basic molecular applications used in biology with a focus on methods employed to study DNA, RNA and proteins.

**BIO 8453.** Advanced Virology. (3) (Prerequisite: Cell Biology or equivalent). Three hours lecture. Literature survey in virus research.

#### Off Campus

The courses listed below are offered during the year of clinical training at affiliate hospitals. (See list of affiliate hospitals.)

**BIO 4624. Immunohematology. (4)** (Prerequisite: Completion of all preprofessional requirements). Three hours lecture. Six hours laboratory. Blood group serology, compatibility testing, and identification of atypical antibodies. Transfusion practices and blood group immunogenetics. **BIO 4626. Hematology. (6)** (Prerequisite: Completion of all preprofessional requirements). Four hours lecture. Eight hours of laboratory. Normal and abnormal blood and bone marrow cells. Coagulation mechanisms.

**BIO 4636. Clinical Chemistry. (8)** (Prerequisite: Completion of all preprofessional requirements). Four hours lecture. Eight hours laboratory. Normal and abnormal human body chemistry. Emphasis on instrumentation.

Offered during the Summer at Gulf Coast Research Laboratory.

**BIO 4336/6336. Marine Invertebrate Zoology II. (6)** (Prerequisite: Sixteen hours of zoology and junior standing). Same as GCRL Zoology 361B. All phyla from Ollusca through protochoradates are covered in this course.

**BIO 4345/6345. Marine Ecology.** (5) (Prerequisite: Sixteen hours of biology including general botany and invertebrate zoology). Same as GCLR Zoology 452. A consideration of the relationships of marine organisms to their environment.

**BIO 4526/6526. Marine Aquaculture. (6)** (Prerequisites: General zoology, invertebrate and vertebrate zoology, or consent of instructor). Same as GCRL Zoology 464. A course designed to acquaint advanced biology students with the science of marine aquaculture.

The courses listed below are exclusively offered through distance education for the M.S. in General Biology degree program.

**BIO 6013. Genetics and Molecular Biology. (3)** (Prerequisite: consent of instructor). Three hours video and online. Analysis of the transmission of genetic information from molecular to organismal levels; examination of ways in which genotype determines phenotype. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 6023.** Principles of Evolutionary Biology. (3) (Prerequisite: consent of instructor). Three hours video and online. Current concepts in genetic variation, natural selection, and adaptation of populations; speciation, extinction, and phylogenetics; patterns of human evolution. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 6033. Fundamentals of Biotechnology. (3)** (Prerequisite: BIO 6013 and BIO 8033, or consent of instructor). Three hours video and online. Fundamental principles of animal and plant biotechnology including recombinant DNA technology, gene-based diagnostics, genetically modified organisms and transgenics. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 6043. Developmental and Reproductive Biology.** (3) (Prerequisites: BIO 6013 and BIO 8033, or consent of instructor). Three hours video and online. Study of reproduction and development from gametes through birth in mammals; focusing on stages, anatomy, physiology, mechanisms, genetics. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 8023.** Modern Microbiology. (3) (Prerequisite: consent of instructor). Three hours video and online. Fundamental principles of microbiology, including microbial structure, replication, and diversity; role of micro-organisms in human health and the environment. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 8033.** Advanced Cell Biology. (3) (Prerequisite: consent of instructor). Three hours video and online. Study of eukaryotic cellular and sub-cellular structure and function; integration of cellular processes to understand the cell as a whole. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 8043. Ecology and the Environment. (3)** (Prerequisite: consent of instructor). Three hours video and online. Investigation of biodiversity, ecological hierarchies, and interactions between biota and the environment. Includes an introduction to contemporary environmental science issues. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 8053.** Comprehensive Study of Animals. (3) (Prerequisites: BIO 6023 and consent of instructor). Three hours video and online. Study of invertebrate and vertebrate animals, including reproduction, development, physiology, behavior, ecology, and evolution. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 8063. Comprehensive Study of Plants. (3)** (Prerequisites: BIO 6023 or consent of instructor). Three hours video and online. Study of plants from bryophytes to angiosperms, including growth, photosynthesis, respiration, nutrition, reproduction, ecology and evolution. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 8073. Research Methods in Biological Sciences for Interdisciplinary Sciences.** (3) (Prerequisites: Fifteen hours of BIO graduate work and consent of instructor.) Three hours video and online. Defining research problems and using analytical techniques in Biological Sciences. Exploring how research in Biological Sciences relates to other scientific fields. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

BIO 8083. Capstone in Interdisciplinary Sciences with an Emphasis on Biological Sciences. (3) (Prerequisites: 15 hours of BIO graduate work and consent of instructor). Two hours lecture. Three hours laboratory and observing. Provides field experience in the biological sciences through planned and supervised projects and field trips. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.) **BIO 8093. Experimental Biology and Biostatistics. (3)** (Prerequisite: consent of instructor). Three hours video and online. Experimental design and methods for statistical analysis of biological data, with an emphasis on inquiry using the scientific method. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

**BIO 8183.** Capstone in Modern Biology. (3) (Prerequisites: 30 hours of BIO graduate work and consent of instructor). Two hours lecture. Three hours laboratory. Hands-on laboratory and field experiences which demonstrate the major techniques of molecular, cellular, organismal and ecological biology. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

### **BUSINESS INFORMATION SYSTEMS**

(For departmental information, see DEPARTMENT of MANAGEMENT and INFORMATION SYSTEMS.)

**BIS 1012. Introduction to Business Information Systems. (2)** Two hours lecture. Overview of business information systems. Application of computer hardware, software, data, and procedures to business processes. Covers emerging technologies, personal productivity packages and the Internet.

BIS 1733. Visual Basic Programming. (3) Three hours lecture. Introduction to procedural, event and object-oriented programming to develop business and e-commerce applications.

**BIS 1753. Introduction to Business COBOL. (3)** (Prerequisite: a grade of B or higher in BIS 1733, or a grade of B or higher in any 3 hours of computer programming, or graduate standing). Three hours lecture. Structured program design for business applications. Data editing, table handling, and file processing with sequential and random access files will be stressed.

**BIS 3233. Management Information Systems. (3)** Three hours lecture. A survey of the components, functions, and processes of information systems as they relate to managing modern organizations for increased efficiency and competitiveness.

**BIS 3523.** Advanced Languages I. (3) (Prerequisites: Grades of B or higher in BIS 1733 and 1753, or a grades of B or higher in any 6 hours of computer programming, or graduate standing). Three hours lecture. Current and advanced business programming topics. In-depth experience in programming in one or more current state-of-the-art languages.

**BIS 3713. Electronic Information Systems. (3)** (Prerequisite: Junior Standing and six hours of mathematics and/or statistics, or consent of instructor). Three hours lecture. Principles of business information systems using computer equipment. Business problem solving, including problem definition, flow charting, basic programming and input-output design. (Credit for this course may be earned only at the Meridian and Jackson branches of Mississippi State University. Credit will not be granted for this course and BIS 1012 or CSE 1013).

**BIS 3753. Business Database Systems. (3)** (Prerequisite: Grades of B or higher in BIS 1733 and 1753, or a grades of B or higher in any 6 hours of computer programming, or graduate standing). Three hours lecture. Introduction to business database applications. Includes data modeling, design techniques, and data collection, storage, manipulation, and retrieval strategies.

BIS 4113/6113. Business Information Systems Security Management. (3) (Prerequisite: BIS 3223 or grade of B or higher in any 3 hours of computerrelated coursework). Three hours lecture. Concepts, skills, tools and techniques involved in management of computer security as it applies to today's business environment.

**BIS 4513/6513. Microcomputers and Networks. (3)** (Prerequisite: BIS 3523 or equivalent, or grade of B or higher in any 3 hours of computer-related coursework). Three hours lecture. Concepts and technology of microcomputers and of computer networks. Experience in building and maintaining microcomputers and networking hardware and software components.

**BIS 4523/6523. Advanced Languages II. (3)** (Prerequisites: BIS 3523 or equivalent, or grades of B or higher in any 9 hours of computer programming, or graduate standing). Three hours lecture. Current and advanced business programming topics. In-depth experience in programming in one or more current state-of-the-art languages.

**BIS 4533/6533. Decision Support Systems. (3)** (Prerequisites: BIS 3233 or equivalent). Three hours lecture. Theory and application of decision support, business intelligence, integrated collaboration systems, and data mining using advanced computing techniques. Hands-on experience in developing decision support systems.

**BIS 4753. Structured Systems Analysis and Design. (3)** (Prerequisite: Grades of B or higher in BIS 1733 and BIS 1753, or grades of B or higher in any 6 hours of computer programming). Three hours lecture. Analysis/design of computer based information systems with emphasis on problem identification, requirements structuring, and solution generation in theory and in a business project.

BIS 4763. BIS Senior Seminar. (3) (Prerequisite: Senior standing, plus grades of B or higher in BIS 1733 and BIS 1753, plus 9 additional hours of upper-level BIS courses, or consent of instructor). Three hours lecture. Preparation for information systems careers, information and communication management, technical skilltuning, and technology updates emphasizing fundamentals of e-commerce technology and ubiquitous business models.

**BIS 8112.** Managing Information Technology and Systems. (2) Two hours lecture. Course includes the description, acquisition or development and use of systems from a local and global perspective. Technology-enabled concepts are used for student assignments.

**BIS 8113. Management Information Systems. (3)** (Prerequisite: BIS 1012). Three hours lecture. Concepts and technology required by managers to interface with an organization's MIS functions. Impact of various MIS strategies, operations, and controls are developed and evaluated.

**BIS 8122.** Multimedia Presentation and Communication. (2) (Prerequisite: Graduate Standing). Two hours lecture. Emphasis on planning and delivering business presentations enhanced by multimedia. Concepts, design, and experience in developing multimedia presentations. Exposure to interactive multimedia.

**BIS 8213. Advanced Systems Analysis and Design. (3)** (Prerequisite or corequisite: BIS 8112 or any 3 hours of computer-related coursework). Three hours lecture. Analysis/design of computer-based information systems using structured methodologies. Emphasis on problem definition, requirements analysis, system design, project management, vendor relations, and quality assurance.

**BIS 8313.** Advanced Database Design Administration. (3) (Prerequisite: Three hours of computer programming with a grade of B or better) Three hours lecture. Design and management of local and distributed data resources, database design, definition, creation, maintenance, acquisition and use. Role of Database Administrator.

**BIS 8413. Decision Support and Expert Systems. (3)** (Prerequisites: Three hours of programming and prerequisite or co-requisite: BIS 8112). Three hours lecture. Analysis of information support systems which serve the manager/user providing quantitative and qualitative based information derived from databases and model bases.

**BIS 8513. Business Telecommunications. (3)** (Prerequisite or co-requisite: BIS 8112 or equivalent). Three hours lecture. The evaluation, analysis and design of information systems utilizing telecommunications and networking concepts and techniques. Emphasis is on business applications and related considerations.

**BIS 8613. MIS Administration. (3)** (Prerequisite or co-requisite: BIS 8112 or equivalent). Three hours lecture. Administration of the MIS function in the business enterprise. Emphasis on activity of managing the IS function at all levels of the firm.

**BIS 8753.Information Systems Collaborative Project. (3)** (Prerequisite: Nine hours of graduate BIS coursework beyond BIS 8112). Three hours lecture. Capstone experience incorporating knowledge gained in prerequisite courses. Requires team participation using appropriate tools and methodologies in assisting organizations with real-world information systems related needs.

**BIS 9113. Management Information Systems (MIS) Seminar. (3)** (Prerequisite: BIS 8213, BIS 8313). Three hours lecture. Penetrating review of issues, methodologies and new developments in design and operation of management information, decision support, and computer-based decision-making systems.

**BIS 9213. Advanced Topics in MIS Research. (3)** (Prerequisite: BIS 8213, BIS 8313, or consent or instructor). In-depth study of MIS research topics. Review of emerging theories and methodologies, scientific empiricism, modeling, validity, measurement, research design, journal review, and research project management.

**BIS 9313. Qualitative Research in MIS. (3)** Three hours lecture. Emphasis is on evaluating the operation and contribution of qualitative research in MIS. The approach, conduct, and evaluation of qualitative research.

**BIS 9613. Info Security Research Design. (3)** (Prerequisite: Graduate standing). Three hours lecture. Review of InfoSec research theory for methods, plus emerging methodological issues. Design of rigorous publishable research projects to address emerging InfoSec research questions.

### **BUSINESS LAW**

# (For departmental information, see MARKETING, QUANTITATIVE ANALYSIS and BUSINESS LAW)

**BL 2413. The Legal Environment of Business. (3)** Three hours lecture. Environmental study of legal influences, concepts, institutions, emphasizing social forces shaping business law. Introduces business students to interrelationships of law and society, jurisprudence and business.

**BL 3223. The Law of Commercial Transactions. (3)** (Prerequisite: Junior Standing). Three hours lecture. Commercial instruments in the economic process. Use of commercial and investment paper; documents of title, security instruments, notes, drafts, checks; integrated treatment of uniform statutes.

**BL 3233. Business Law for Resorts. (3)** (Prerequisite: Junior standing). Three hours lecture. A survey of state and federal business law and ethical issues as they relate to legislation concerning resorts, conventions and casinos. Course available only on MSU-Meridian campus.

**BL 4243/6243. Legal Aspects of Entrepreneurship. (3)** (Prerequisite: BL 2413, MGT 3323, or consent of instructor). Three hours lecture. Business creation including legal aspects from permits and taxes to structure and sale with emphasis on Mississippi Law.

**BL 4263/6263. Environmental Law. (3)** Three hours lecture. An introduction to how environmental law interfaces with the legal system. Overview of the major statutes, cases, and regulations pertaining to the environment.

**BL 4273/6273. International Business Law. (3)** Three hours lecture. An international commercial transactions course emphasizing trade, licensing and investment (contracts, financing, instruments, dispute resolution).

**BL 4333/6333. Real Estate Law. (3)** (Prerequisite: BL 2413 or consent of instructor). Three hours lecture. The legal principles applicable to real estate, including types of ownership and interests, mortgages, restrictions, and regulations. (Same as REF 4333/6333).

**BL 8112. Law, Business Ethics, and Dispute Resolution. (2)** Two hours lecture. Legal and ethical issues faced by the business firm with emphasis on prevention and resolution of disputes, including mediation, negotiation and alternative dispute resolution.

## **BUSINESS QUANTITATIVE ANALYSIS**

(For departmental information see MARKETING, QUANTITATIVE ANALYSIS and BUSINESS LAW)

**BQA 2113. Business Statistical Methods I. (3)** (Prerequisite: MA 1613 or MA 1713 and BIS 1012 or equivalent). Three hours lecture. Methods of describing numerical data; probability in business decisions; random variables; sampling distributions; introduction to estimation and hypothesis testing; computer statistical packages applied.

**BQA 3113. Introduction to Business Statistical Methods. (3)** (Prerequisite: MA 1613 or equivalent). Three hours lecture. Descriptive statistics; measures of central tendency, measures of dispersion, probability, discrete and continuous random variables, sampling, estimation, hypothesis testing, computer package applications. (Credit for this course may be earned only at the Meridian Campus. Credit will not be granted for this course and BQA 2113 or ST 2113).

**BQA 3123. Business Statistical Methods II. (3)** (Prerequisite: BQA 2113 or equivalent). Three hours lecture. Reviewing estimation and hypothesis testing; correlation and regression; chi-square tests; analysis of variance; non-parametric concepts; index numbers; time series analysis; computer statistical packages applied.

**BQA 8112.** Business Case Analysis Using Statistics. (2) (Prerequisite: BQA 2113 and BQA 3123 or Equivalent and a knowledge of SAS). Two hours lecture. Descriptive statistics, data collection techniques estimation, hypothesis testing, analysis of variance, regression, time series, index numbers, forecasting, statistical process control applied to business case data.

**BQA 8233 Quantitative Analysis and Business Research. (3)** (Prerequisites: MKT 3013 or MKT 8072 or equivalent; BQA 8443 or equivalent). Three hours lecture. Investigation of the managerial decisions and statistical techniques used for conducting business research, collection and analysis of data, and presentation of results.

BQA 8443. Statistical Analysis for Business Decision-making. (3) (Prerequisites: Graduate standing and proficiency with spreadsheet software). Three hours lecture. Review of descriptive statistics, parametric inference procedures, analysis of variance, regression, nonparametric methods; business problem formulation for computer analysis using statistical packages.

**BQA 8563. Business and Economic Forecasting. (3)** (Prerequisite: BQA 8443 or equivalent). Three hours lecture. Overview of business and economic forecasting and its place in management decision making; evaluation of forecasting methods; time series analysis using various analytical methods and electronic computer.

**BQA 8583. Quantitative Methods for Research in Business. (3)** (Prerequisite: BQA 8443). Three hours lecture. Designed to familiarize the graduate student with the fundamentals of scientific research and the classical and modern quantitative methods of analysis useful in business research.

**BQA 9333. Statistical Methods for Business Research. (3)** (Prerequisite: Doctoral student or consent of instructor.) Three hours lecture. Understanding and communicating statistical methods for business and economics academic publications; descriptive statistics; random variables; estimation; Bayesian credible sets; hypothesis testing; regression; nonparametrics; computerized analysis.

**BQA 9533. Advanced Statistics for Business Decisions. (3)** (Prerequisite: BQA 8443). Three hours lecture. Multivariate analysis; multiple regression analysis; multiple descriminant analysis; multivariate analysis of variance and covariance; factor analysis; cluster analysis.

#### BUSINESS

**BUS 1111. Freshman Business Plan. (1)** One hour lecture. This course is designed to help entering freshmen business majors succeed in their degree program and begin preparation for a business career after graduation.

**BUS 3011. Academic Peer Advising I. (1)** (Prerequisites: Junior standing and consent of instructor, for Business majors only). One hour lecture. Study of the role, benefits, objectives, and practice of academic peer advising.

**BUS 3021.** Academic Peer Advising II. (1) (Prerequisites: BUS 3011 and consent of Instructor, for Business majors only). One hour laboratory. Laboratory application of academic peer advising.

**BUS 3031. Academic Peer Advising III. (1)** (Prerequisites: BUS 3011, BUS 3021, and consent of Instructor, for Business majors only). One hour lab. Laboratory application of academic peer advising.

**BUS 4203. Business Internship. (3)** (Prerequisite: Approval of Associate Dean prior to internship). A minimum of ten weeks consisting of forty hours per week of business or public service experience.

**BUS 4853. Business Policy. (3)** (Prerequisites: Graduating senior and MKT 3013, MGT 3114, BIS 3233 and FIN 3123). Three hours lecture. Administrative process under conditions of uncertainty. Emphasis in integrating knowledge acquired in the functional areas of business administration in formulating administrative policies.

**BUS 9113.** Preparing Future Business Faculty. (3) Three hours lecture. An examination of teaching, research, and service expectations for business academicians. Selected topics include institutional support, instructional technologies, journal submission, and job market.

# COMMUNITY COLLEGE LEADERSHIP

#### Office: 245 Allen Hall

(For departmental information, see LEADERSHIP and FOUNDATIONS.)

CCL 8113. Community College History/Philosophy. (3) Three hours lecture. Objectives of the community college, philosophical/historical bases, changing roles, issues in higher education/workforce development/economic industry.

CCL 8123. Community College Finance. (3) Three hours lecture. Analyzes tools, methods, problems in community college financial management, revenue sources, budget preparation, risk management, purchasing, employee compensation.

CCL 8133. Leadership Theory and Practice in the Community College. (3) In-depth analysis of leadership theory and practice in the community college environment, including an overview of leadership, approaches, theories, and ethics.

**CCL 8143. Program Planning and Development. (3)** In-depth analysis of workforce education including the mission, the knowledge base, planning and developing programs, and delivering programs.

CCL 8153. Human Resources Administration. (3) Examines the role of the human resources administrator on workforce education leadership; key administrative functions, workforce development, benefits and compensation, and employee relations are analyzed.

CCL 8173. Community College Teaching and Learning. (3) Comprehensive preparation for teaching the community college: teaching strategies centered on outcomes and experiential learning, assessment of learning, and job related responsibilities.

CCL 8223. Internship in Workforce Education Leadership. (3) Provides experience in workforce education leadership and is conducted at a local community college under supervision of an administrator serving as the student's mentor.

CCL 8233. Community College Legal Issues. (3) Three hours lecture. Indepth analysis of the legal/policy issues pertaining to students, faculty, and administrations of community colleges.

CCL 8243. Internship in Community College Teaching. (3) Provides experience in community college teaching and is conducted onsite at a local community college under the supervision of a faculty mentor.

CCL 8283. Leadership in Community College Administration. (3) Three hours lecture. Nature and types of leadership and foundation theories. Uses of theory in administrative problem solving by applying models to community college mission, organization, and academe.

CCL 8313. Community College Instructional Assessment. (3) Three hours lecture. In-depth analysis of community college setting, students, courses planning, and assessment of instruction, including techniques associated with effective teaching and assessment in the community college arena.

CCL 8333. Community College Administration. (3) Three hours lecture. In-depth analysis of community college governance, structure, functions, and its relationship with external groups, state government.

CCL 8343. Community Development and Resources. (3) In-depth analysis of community environment in which community colleges serve including strategic planning, asset mapping, project development, resources and grant writing, and project evaluation.

CCL 8353. Applications of Organizational Theory and Behavior in Community College Leadership. (3) Three hours lecture. Nature and types of community college leadership and foundation theories for understanding and managing modern organizations in relation to community college mission, organization, and academe.

CCL 8363. Community College Activities Administration. (3) Three hours lecture. Nature and types of community college activities, understanding and managing today's students, legal aspects, and relation to the community college mission, organization, and academe.

CCL 8373. Community College Curriculum Improvement. (3) Three hours lecture. Comprehensive overview of community college curriculum im-

provement, theory and perspectives, contemporary curriculum, curriculum design and assessment, and curricular innovation.

CCL 8383. Ethical Decision Making in Community College Administration. (3) Three hours lecture. Ancient, modern and postmodern ethical theory. Case studies used to analyze ethical decisions. Multiple decision models and ethical concepts applied to problems and moral dilemmas.

## Department of CIVIL & ENVIRONMENTAL ENGINEERING

Office: 235 Walker Engineering Building

Professors Truax (head), Martin, and White; Research Professor McAnally; Associate Professors Gullett and Magbanua;

Assistant Professors El-adaway, Freyne, Gude, Howard, Li and Zhang; Assistant Research Professor Diaz; Instructor King

**CE 1001. Introduction to Civil Engineering**. (1) Three hours lecture. Introduction to the Civil Engineering profession, career opportunities, and curriculum. Engineering problem-solving, basic computing skills and tools as used in Civil Engineering. Oral, graphic, and written communications.

**CE 2213. Surveying. (3)** (Prerequisite: Credit or enrollment in CE 1001 or minimum grade of C in ABE 2873 (ABE students only)). Two hours lecture. Fours hours field and problem work. Fundamentals of field measurements. Theory, selection, and use of surveying instruments; theories used in the adjustment of surveys.

**CE 2803. Environmental Engineering Issues. (3)** (Prerequisite: Grade of C or better in CH 1223). Three hours lecture. An overview of the scientific, social and legal issues impacting environmental management and protection in the United States.

**CE 3113. Transportation Engineering. (3)** (Prerequisite: Grade of C or better in CE 2213). Three hours lecture. An introduction to the general modes of transportation, the planning processes associated with the modes of transportation and design of transportation facilities.

**CE 3313.** Construction Materials. (3) (Prerequisite: Grade of C or better in CE 3413; credit or enrollment in ST 3123). Two hours lecture. Three hours laboratory. Physical and mechanical properties of basic civil engineering construction materials. Significance of and reasons for testing control and specifications of materials.

**CE 3413. Soil Mechanics. (3)** (Prerequisite: Credit or current enrollment in EM 3213). Three hours lecture. Three hours laboratory. Introduction to soil properties and behavior. Emphasis is placed on relating soil properties to compressibility and shear strength of soils.

CE 3601. Stress Analysis Laboratory. (1) (Prerequisite: Credit or current enrollment in EM 3213; current enrollment in CE 3603). Three hours lecture/laboratory. Concepts of stress, strain and deformations in bodies subjected to axial, bending, torsional and thermal effects. Stresses in pressure-loaded, thin-wall vessels. Buckling of columns.

**CE 3603. Structural Mechanics. (3)** (Prerequisite: Grade of C or better in EM 3213). Three hours lecture. Methods of structural analysis for determinate beams, trusses and frames; influence lines and moving/moveable loads; structure deflections; introduction to statically indeterminate structures.

**CE 3801. Environmental Engineering and Water Resources Engineering I Laboratory.** (1) (Co-requisite: Credit or concurrent enrollment in CE 3803). Three hours laboratory. A laboratory introduction to processes and operations used in systems for water supply and wastewater reclamation.

**CE 3803.** Environmental Engineering and Water Resources Engineering **I.** (3) (Prerequisite: Grade of C or better in CE 2803; credit in ST 3123). Three hours lecture. An introduction to the analysis and design of systems for hydraulic and hydrologic management, water supply, and wastewater reclamation.

**CE 3811.** Environmental and Water Resources Engineering Laboratory II. (1) (Co-requisite: Credit or concurrent enrollment in CE 3813). Three hours laboratory. A laboratory introduction to the analysis and design of systems for hydraulic and hydrologic management.

**CE 3813.** Environmental and Water Resources Engineering II. (3) (Prerequisite: Grade of C or better in CE 3803). Three hours lecture. Pressurized flow in pipe networks. Analysis and design of water distribution, stormwater collection and sanitary sewer systems.

**CE 4103/6103. Pavement Design. (3)** (Prerequisite: Grade of C or better in CE 3313 and CE 3413). Three hours lecture. Analysis and design of both flexible and rigid pavement structures.

**CE 4133. Geometric Design of Highways. (3)** (Prerequisite: Grade of C or better in CE 2213 and CE 3113). Three hours lecture. Highway finance, organization and planning. Economic analysis. Elements of highway and street design. Computer applications to highway engineering.

**CE 4143/6143. Traffic Engineering. (3)** (Prerequisite: Grade of C or better in CE 3113; credit in ST 3123). Three hours lecture. Human and vehicular characteristics as they affect highway traffic flow; traffic regulation, accident cause and prevention; improving flow on existing facilities; planning traffic systems.

**CE 4183/6183. Waterborne Transportation Engineering. (3)** (Prerequisite: Grade of C or better in CE 3113). Three hours lecture. Navigation vessels and their characteristics. Planning and design of Marine Transportation System facilities including navigation ports, channels and locks.

**CE 4233/6233. Control Surveys. (3)** (Prerequisite: Grade of C or better in CE 2213). Two hours lecture. Four hours laboratory. Methods and procedures for performing control surveys.

**CE 4243/6243. Land Surveys. (3)** (Prerequisites: Grade of C or better in CE 2213). Three hours lecture. Methods of surveying and describing property with emphasis on Mississippi's public land surveys.

**CE 4313/6313.** Advanced Concrete Materials. (3) (Prerequisite: Grade of C or better in CE 3313). Three hours lecture. Modern materials and methods for construction involving portland cement concrete, mechanical properties, durability considerations.

**CE 4433. Foundations. (3)** (Prerequisite: Grade of C or better in CE 3413). Three hours lecture. Introduction to exploration and engineering evaluation of subsoil and groundwater conditions for selection and design of foundations for structures and earth masses.

**CE 4513/6513. Engineering Hydrology. (3)** (Prerequisite: Grade of C or better in CE 3803). Three hours lecture. Hydrologic processes; rainfall-runoff analysis; groundwater flow; frequency analysis; hydrologic design.

**CE 4523/6523. Open Channel Hydraulics. (3)** (Prerequisite: Grade of C or better in CE 3813). Three hours lecture. Continuity, energy and momentum principles in open channel flow; flow resistance; uniform and non-uniform flow; channel controls and transitions; unsteady flow routing.

CE 4533/6533. Computational Methods in Water Resources Engineering. (3) (Prerequisite: Grade of C or better in CE 3813). Three hours lecture. Review of relevant numerical analysis; numerical methods for kinematic wave, St. Venant, Boussinesq and depth-averaged equations; simulation of one- and two-dimensional free-surface flows.

**CE 4543/6543. Advanced Reinforced Concrete.** (3) (Prerequisite: Grade of C or better in CE 4601 and CE 4633). Three hours lecture. Two-way slab systems, shear walls, retaining walls, bi-axial bending of columns, torsion, brackets and corbels. Introduction to prestressed concrete.

**CE 4563/6563. Sedimentation Engineering.** (3) (Prerequisite: Grade of C or better in CE 4523/6523). Three hours lecture. Processes by which cohesive and non-cohesive sediments are transported in overland flow and in rivers, reservoirs, estuaries and coastlines. Deposition and erosion rates; design criteria.

**CE 4601. Fundamentals of Structural Design. (1)** (Prerequisites: ST 3123; a grade of C or better in CE 3603 and 3601; concurrent enrollment in CE 4623 or CE 4633). Three hours laboratory. Concepts of structural design common to all Civil Engineering structural design courses; advanced load analysis in structural engineering; introduction to structural design software.

**CE 4603/6603. Indeterminate Structures I. (3)** (Prerequisite: Grade of C or better in CE 3603). Three hours lecture. A study of the several classical methods frequently used in the analysis and design of indeterminate structures. Introduction to matrix methods of structural analysis.

**CE 4613/6613. Analysis of Structures for Forces of Nature. (3)** (Prerequisite: Grade of C or better in CE 4601; credit or current enrollment in CE 4623 or 4601). Three hours lecture. Determination of structural design forces caused by effects of nature, with particular emphasis on wind and seismic forces. Application of current design codes and standards.

**CE 4623. Steel Structures. (3)** (Prerequisite: Grade of C or better in CE 3603 and 3601; concurrent enrollment in CE 4601). Three hours lecture. LRFD design of steel structures using the specifications of the American Institute of Steel Construction. Emphasis on members; introduction to connections.

**CE 4633. Concrete Structures. (3)** (Prerequisite: Grade of C or better in CE 3603 and 3601; concurrent enrollment in CE 4601). Three hours lecture. Design design of concrete structures using the specifications of the American Concrete Institute. Emphasis on members and components.

**CE 4653/6653. Timber Design. (3)** ) (Prerequisite: Grade of C or better in CE 3603 and CE 3601.) Engineering properties of wood. Design of timber structures using the National Design Specifications and the International Building Code. Emphasis on members and connections; introduction to systems.

**CE 4663/6663. Matrix Methods of Structural Analysis. (3)** (Prerequisite: Grade of C or better in CE 3603, or consent of instructor). Three hours lecture. Unified stiffness analysis of trusses, frames, and other structure types.

**CE 4673/6673. Bridge Design. (3)** (Prerequisite: Grade of C or better in CE 4601 and CE 4633, or consent of instructor). Three hours lecture. Design of highway bridges using the LRFD Specifications of the American Association of State Highway and Traffic Officials. Emphasis on prestressed concrete bridges. Comprehensive design assignments for typical bridge layouts.

CE 4683/6683. Advanced Steel Design. (3) (Prerequisite: Grade of C or better in CE 4601 and CE 4623). Three hours lecture. Design of connections, advanced components and structural steel systems.

**CE 4693/6693. Reliability of Structures. (3)** (Prerequisite: IE 4613; credit or current enrollment in CE 4623 or CE 4633, or consent of instructor). Three hours lecture. Introduction to the theory of structural reliability. Topics include probabilistic measures of safety, load models, resistance models, component and system reliability, optimization of design codes.

**CE 4703/6703.** Construction Engineering and Management. (3) (Prerequisite: Within 30 CE hours of graduation). Three hours lecture. Construction contracts and law, cost estimating, and project scheduling.

**CE 4733/6733. Construction Engineering Equipment and Methods. (3)**. Three hours lecture. Aspects of planning, operation and management of civil engineering support equipment, site logistics, equipment cost engineering, power systems and environmental considerations of equipment use.

**CE 4843/6843. Environmental Engineering Chemistry. (3)** (Prerequisite: Grade of C or better in CE 3803 or consent of instructor). Three hours lecture. Introduction to advanced theoretical concepts in sanitary engineering analysis with special emphasis on inorganic, organic, and physical chemistry.

**CE 4873/6873. Water and Wastewater Engineering. (3)** (Prerequisite: Grade of C or better in CE 3803). Two hours lecture. One hour laboratory. Evaluation of municipal water and waste-water characteristics and flows; application of various unit processes/unit operations for the treatment of municipal water and wastewater.

**CE 4893/6893. Hazardous Waste Management. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Examination of state-of-the-art technologies available for the handling treatment; storage; and disposal of hazard-ous waste materials.

**CE 4903/6903. Civil Engineering Comprehensive. (3)** (Prerequisite: Graduation semester). Engineering, ethical and professional practice considerations in the planning, design and construction of civil engineering projects.

**CE 8133. Traffic Flow Theory. (3)** (Prerequisite: Grade of C or better in CE 4143/6143 or equivalent). Three hours lecture. An analysis of the engineering and mathematical principles of traffic flow.

**CE 8203.** Finite Element Modeling in CEE. (3) (Prerequisites: EM 4123/6123 and consent of instructor) Three hours laboratory. Modern finite element methods for continuum mechanical models relevant to civil and environmental engineering, including surface and subsurface fluid flow, mass transport, and solid mechanics.

**CE 8303.** Material Characterization. (3) (Prerequisite: CE 3413 and CE 3313 or equivalent). Three hours lecture. Characterization of advanced material behaviors for pavement subgrades, bases, and surface courses. Stress dependency, viscoelasticity, repeated load moduli, and stabilization are central behaviors of interest.

**CE 8333.** Pavement Performance and Rehabilitation. (3) (Prerequisites: CE 3413, CE 3313 and CE 4103/6103, or consent of instructor) Three hours lecture. Field methods for evaluating pavement performance including surveys, profiling, and frictional resistance. Impulse deflection testing of structural integrity. Pavement preservation and rehabilitation techniques.

**CE 8343.** Advanced Pavement Materials. (3) (Prerequisite: CE 3413 and CE 3313, or equivalent) Three hours lecture. Properties, behavior and performance of highway and airfield paving materials; principally asphalt and concrete. Quality control and assurance. Constitute material properties and specifications.

**CE 8433.** Advanced Foundations. (3) (Prerequisite: Grade of C or better in CE 4433 or equivalent). Three hours lecture. A continuation of CE 3433 with emphasis on unusual soil conditions and foundations.

**CE 8453.** Physical Properties of Soils. (3) (Prerequisite: Grade of C or better in CE 3413 or equivalent). Two hours lecture. Three hours laboratory. A study of the physical properties of soil masses as related to foundation engineering.

**CE 8503.** Data Analysis for CEE. (3) (Prerequisite: MA 3253). Three hours lecture. Analysis and interpretation of civil and environmental engineering data. Empirical, analytic, and statistical decomposition of spatial and temporal data to determine meaning.

**CE 8533. Hydromechanics. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Mechanics of incompressible unsteady, turbulent flows. Equations of motion, hydrodynamic forces on structures, introduction to turbulence.

**CE 8543. Tidal Hydraulics. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Hydrodynamics and transport in tidal bays and estuaries. Unsteady, non-uniform stratified flows, tides, waves, currents, circulation, salinity intrusion, and sedimentation, and engineering analysis and works.

**CE 8563.** Groundwater Resource Evaluation. (3) (Prerequisite: Grade of C or better in CE 3813 or equivalent). Three hours lecture. Groundwater movement; Darcy's law; equations of groundwater flow; confined and unconfined flow; wells and well field analysis; groundwater quality; aquifer management.

**CE 8573. Hydro-environmental Analysis. (3)** (Prerequisite: CE 8923) Three hours lecture. Environmental engineering aspects of physical/chemical/biological processes impacting conventional and toxic materials in surface waters. Characteristics of rivers/streams, lakes and estuaries related to environmental quality.

CE 8593. Environmental Hydrology. (3) (Prerequisite: Consent of instructor). Three hours lecture. Discuss hydrologic cycle and its effects on water quality; principles and models for pollutant transport and transformations in surface runoff, in-stream, unsaturated soil, and groundwater.

**CE 8623. Theory of Plates and Shells. (3)** (Prerequisites: Grade of B or better in CE 3603 or consent of instructor). Three hours lecture. Equations of equilibrium for plates, slabs, and shells.

**CE 8683. Finite Element Analysis in Structural Engineering. (3)** (Prerequisite: CE 4663/6663 or equivalent). Three hours lecture. Energy and elasticity principles. Development of planar three-dimensional and curved elements. Applications to plates and shells. Use of computer programs.

**CE 8803.** Unit Processes and Operations in Environmental Engineering **I.** (3) Three hours lecture. Theory and application of physical and chemical unit processes and operations available for the treatment of water and wastewater.

**CE 8823.** Unit Processes and Operations in Environmental Engineering **II.** (3) Three hours lecture. Theory and application of biological processes available for the treatment of wastewater.

**CE 8843. Water Treatment Plant Design. (3)** (Prerequisite: Grade of B or better in CE 8803). Three hours lecture. An in-depth consideration of criteria for the selection of water sources for a potable supply. Theory and design considerations for selecting treatment alternatives.

**CE 8863. Solid Waste Management. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Define and characterize non-hazardous solid wastes and how to minimize, handle, transport, store, recycle and dispose of these materials.

**CE 8923. Surface Water Quality Modeling. (3)** (Prerequisite: Consent of instructor). Development of the mathematical formulations describing the distribution of concentration of conservative and nonconservative pollutants in natural waters.

**CE 8933.** Surface Water Quality Modeling II. (3) (Prerequisite: CE 8923) Three hours lecture. Advanced topics related to surface water quality modeling. Overview of the present state-of-the-art of modeling, analysis of eutrophication, toxic materials (organic chemicals and metals) and review of recent trends.

**CE 8953.** Fine Sediment Processes. (3) (Prerequisite: Consent of instructor). Three hours lecture. Fine sediment processes in transport, deposition, and erosion by water. Fluid-particle interactions, flocculation processes in clay sediments, lutocline formations and fluid mud, bed formation processes.

**CE 8963. Hydraulics of Closed Conduits. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Analysis of steady, quasi-steady, time-dependent, and transient conduit flow; flow resistance; system components; distribution systems; compute applications to closed conduits.

#### Department of CHEMISTRY

#### Office: 1115 Hand Chemical Laboratory

Professors Lewis (Head), Mead, Rabideau, Saebo, Sygula and Wipf; Associate Professors Foster, Gwaltney, Henry and T. Mlsna

Assistant Professors Emerson, Fitzkee, G. Rowland and Zhang; Assistant Research Professor Beard;

Instructors Collier, Frisch, Holman, D. Mlsna, E. Rowland

Only one course from each group may count toward degree: CH 1043, CH 1213; CH 1053, or 1223; CH 1221 or 1051; CH 2503 or 4513.

CH 1043. Survey of Chemistry I. (3) Three hours lecture. The nature of chemistry and its applications. Designed for non-chemistry majors.

CH 1051. Experimental Chemistry. (1) Three hours laboratory. A laboratory to accompany CH 1043 or CH 1053. Experiments designed to illustrate the practical aspects of chemistry.

CH 1053. Survey of Chemistry II. (3) Three hours lecture. A continuation of CH 1043. The nature of chemistry and its applications. Designed for non-chemistry majors.

**CH 1141. Professional Chemistry: Paths.** (1) Skills to be successful as chemistry major and possible careers in chemistry. Introduction to professional conduct of scientists and necessary computer skills.

**CH 1211. Investigations in Chemistry I. (1)** (Prerequisite: Credit or concurrent enrollment in CH 1213). Three hours laboratory. Selected experiments to illustrate the fundamentals of chemistry. Accompanies CH 1213.

**CH 1213.** Chemistry I. (3) (Prerequisites: ACT Math subscore of 24 or grade of C or better in MA 1313). Three hours lecture. The principles of atomic and molecular structure, energetics, dynamics, and synthesis as related to chemical systems. Designed as preparation for upper division chemistry courses.

**CH 1221. Investigations in Chemistry II.** (1) (Prerequisites: CH 1211 and credit or concurrent enrollment in CH 1223). Three hours laboratory. Selected experiments to illustrate the fundamentals of chemistry. Accompanies CH 1223.

**CH 1223.** Chemistry II. (3) (Prerequisites: CH 1213) Three hours lecture. The principles of atomic and molecular structure, energetics, dynamics, and synthesis as related to chemical systems. Offered each semester.

CH 1234. Integrated Chemistry I. (4) (Prerequisites: ACT Math subscore 22 or grade of C or better in MA 1313.) Three hours lecture. Three hours laboratory. Integrated lecture-laboratory course for chemistry majors. Stoichiometry, thermochemistry, bonding and structure, properties of solids, liquids, gases and solutions. 1234H. Honors section will be available.

CH 1244. Integrated Chemistry II. (4) (Prerequisites: CH 1234 or CH 1213 and 1211). Three hours lecture. Three hours laboratory. Integrated lecture-laboratory for chemistry majors. Kinetics, equilibrium, acid-base chemistry, advanced thermochemistry, electrochemistry, chemistry of metals, nuclear chemistry and introduction to organic chemistry. 1244H. Honors section will be available.

**CH 2141.** Professional Chemistry: Tools. (1) (Prerequisite: CH 1141). One hour lecture. Advanced computer skills including chemical literature searching. Introduction to oral communication and research in chemistry.

CH 2311. Analytical Chemistry I Laboratory. (1) (Prerequisites: CH 1223 and CH 1221. Prior credit or concurrent enrollment in CH 2313). Three hours laboratory. Laboratory course to accompany CH2313.

CH 2313. Analytical Chemistry I. (3) (Prerequisites: CH 1221 and CH 1223). Three hours lecture. Quantitative, instrumental, and separation methods in analytical chemistry.

CH 2501. Elementary Organic Chemistry Laboratory. (1) (Prerequisite: CH 1211 or CH 1051). Three hours laboratory. A laboratory course to accompany CH 2503.

**CH 2503. Elementary Organic Chemistry. (3)** (Prerequisite: CH 1213 or CH 1043). Three hours lecture. A terminal course in organic chemistry. Common aliphatic, aromatic, and heterocyclic compounds.

**CH 3141. Professional Chemistry: Literature.** (1) (Prerequisite: CH 2141). One hour lecture. Advanced discussion of careers in chemistry, oral communication and searching the chemical literature. Introduction to scientific writing.

**CH 3213.** Inorganic Chemistry. (3) (Prerequisites: CH 2314 and MA 1713). Three hours lecture. A basic course in inorganic chemistry. Topics include periodicity, ionic interactions, systematic chemistry of the elements and solvent relations to acid-base and redox reactions.

**CH 4103/6103. Chemical Literature. (3)** (Prerequisite: Junior standing). Two hours lecture. Three hours laboratory. A study of sources of information in chemistry, primary and secondary, including books, journals, patents, and other printed material. Searching the chemical literature.

CH 4113. Advanced Chemistry Research Skills. (3) (Prerequisites: CH 4521, CH 4523 and consent of instructor). One hour lecture. Six hours laboratory. Laboratory intensive course on modern research methods with oral and written presentations including a discussion component of the role and ethics of scientists in society.

**CH 4141. Professional Chemistry: Research. (1)** (Prerequisite: CH 3141). One hour lecture. Disseminating research results in chemistry. Advanced scientific writing, performing scientific research and professional conduct of scientists.

CH 4203/6203. Faculty Development in Secondary School Chemistry. (3) (Prerequisites: A year of chemistry plus experience as a secondary level science teacher). Two hours lecture. Three hours laboratory. A course designed for secondary school chemistry teachers. Topics covered are significant to a successful high school chemistry course.

**CH 4212/6212. Advanced Inorganic Laboratory. (2)** (Prerequisite: Prior credit or concurrent enrollment in CH 4213/6213). Six hours laboratory. The application of modern experimental techniques to inorganic systems.

CH 4213/6213. Advanced Inorganic Chemistry I. (3) (Prerequisite: Consent of the instructor; CH 4413/6413). Three hours lecture. Primarily the study of the elements in light of the periodic law; emphasis on coordination number, molecular complexes, and nuclear chemistry.

CH 4303/6303. Environmental Chemistry I. (3) (Prerequisites: CH 4523/6523). Three hours lecture. A systematic study of the basic concepts of environmental chemistry. Topics include air, water, soil chemistry, pollution, and environmental regulations.

CH 4351/6351. Analytical Chemistry Laboratory II. (1) (Prerequisite: Concurrent registration in CH 4353/6353). Three hours laboratory. Laboratory course to accompany CH 4353/6353.

CH 4353/6353. Analytical Chemistry II. (3) (Prerequisites: CH 2313 or CH 2314). Three hours lecture. Three hours laboratory. A study of instrument based methods in analytical chemistry.

CH 4404. Biophysical Chemistry. (4) (Prerequisites: PH 1123, CH 4523, MA 1723). Three hours lecture, one hour recitation. Principles of thermodynamics, solutions, electrochemistry, kinetics, transport processes, macromolecular solutions and electromagnetic properties as applied to biological systems.

CH 4411/6411. Physical Chemistry Laboratory I. (1) (Prerequisite: Prior credit or concurrent enrollment in CH 4413/6413). Three hours laboratory. Laboratory course to accompany CH 4413/6413.

CH 4413/6413. Thermodynamics and Kinetics. (3) (Prerequisites: CH 1223, PH 2213 or PH 1113, and MA 1723). Three hours lecture. A course in traditional physical chemistry. Topics include chemical thermodynamics, kinetics, and solutions.

CH 4421/6421. Physical Chemistry Laboratory II. (1) (Prerequisite: Prior credit or concurrent enrollment in CH 4423/6423). Three hours laboratory. Laboratory course to accompany CH 4423/6423.

CH 4423/6423. Quantum Mechanics and Spectroscopy. (3) (Prerequisites: CH 1223, PH 2213 or PH 1113, and MA 1723). Three hours lecture. A course in molecular physical chemistry. Topics include quantum mechanics, atomic and molecular structure, spectroscopy, and statistical thermodynamics.

**CH 4511/6511. Organic Chemistry Laboratory I. (1)** (Prerequisites: CH 1221 and CH 1223. Prior credit or enrollment in CH 4513). Three hours laboratory. A laboratory course to accompany CH 4513/6513.

CH 4513/6513. Organic Chemistry I. (3) (Prerequisite: CH 1223). Three hours lecture. A systematic study of organic chemistry including aliphatic, aromatic, and heterocyclic compounds.

CH 4521/6521. Organic Chemistry Laboratory II. (1) (Prerequisites: CH 4511/6511 and CH 4513/6513. Prior credit or enrollment in CH 4523). Three hours laboratory. A laboratory course to accompany CH 4523/6523.

CH 4523/6523. Organic Chemistry II. (3) (Prerequisite: CH 4513/6513). Three hours lecture. A systematic study of organic chemistry including aliphatic, aromatic, and heterocyclic compounds.

CH 4533/6533. Intermediate Organic Chemistry. (3) (Prerequisite: CH 4523/6523). Three hours lecture. A continuation of the sequence CH 4513/6513-4523/6523.

CH 4554. Integrated Organic I. (4) (Prerequisites: CH 1221 and CH 1223, or CH 1244). Three hours lecture. Three hours laboratory. Integrated lecture-lab course for chemistry majors. A systematic study of organic chemistry including alipathic, aromatic, and heterocyclic compounds.

CH 4564. Integrated Organic II. (4) (Prerequisites: CH 4511 and CH 4513, or CH 4554). Three hours lecture. Three hours laboratory. Integrated lecture-lab course for chemistry majors. A systematic study of organic chemistry including aromatic, heterocyclic compounds, amino acids, nucleic acids, carbohydrates and lipids.

CH 4603. Undergraduate Research. (3) Nine hours laboratory. Original research project directed by a chemistry faculty member.

CH 4711. Senior Seminar. (1) (Prerequisite: CH 4141 or concurrent enrollment). One hour lecture. Submission of a written report and presentation of a seminar on either experimental results or a literature topic in chemistry

**CH 8111. Professional Chemistry.** (1) One hour lecture. Professionalism in chemistry as it applies to research, with emphasis on the different methods used for disseminating research results.

**CH 8711-8731. Seminar.** One hour lecture. Reports on recent literature by students and staff. All graduate students in chemistry required to attend. One credit for each semester's participation. Up to a total of six credits allowed for Ph.D. candidates, and three for M.S.

#### **Analytical Chemistry**

CH 8313. Advanced Analytical Chemistry. (3) (Prerequisite: Consent of instructor). Three hours lecture. Basic principles and problems involved with chemical analysis.

CH 8333. Advanced Instrumental Analysis. (3) (Prerequisite: CH 4353/6353 or consent of instructor). Three hours lecture. Fourier transform and laser methods of spectroscopy, surface analysis and their application to current analytical problem.

**CH 8343. Electroanalytical Chemistry.** (3) (Prerequisite: consent of instructor). Three hours lecture. Fundamentals of electrochemistry and application of electrochemical methods to analytical chemistry.

#### **Inorganic Chemistry**

**CH 8203.** Advanced Inorganic Chemistry II. (3) (Prerequisite: CH 4213/6213 and CH 4423/6423). Three hours lecture. A systematic study of coordination compounds with emphasis upon the techniques.

## **Organic Chemistry**

CH 8513. Synthetic Organic Chemistry. (3) (Prerequisite: 12 credits in organic chemistry). Three hours lecture. The scope and limitations of commonly employed organic preparative methods. New and unusual reagents.

CH 8553. Theoretical Organic Chemistry. (3) (Prerequisite: 12 credits in organic chemistry). Three hours lecture. A study of the mechanisms of organic reactions.

**CH 8573. Natural Products. (3)** (Prerequisite: 12 credits in organic chemistry). Three hours lecture. A study of the types of compound synthesized in nature. Methods of structure determination.

#### **Physical Chemistry**

CH 8423. Molecular Structure. (3) (Prerequisite: consent of instructor). Three hours lecture. An introduction to various methods for studying molecular structure. Methods covered include quantum mechanics, statistical mechanics, molecular spectroscopy, and nuclear chemistry.

## Dave C. Swalm School of CHEMICAL ENGINEERING

Office: 330 Swalm Chemical Engineering Building

#### Professor Keith (Director); Associate Professors Bricka, Elmore, French, Hernandez, Hill, Toghiani, R. Toghiani and Walters; Assistant Professor Kundu

CHE 1101. CHE Freshman Seminar. (1) One hour lecture. Seminar focusing on student and professional development for chemical engineering freshman.

**CHE 2114.** Mass and Energy Balances. (4) (Prerequisite: CH 1223 and credit or registration in MA 1723). Three hours lecture. Two hours laboratory. Application of systems of units, material balances, heats of reaction, energy balances, and chemical equilibria to typical industrial problems.

CHE 2213. Chemical Engineering Analysis. (3) (Prerequisite: credit or registration in MA 1713). Two hours lecture. Two hours lab. Introduction to the analysis of chemical engineering processes using numerical techniques and sta-

tistical techniques with the application of modern computational tools available to engineers.

**CHE 3113. Chemical Engineering Thermodynamics I. (3)** (Prerequisites: CH 1223 and PH 2213, co-requisites: MA 2733 and CHE 2114). Three hours lecture. The thermodynamic properties of substances, energy relationships, applications of the first and second law of thermodynamics, flow processes, power cycles, refrigeration and liquefaction.

CHE 3123. Chemical Engineering Thermodynamics II. (3) (Prerequisites: MA 2743, grade of C or better in CHE 2114 and CHE 3113). Three hours lecture. Treatment of non-ideal effects. High pressure behavior of pure substances. Thermodynamics of ideal and non-ideal mixtures, phase equilibria and chemical equilibria.

**CHE 3203. Fluid Flow Operations. (3)** (Prerequisites: PH 2213 and credit or registration in both CHE 2114 and MA 1723). Three hours lecture. Fundamentals of fluid flow behavior in chemical processes emphasized by extensive calculations. Design of fluid flow systems.

CHE 3213. Heat Transfer Operations. (3) (Prerequisites: MA 2743; a grade of C or better in either CHE 3203 or EM 3313; and credit or registration in both CHE 3113 and MA 3253). Three hours lecture. Fundamentals of heat transfer in chemical engineering processes and process equipment. Special emphasis given to the economics of heat exchanger design and heat recovery.

CHE 3222. Chemical Engineering Laboratory I. (2) (Prerequisites: a grade of C or better in either CHE 3203 or EM 3313, and a grade of C or better in CHE 3213). Four hours laboratory. Experiments in chemical engineering unit operations related to fluid flow and heat transfer. Experimental design/statistical treatment of data. Health/safety concerns in the laboratory.

**CHE 3223. Mass Transfer Operations. (3)** (Prerequisites: C or better in CHE 3203; Credit or registration in CHE 3213.) Three hours lecture. Quantitative relationships for equilibrium stage operations such as extraction and distillation. Applications of principles of mass transfer, diffusion, and absorption. Application to equipment design.

**CHE 3232.** Chemical Engineering Laboratory II. (2) (Prerequisites: C or better in CHE 3222, C or better in CHE 3213, C or better in CHE 3223). Four hours laboratory. Experiments in chemical engineering unit operations related to heat transfer, mass transfer, kinetics, and process control. Statistical design of experiments. Instrumentation and data acquisition.

CHE 3331. Professional Development Seminar. (1) (Prerequisite: Chemical Engineering majors with junior standing.) One hour lecture. A seminar focused on professional development and topics of interest/concern to the chemical engineering professional.

**CHE 3413. Engineering Materials. (3)** (Prerequisites: CH 1223 and PH 2213). Three hours lecture. The physical, chemical, and mechanical properties of engineering materials. The influence of these properties on the behavior of materials that have been placed in service.

CHE 4113/6113. Chemical Reactor Design. (3) (Prerequisites: a grade of C or better in both CHE 3123 and MA 3253). Three hours lecture. The fundamentals of chemical reaction kinetics with applications.

**CHE 4134/6134. Process Design. (4)** (Prerequisite: IE 3913, a grade of C or better in the following: CHE 3123, CHE 3213, and CHE 3223). Three hours lecture. Two hours laboratory. Design and analysis of chemical and environmental engineering processes utilizing momentum, energy, and mass transport principles.

CHE 4193/6193. Automotive Engineering. (3) Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical systems, and industrial and systems engineering aspects. (Same as ECE 4193/6193, IE 4193/6193, and ME 4193/6193).

CHE 4223/6223. Process Instrumentation and Control. (3) (Prerequisites: CHE 4113, a grade C or better in CHE 3223). Three hours lecture. Measurement of process variables; characteristics of control elements; automatic control instruments; dynamic behavior of process equipment; process control systems.

**CHE 4233/6233. Chemical Plant Design. (3)** (Prerequisite: CHE 4134 and CHE 4113). Three hours lecture. Application of scientific and engineering principles to the design and economic evaluation of industrial chemical plants.

CHE 4313/6313. Transport Phenomena. (3) (Prerequisite: a grade of C or better in the following courses: CHE 3213, MA 3253, and either CHE 3203 or EM 3313). Three hours lecture. Fundamental principles of momentum, heat and mass transport. Relationships between transport processes and the physical property distributions in fluids and solids.

**CHE 4441. Fundamentals of Engineering Seminar. (1)** (Prerequisite: consent of instructor.) One hour lecture. Review of general engineering and chemical engineering fundamentals in preparation for the Fundamentals of Engineering Exam.

**CHE 4423/6423. Fundamentals of Industrial Corrosion. (3)** (Prerequisite: CHE 3413). Three hours lecture. Identifying and eliminating the different types of corrosion that lead to the failure of engineering structures.

**CHE 4513/6513. Pulp and Paper Manufacturing Processes. (3)** (Prerequisite: CHE 2114 and consent of instructor). Three hours lecture. A study of pulping and paper making processes with emphasis on application of basic engineering techniques to special problems of pulp and paper industry.

CHE 4613/6613. Air Pollution Control Design: Theory and Practice. (3) (Prerequisite: Consent of instructor). Three hours lecture. A study of the unit operations of air pollution control systems with a specific emphasis on air pollution dynamics, equipment design, and equipment operation.

CHE 4624/6624. Experimental Methods in Materials Research. (4) (Prerequisite: CHE 3413 or ABE 3813 or ME 3403 or consent of instructor). Three hours lecture. Three hours laboratory. Introduction to research methodologies commonly used in the evaluation of treatments and mechanical testing. (Same as ABE 4624/6624 and ME 4624/6624).

CHE 4633/6633. Chemical Process Safety. (3) (Prerequisites: CHE 2114, CHE 3203 and MA 1723.) Three hours lecture. Fundamentals of chemical process safety, including toxicology, industrial hygiene, source modeling, dispersion modeling, fires and explosions, and the design of reliefs.

CHE 4673/6673. Industrial Microbiology. (3) Three hours lecture. Introduction to microbial anatomy, physiology, and genetics. Use of microorganisms and their by-products. Identification and control of biofouling, biocorrosion, and biodegradation of products and processes. (Same as BIO 4673/6673).

CHE 4703/6703. Gas Hydrates. (3) (Prerequisites: Consent of instructor). Three hours lecture. A study of gas hydrate principles. New energy potential, seafloor instabilities, greenhouse gas sequestration, unique chemical processing capabilities.

CHE 8011. Chemical Engineering Seminar. (1) (Prerequisite: Graduate standing). Library assignments and reports on the current chemical engineering literature.

CHE 8113. Advanced Chemical Engineering Thermodynamics. (3) (Prerequisites: CHE 3123 and CHE 4113 or equivalent). Three hours lecture. Advanced study of fundamental laws of thermodynamics as applied to unit operations, nonidea fluids and solutions, chemical equilibria, electrochemistry and similar topics.

**CHE 8123.** Chemical Kinetics and Dynamics. (3) (Prerequisite: consent of instructor). Three hours lecture. Theory and interrelations of phenomemological chemical kinetics and molecular reaction dynamics.

**CHE 8223.** Advanced Process Computations. (3) (Prerequisite: CHE 3223). Three hours lecture. Numerical methods. Numerical solution of ordinary and partial differential equations for process applications. Use of algebraic and matrix methods. Digital computer applications.

CHE 8323. Corrosion of Metals. (3) Three hours lecture. The mechanisms of metallic corrosion. Methods of protecting metals from corrosive attack.

CHE 8523. Advanced Transport Phenomena. (3) (Prerequisite: Graduate standing). Three hours lecture. Fundamental Principles in momentum, heat, and mass transports. Conservation equations. Continuity, motion, energy equations, and Multi component mass equation of change.

CHE 8713. Scientific Proposal Instruction and Development. (3) Detailed instruction in scientific research proposal preparation and review including: article and proposal reviewing, budgeting, literature searches, broader impact, statements, and full proposal development and defense.

## **COMPUTATIONAL ENGINEERING**

Office: 229 High Performance Computing Collaboration

Professors: Banicescu, L. Bruce, Cinnella, Fowler, Horstmeyer, King, Marcum, Mastin, Moorhead, Novotny, Oppenheimer, Rais-Rohani, and D. Reese

Associate Professors: Burgeen, Carino, Fitzpatrick, Gullett, Haupt, Janus, Kim, Lacy, Lim, Luke, Remotigue, and Thompson Assistant Professors: El Kadiri, Hammi, Kim, Tong, Tschopp, and Wang

**CME 8113. Computational Geometry. (3)** (Prerequisite: consent of instructor). Three hours lecture. Computer aided geometric design techniques and their applications in engineering and general computational field simulation.

## Department of COMMUNICATION

#### Office: 130 McComas Hall

Anthony, Brown, Cain, C. Chambers, Clevinger, J. Durst, W. Durst, Edmonds, Flick, Foley, Forde (head), Fountain, Gawrych, Goodman, A. Harris, M. Harris, Knight, Mann, McDavid, Nicholson, Roussin,

## Smith, Strout, Ulmer, Walton, Williams

CO 1003. Fundamentals of Public Speaking. (3) Three hours lecture. The psychological processes and adjustments necessary in preparing, organizing, wording, and delivering effective speeches.

**CO 1013. Introduction to Communication.** (3). Three hours lecture. To sharpen the student's awareness and to facilitate growth in the human interaction process across a variety of communication situations.

**CO 1093. Honors Oral Communication. (3)** (Prerequisite: Open through invitation only). Three hours lecture. Same as CO 1003. Available only to students in the University Honors Program.

CO 1223. Introduction to Comm Theory. (3) Three hours lecture. A comprehensive introduction to the bases of contemporary communication theory. CO 1403. Introduction to the Mass Media. (3) Three hours lecture. How American newspapers, magazines, radio, television, and film industries are organized to collect and distribute news, editorial, and entertainment material.

CO 1503. Introduction to Theater. (3) Three hours lecture. A comprehensive view of the theater, including plays, playwrights, directing, acting, theaters, and technicians.

CO 1533. Theater Practicum #3. (3) Nine hours laboratory. Preparation for and participation in department production activities.

CO 1543. Theater Practicum #4. (3) Nine hours laboratory. Preparation for and participation in department production activities.

CO 1553. Theater Practicum #5. (3) Nine hours laboratory. Preparation for and participation in department production activities.

CO 1563. Theater Practicum #6. (3) Nine hours laboratory. Preparation for and participation in department production activities.

**CO 1903. Introduction to Cinema. (3)** Three hours lecture. A multi disciplinary study of the film, with emphasis on linguistics, psychological, philosophical, and general intellectual aspects.

CO 2013. Voice and Articulation. (3) Three hours lecture. A study of the phonetic and acoustic features of speech.

CO 2213. Small Group Communication. (3) (Prerequisite: CO 1003 or junior standing). Three hours lecture. A study of the problems and techniques of participation in and leadership of small groups.

CO 2253. Fundamentals of Interpersonal Communication. (3) Three hours lecture. Emphasis on two-person interactions to increase student's understanding and appreciation of communication principles.

**CO 2333. Television Production. (3)** (Prerequisite: CO 1403). Two hours lecture. Two hours laboratory. Elementary principles, practices of television production in varied program formats.

CO 2413. Introduction to News Writing and Reporting. (3) (Prerequisites: two semesters composition). Two hours lecture. Two hours laboratory. Practice in writing simple news stories and the place of the reporter in the news-gathering organization.

**CO 2423.** News Editing, Typography, and Makeup. (3) (Prerequisite: CO 2413). Three hours lecture. Editing newspaper copy, writing headlines, and using type and pictures in makeup of newspaper pages.

CO 2503. Acting. (3) (Prerequisite: CO 1503). Three hours lecture. Principles of character interpretation. Classroom projects involving presentation of scenes from plays.

CO 2524. Stagecraft and Lighting. (4) (Prerequisite: CO 1503). Three hours lecture. Forty hours work on a major production. Theory and practice of set construction, scene design and stage lighting and its application to theater production.

**CO 2544.** Makeup and Costuming. (4) (Prerequisite: CO 1503). Three hours lecture. Forty hours work on a major production. Theory and practice of theatrical makeup and costumes for the theater production.

**CO 2574. Summer Theater Workshop. (4)** Three hours lecture. Two hours laboratory. Daily observation and practice of acting and technical work in preparation of a production. May be repeated one semester.

**CO 2613.** Introduction to Oral Interpretation. (3) (Prerequisite: CO 1503). Three hours lecture. Basic principles of comprehending and communicating literature to a listening audience.

**CO 3203. Communication and Group Leadership. (3)** (Prerequisite: CO 2213). Three hours lecture. A study of communication as related to the functions and styles of group leadership.

**CO 3293.** Corporate Communication. (3) (Prerequisite: Junior standing). Study of applied communication techniques related to the development and proficiency of oral corporate communication skills.

**CO 3313. News Writing for the Electronic Media. (3)** (Prerequisite: CO 2413). Three hours lecture. Practice in analysis, gathering, writing, and delivering copy for various types of news programming.

**CO 3333.** Advanced Television Production. (3) (Prerequisite: CO 2333). Two hours lecture. Two hours laboratory. Advanced principles, techniques of producing and directing television programs.

**CO 3343.** Writing for the Media. (3) (Prerequisite: CO EN 1103 and EN 1113). Three hours lecture. Study and practice of the principles and techniques of media writing.

**CO 3403.** Photographic Communication. (3) (Prerequisite: Nine hours in Communication or consent of instructor). Two hours lecture. Two hours laboratory. Study and practice of techniques of photography and digital imaging as they relate to visual communication in journalism, public relations, mass media, and related fields.

**CO 3413. News Gathering. (3)** (Prerequisite: CO 2413 or CO 2313). Three hours lecture. Development of strategies for finding information for news stories from computerized databases, public records, and reports. Includes techniques for interviewing and covering meetings.

**CO 3423. Feature Writing. (3)** (Prerequisite: CO 2413). Three hours lecture. Feature markets and practice in preparing and writing features for newspapers and magazines.

**CO 3443.** Advanced News Writing and Reporting. (3) (Prerequisite: CO 2423). Three hours lecture. Practice in writing more complex news stories and the responsibilities of the reporter in news gathering and writing.

CO 3543. Improvisation. (3) Three hours lecture. Course is designed to develop skills in improvisation with emphasis on exercises and performance.

CO 3563. Voice and Movement. (3) Three hours lecture. Course is designed for technical training of actors in performance area with emphasis on exercises.

CO 3593. Auditioning/Monologue. (3). Three hours lecture. Course designed for the development of the technical skills necessary for Professional/ Graduate performance work.

CO 3713. Digital Communication. (3) (Prerequisite: CO 2413). Two hours lecture. Two hours laboratory. Processes and methods of effective digital communication.

**CO 3803.** Principles of Public Relations. (3) (Prerequisite: CO 1403 or consent of instructor). Three hours lecture. The role and origin of public relations in society, the identification and influence of publics, and applications of public relations principles to campaigns and organizations.

**CO 3813.** Public Relations Case Problems. (3) (Prerequisite: CO 3803). Three hours lecture. The written analysis, presentation, and group discussion of specific and hypothetical cases using public relations theory as a base.

**CO 3823.** Public Relations Copy and Layout. (3) (Prerequisites: CO 2413 and CO 3803). Three hours lecture. Practice of written communication skills used in public relations. Includes experience in writing and producing news releases, brochures, speeches and other devices.

**CO 3833. Interviewing in Communication. (3)** (Prerequisite: CO 1223). Three hours lecture. The communicative processes and adjustments necessary in preparing, organizing, wording, and participating in various types of interviews from the interviewer and the interviewee perspectives.

CO 3843. Media Relations. (3) (Prerequisite: CO 3833). Three hours lecture. Study of interviewing and communication skills for reporters and the issues, problems, and strategies employed by interviewees related to radio, television, and print interviews.

**CO 3853.** Public Relations Writing. (3) (Prerequisites: CO 2413 and CO 3803). Three hours lecture. Practice of written communication for public relations. Emphasis on research, establishing communication goals, and writing for internal and external audiences via multiple channels.

**CO 3863.** Public Relations Production. (3) (Prerequisites: CO 2413 and CO 3853). Two hours lecture. One hour laboratory. Detailed exercise in the design and production of public relations materials for print, broadcast, and computer-based media.

CO 3903. Advanced Cinema Studies. (3) (Prerequisite: CO 1903 or EN 2434). Three hours lecture. A study of the forms, styles, and criticisms of cinema.

CO 4053/6053. Internship in Communication. (3) (Prerequisites: CO 2323 or CO 2333 for Radio/TV students or Communication majors only). Supervised work in production, sales or related fields for radio/TV students or in newspaper or magazine writing, editing or photography for journalism students.

CO 4203/6203. Nonverbal Communication. (3) (Prerequisite: CO 1223 or PSY 1013). Three hours lecture. Study of nonverbal cues as they affect the communication interface in numerous contexts including social events, political campaigns, and dramatic productions.

**CO 4213/6213. Political Communication. (3)** Three hours lecture. Analysis and evaluation of the verbal and non-verbal dimensions of the creation, dissemination, and reception of political communication in the United States.

CO 4223/6223. Advanced Communication Theory. (3) (Prerequisite: CO 1223). Three hours lecture. Analysis of twentieth century communication theories. A study of mass, interpersonal, and intra personal communication processes and effects.

CO 4243/6243. Rhetorical Theory. (3) (Prerequisite: CO 1223). Three hours lecture. Survey and criticism of the theories of public speaking found in the works of Plato, Aristotle, Cicero, Quintilian, and St. Augustine.

CO 4253/6253. Elements of Persuasion. (3) (Prerequisite: CO 1223). Three hours lecture. A study of the motivation of audiences and techniques of persuasive campaigns and communications.

CO 4273/6273. Intercultural Communication. (3) (Prerequisite: CO 1223 and senior standing). Three hours lecture. A study of how communication behaviors differ between cultures. Frameworks for studying intercultural communication will be provided by studying one specific culture.

CO 4313/6313. Mass Media Law. (3) (Prerequisite: Junior standing). Three hours lecture. Study and analysis of laws and regulations significantly affecting newspapers, magazines, motion pictures, and broadcasting in America.

CO 4323/6323. Mass Media and Society. (3) (Prerequisite: Junior standing). Three hours lecture. The effects of mass communication on social and cultural institutions.

CO 4373/6373. Practicum in Television News. (3) (Prerequisites: CO 2333, 15 additional hours of CO courses and consent of the instructor). Two hours lecture, two hours laboratory. Theory and practice of producing a television news program.

**CO 4393. Broadcast Performance. (3)** Two hours lecture. Two hours laboratory. Practice and theory of the mechanics, tools and techniques required to communicate successfully as a broadcaster.

CO 4403/6403. Journalism Ethics. (3) (Prerequisite: CO 2413). Three hours lecture. Examination of ethical problems in contemporary journalism.

**CO 4423. Advanced Photo Communication. (3)** (Prerequisite: CO 3403.) Two hours lecture. Two hours laboratory. Exploration of narrative and illustrative photography in PR and news. Evaluation of still vs. moving images and Web/ multimedia presentation options.

CO 4433/6433. Television Criticism. (3) (Prerequisite: Junior standing or higher) Three hour lecture. Methods of television criticism.

**CO 4504/6504. History of the Theater. (4)** (Prerequisite: Junior standing). Four hours lecture. A survey of the theater with emphasis on the physical structure, production problems and theatrical personalities.

CO 4524/6524. Directing. (4) (Prerequisite: CO 2524 and junior or senior standing). Three hours lecture. Two hours laboratory. Evaluation of dramatic styles and analysis of stage composition. Supervised hours in actual directing experience.

CO 4533/6533. Advanced Acting. (3) (Prerequisite: CO 2503). Three hours lecture. Intensive study of the theories and techniques of acting in the various dramatic styles.

**CO 4573/6573. Theater Management. (3)** (Prerequisite: Junior standing). Two hours lecture. Two hours laboratory. Business organization and management for the educational (secondary and university), community, and professional theater, including budgeting, publicity, public relations and box office principles.

CO 4583/6583. Playwriting. (3) (Prerequisite: Completion of freshman composition and CO 1503). Three hours lecture. Practice in the fundamentals of dramatic composition. Reading, discussion, and analysis of written work.

**CO 4713. Digital Communication II. (3)** (Prerequisite: CO 3713). Two hours lecture. Two hours laboratory. Advanced processes and methods of effective digital communication.

CO 4803/6803. Research in Public Relations and Advertising. (3) Prerequisite: CO 3853 or MKT 3013 or consent of instructor). Three hours lecture. Theory and practice of primary and secondary research methods in public relations and advertising, including qualitative and quantitative methods and uses of new technologies.

**CO 4813/6813. Public Relations in Organizations. (3)** (Prerequisites: CO 3813 and CO 3863). Three hours lecture. Studies in using various communication techniques for image building and campaign development for profit and non-profit organizations.

**CO 8213. Seminar in Communication Theory. (3)** (Prerequisite: CO 4223/6223). Analysis of intra personal, interpersonal, and mass communication variables. In-depth comparative study of the scientific and theoretical models for understanding communication processes and effects.

CO 8253. Seminar in Persuasion. (3) (Prerequisite: CO 4253/6253 or equivalent). Theoretical and research literature in attitude formation and change through communication.

## Department of COUNSELOR EDUCATION & EDUCATIONAL PSYCHOLOGY

Office: 508 Allen Hall

Professors: Dooley, Looby, Wong; Associate Professor: Palmer; Assistant Professors: Goldberg, Hall, Heiselt, Justice, Wells

NOTE: Several courses in Counselor Education are open to advanced undergraduates, but the courses are designed primarily as graduate work.

COE 1323. Career Planning. (3) Three hours lecture. Provides students with a basis for making career decisions and selecting an academic major.

**COE 3313. Rehabilitation Services. (3)** Three hours lecture. Concepts, philosophies, and methods of rehabilitation services for physically, emotionally, or mentally disabled people.

**COE 3883. Student Leadership in Higher Education. (3)** Three hours lecture. Explores development of student leadership and how student leaders have shaped the policies, behaviors, and culture of American society from within higher education institutions.

**COE 4013/6013. Facilitative Skills Development. (3)** Three hours lecture. Introduction to the theory and practice of helping with emphasis on the development of basic communication skills. Applicable to a variety of settings.

**COE 4023/6023. Introduction to Counseling. (3)** Three hours lecture. Overview of counseling as a profession including specialty areas. Theories and techniques used in counseling. This course is not for Counselor Education majors.

COE 4050/6050. Seminar for Guidance Counselors. (1-6) Three hours lecture. Hours to be arranged. A study of current issues and trends in the field of guidance.

**COE 4303/6303. Rehabilitation of Visually Impaired Persons. (3)** Three hours lecture. Special issues and procedures related to vocational rehabilitation of persons with visual impairments.

COE 4353/6353. Assistive Technology in the Rehabilitation Process. (3) (Prerequisites: Undergraduates: COE 3313. Graduates: COE 8373 or permission of the instructor). Three hours lecture. Diverse applications of technologies are reviewed for potential impact with all forms of disability. Examines various roles played by technology in total rehabilitation process.

COE 4363/6363. Introduction to Sign Language. (3) Development of basic sign language skills, study of special needs of deaf persons, and understanding use

of interpreters. (Same as EDX 4953/6953).

**COE 4513/6513. Paraprofessionals in Student Affairs. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Fundamental concepts and philosophies underlying the paraprofessional's role in college student affairs. Includes supervised and paraprofessional experience.

COE 4713/6713. Issues in Aging. (3) Three hours lecture. An examination and integration of gerontological issues related to mental health of the elderly.

**COE 4743/6743. Gender Issues in Counseling.** (3) Three hours lecture. Overview of gender issues and their relationship to the counseling process.

**COE 4903/6903. Developmental Counseling and Mental Health. (3)** Three hours lecture. One hour laboratory. Methods of identifying and meeting normal emotional and social needs of children and adults. Emphasis on maintaining better mental health conditions in schools.

**COE 6313. Resources for Visually Impaired Persons. (3)** Three hours lecture. Survey of issues, techniques, and resources for independent living, orientation and mobility, and communication of visually impaired persons.

COE 6323. Sensory Aid Technology. (3) Three hours lecture. Survey of sensory devices. Includes practice with computer assistive devices designed to enhance employment and communication skills of persons with visual impairments.

COE 6373. Vocational Assessment of Special Needs Persons. (3) (Prerequisite: EPY 8263 or equivalent). Two hours lecture. Two hours laboratory. Comprehensive vocational assessment, counseling, and individual planning for special needs persons. Job/training analysis, vocational interest/aptitude tests, work samples, and situational assessment. (Same as TKT 8653).

**COE 8013. Counseling Skills Development. (3)** (Prerequisite: COE 8023). Three hours lecture. Theory and practice of counseling with emphasis on development of advanced skills required for assisting clients.

COE 8023. Counseling Theory. (3) Three hours lecture. Study of the major counseling theories.

**COE 8043.** Group Techniques and Procedures. (3) (Prerequisite: COE 8013 and 8023). Three hours lecture. Group counseling theory, dynamics, processes, and leadership functions.

COE 8053. Practicum. (3) (Prerequisites: COE 8013, 8023, and consent of department). Seminar and supervised field experience.

**COE 8063. Research Techniques for Counselors. (3)** Three hours lecture. Methods of research and evaluation in counseling.

**COE 8073. Cultural Foundations in Counseling. (3)** Three hours lecture. Examination of individual differences due to socialization acquired in distinct cultural and socioeconomic environments. Implications for counseling.

**COE 8093. Seminar in Counseling. (3)** (Prerequisite: COE 8023 or equivalent). Seminar in counseling trends and approaches with application to various settings and problems.

**COE 8150.** Academic School Year Field Experience Practicum. (1-9) (Prerequisites: COE 8043, COE 8903 and EPY 8263). First semester of the supervised academic year field experience in school counseling.

**COE 8163. Spirituality in Counseling. (3)** Three hours lecture. Didactic instruction of developmental models and clinical interventions related to the interface of spirituality and counseling.

**COE 8173.** Counseling Gifted Students. (3) Three hours lecture. Counseling functions that relate to the total development of gifted students. Directed Individual Study and utilization of resources necessary for optimal growth.

**COE 8183.** Utilizing Art and Art Therapy in Counseling. (3) Three hours lecture. Didactic instruction of development models, theoretical approaches and practical intervention related to the interface of creative arts and counseling practice.

**COE 8203.** Placement and Career Development Counseling. (3) Three hours lecture. Studies of career development and academic/job placement; occupational classification schemes; trends in the world of work; compiling and utilizing career information in counseling.

COE 8293. Supervised Project. (3) (Prerequisite: Consent of department). Study of a topic in counseling or student development.

COE 8303. Family Counseling Theory. (3) (Prerequisite: COE 8023). Three hours lecture. Study of the theory and practice of family counseling.

**COE 8353. Vocational Rehabilitation Counseling.** (3) Three hours lecture. Rehabilitation legislation and the rehabilitation counseling process.

COE 8363. Psychological Aspects of Disability. (3) Three hours lecture. Psychological and social factors influencing adjustment of disabled persons.

COE 8373. Medical Aspects of Disability. (3) Three hours lecture. Involves a detailed survey of physical disabilities, their resulting functional limitations, and rehabilitation implications. Also includes discussion of appropriate rehabilitation technology.

COE 8383. Job Placement in Rehabilitation. (3) Three hours lecture. Process of job placement for disabled persons.

**COE 8393. Advanced Practicum. (3)** (Prerequisite: COE 8053 and consent of department). Advanced supervised field experience.

COE 8523. Student Development Theory. (3) Three hours lecture. Overview of theories of student development in higher education.

**COE 8533. Literature of Student Affairs. (3)** Three hours lecture. Provides an overview of student affairs in higher education through extensive reading in the field and individual study of specific aspects.

COE 8543. Legal Issues. (3) Three hours lecture. Legal and ethical issues in student affairs and counseling.

**COE 8553. Student Affairs in Higher Education. (3)** Three hours lecture. Overview of student development programs in higher education. Emphasis on philosophical foundations, organization, and the role of each service within a student development program.

**COE 8563.** Introduction to Assessment in Student Affairs. (3) Three hours lecture. Introduces the methods and tools used in Student Affairs and higher education assessment; provides opportunities to implement the use of these tools in specific settings.

**COE 8573.** College Counseling Services. (3) Three hours lecture. Counseling, prevention and student development services on the university and community college campuses.

COE 8623. Advanced and Ethical Issues in Counseling. (3) Three hours lecture. Advanced study of professional, legal, and ethical issues in counseling.

COE 8633. Psychosocial Rehabilitation. (3) Three hours lecture. Counseling techniques that assist in the community adjustment of seriously mentally ill clients.

**COE 8703. Principles of Clinical Mental Health Counseling. (3)** Three hours lecture. Overview of the history, philosophy, trends, and practice of mental health counseling.

COE 8730. Internship. (1-9) (Prerequisite: COE 8053.) Supervised field experience.

COE 8740. Academic Year Field Experience Semester II - Internship. (1-9) (Prerequisite: COE 8150 or its equivalent). Second semester of the supervised academic year field experience in school counseling. (Variable credit)

COE 8750. Internship. (1-9) (Prerequisite: Consent of department). Supervised field experience for Ed.S students.

**COE 8763 Counseling the Sexually Abused Client. (3)** (Prerequisite: COE 8023). Three hours lecture. Diagnosis and treatment of persons who have been sexually abused.

**COE 8773.** Counseling the Chemically Dependent Client. (3) Three hours lecture. Information about the etiology, diagnosis, and treatment of chemical dependence.

**COE 8783.** Counseling the Chemically Dependent Family. (3) (Prerequisite: COE 8773.) Three hours lecture. Provide information on the effects of chemical dependence on the family and counseling programs for this disorder.

**COE 8803. Crisis Response in Counseling. (3)** (Prerequisite: COE 8013, COE 8023 or consent of instructor) Three hours lecture. Exposure to theory and practice in crisis response in counseling. Therapeutic strategies for intervening in crisis situations on an individual, group, and systems level.

**COE 8813.** Counseling Elderly Clients. (3) Three hours lecture. Concepts, attitudes, and skills needed to provide counseling for elderly clients..

**COE 8903. School Counseling Services. (3)** Three hours lecture. Overview of a comprehensive school counseling program.

**COE 8913.** Counseling Children. (3) Three hours lecture. Didactic instruction and discussion of counseling techniques useful in community and school settings to work with early school-aged children.

**COE 8923. Seminar in School Counseling. (3)** (Prerequisites: COE 8903). Three hours lecture. Overview of effective, comprehensive school counseling programs, program accountability, and best practice models in school counseling.

**COE 9013. Counseling Supervision. (3)** (Prerequisite: COE 8730 and 8013). Three hours lecture. Theory and practice of providing counseling supervision for practicing counselors and student development professionals.

**COE 9023. Advanced Counseling Theory. (3)** (Prerequisite: COE 8023). Three hours lecture. Study of selected counseling strategies. Development of a personal approach to counseling.

COE 9033. Advanced Seminar. (3) Three hours lecture. Advanced study of a topic in counseling.

**COE 9043. Advanced Group Work and Systems. (3)** (Prerequisites: COE 8023, COE 8013, COE 8043, and Educational Specialist or Doctoral standing, or consent of instructor). One hour lecture. Four hours laboratory. Advanced studies in group counseling theory, systems theory, group leadership, and standards of training and practice for group workers.

**COE 9053.** Advanced Multicultural Counseling. (3) (Prerequisites: COE 8013, COE 8023, COE 8043, COE 8053, COE 8063 or an equivalent course, COE 8073 or an equivalent course, COE 8730, and Educational Specialist or Doctoral standing or consent of instructor). Three hours lecture. The course emphasizes advanced multicultural knowledge, skill development, and research competencies for counselors.

**COE 9083.** Advanced Assessment Techniques for Counseling. (3) (Prerequisites: COE 8063 and EPY 8124 or equivalent courses; Educational Specialist or Doctoral standing or consent of instructor). Three hours lecture. Advanced knowledge, skill and practice in selecting, administering, scoring, and interpreting personality, behavioral, career, and family assessments.

**COE 9740. Advanced Doctoral Practicum. (1-9)** (Prerequisite: Consent of department). First supervised field experience for doctoral students.

COE 9750. Internship. (1-9) (Prerequisite: Consent of department). Second supervised field experience for doctoral students.

## CRIMINOLOGY

#### Office: 207 Bowen Hall

Professor Dunaway; Associate Professor Rader; Assistant Professors Haynes, Matthews, and Weiss

**CRM 1003. Crime and Justice in America. (3).** Three hours lecture. A survey of the basic concepts and approaches in criminology, including patterns of crime, causes of crime, and an examination of the criminal justice system.

**CRM 2003. Crime, Justice, and Inequality. (3).** (Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Survey of issues pertaining to race, class, gender, and crime, focusing on discrimination, structural barriers, and the place of inequality within the criminal justice system.

**CRM 3103. Contemporary Issues in Criminal Justice. (3).** (Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. The interrelationships of law enforcement, prosecution, and the courts, particularly how each affects the correctional process.

**CRM 3113.** Community Crime Prevention and Policy. (3). (Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. An in-depth analysis of crime control policy and community sanctions, focusing on policy implementation, effectiveness, alternatives and prevention efforts.

**CRM 3316. Criminology Internship.** (Prerequisite: 24 hours of coursework within the criminology major and a minimum GPA of 2.5 and consent of instructor). Six hours practicum. Practicum within selected corrections agencies, individually supervised performance and self-development in relation to clients, agency workers, and provisions of correctional services.

CRM 3320. Field Work. (1-6) (Prerequisite: CRM 3316) One to six hours practicum with selected corrections agencies, individually supervised performance and self-development in relation to clients, agency workers, and provisions of correctional services.

**CRM 3343. Gender, Crime, and Justice.** (3) (Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Gender differences in criminal behavior, victimization, and criminal justice processing, emphasizing the unique experiences of women in all of these areas. (Same as SO 3343).

**CRM 3353. Race, Crime and Justice.** (3) (Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Racial differences in criminal behavior, victimization, and criminal processing, emphasizing the unique experiences of racial minorities in these areas (Same as SO 3353).

**CRM 3363. Globalization and Crime. (3).** (Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Examines the international differences in crime and justice, exploring topics such as illegal immigration, human trafficking, organized crime and terrorism.

**CRM 3503. Violence in the United States. (3)** (Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. In-depth study of violence, including types of violence, categories of offenders and victims, its social causes, and potential solutions. (Same as SO 3503).

**CRM 3603.** Criminological Theory. (3). (Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Survey of the major sociological and criminological explanations of crime. (Same as SO 3603).

**CRM 4233/6233. Juvenile Delinquency. (3)** (Prerequisites: Six hours of Sociology or related courses and consent of instructor). Three hours lecture. Critical study of problems, causes, ways of handling; attitudes, roles and relationships of persons involved, including youthful offender, social worker, court and law enforcement officials. (Same as SO 4233/6233).

CRM 4243/6243. Drugs, Crime and Control. (3) (Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Focus on the social factors which give rise to illicit drug use, patterns and trends in drug crime and strategies to control drug crime. (Same as SO 4243/6243).

CRM 4253/6253. White Collar Crime and Elite Deviance. (3) (Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. An overview of the sociological and criminological literature in the area defined as 'White Collar Crime' (Same as SO 4253/6253).

**CRM 4323/6323. Victimology. (3).** (Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. A critical study of victims, examining theories of victimization, the social construction of victimization, the relationship between victims and offenders, and victim prevention efforts. (Same as SO 4323/6323).

CRM 4513/6513. Correctional Systems. (3). (Prerequisites: CRM 1003 and CRM 3603 or consent of instructor). Three hours lecture. Survey of contemporary correctional systems and practices. Emphasis placed on the formal organization and functioning of penal systems (same as SO 4513/6513).

CRM 4523/6523. Law and Society. (3) (Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Explores the social origins of law and how law can both maintain social order and bring about social change (Same as SO 4523/6523).

**CRM 4803.** Senior Seminar in Criminology. (3) (Prerequisites: CRM 3603 or consent of instructor). Three hours lecture. A capstone course which integrates knowledge from criminology course work. Students will apply their knowledge of criminological theory and policy to crime and justice issues.

## COOPERATIVE EDUCATION PROGRAM

#### Office: 335 McCain

Associate Director: Angie Chrestman,

Senior Coordinators: Lisa Gooden-Hunley, Edie Irvin and Charlie Wilder

**CP 2103. First Work Semester. (3)** (Prerequisite: Approval of the Cooperative Education Office, acceptance by employing organization, and admission to the University).

CP 2203. Second Work Semester. (3) (Prerequisite: CP 2103).

CP 3303. Third Work Semester. (3) (Prerequisite: CP 2203).

CP 3403. Fourth Work Semester. (3) (Prerequisite: CP 3303).

CP 4503. Fifth Work Semester. (3) (Prerequisite: CP 3403).

CP 4603. Sixth Work Semester. (3) (Prerequisite: CP 4503).

CP 4703. Seventh Work Semester. (3) (Prerequisite: CP 4603).

CP 4803. Eighth Work Semester. (3) (Prerequisite: CP 4703).

**CP 8013. First Work Semester. (3)** (Prerequisite: Approval of the Cooperative Education Office, acceptance by employing organization, and admission to the University and Graduate School).

CP 8023. Second Work Semester. (3) (Prerequisite: CP 8013).

CP 8033. Third Work Semester. (3) (Prerequisite: CP 8023).

CP 8043. Fourth Work Semester. (3) (Prerequisite: CP 8033).

CP 8053. Fifth Work Semester.(3) (Prerequisite: CP 8043).

## Department of COMPUTER SCIENCE and ENGINEERING

#### Office: 300 Butler Hall

Professors Banicesu, Hodges, Reese (Head), Swan and Vaughn; Associate Professors Allen, Dampier, Dandass, Hansen, Jankun-Kelly, Luke, and Ramkumar;

Assistant Professors Bethel, Niu, Perkins, Williams, Yuan, and Zhang; Instructors Crumpton, Henderson, and Lee

**CSE 1002. Introduction to CSE.** Two hours lecture. Introduction to the computer science and software engineering curricula, profession, and career opportunities. Historical perspective; support role of the department. Ethics, team building, problem solving.

**CSE 1213.** Computer Programming with Fortran. (3) (Prerequisite: MA 1313 or equivalent). Three hours lecture. Problem solving methods, algorithm development, debugging and documentation in the Fortran programming language; applications. (Not recommended to students with credit in CSE 1233 or CSE 1253 or equivalent).

**CSE 1233. Computer Programming with C. (3)** (Prerequisite: MA 1313 or equivalent). Three hours lecture. Problem-solving methods, algorithm development, debugging and documentation in the C Programming language; applications. (Not recommended to students with credit in CSE 1213 or CSE 1253 or equivalent).

**CSE 1273. Computer Programming with Java. (3)** (Prerequisite: MA 1313 or equivalent). Three hours lecture. Problem-solving methods, algorithm development, debugging and documentation in the Java programming language; applications (Not recommended to students with credit in CSE 1213 or CSE 1233 or equivalent).

**CSE 1284.** Introduction to Computer Programming. (4) (Prerequisite: MA 1313 or equivalent). Three hours lecture. Three hours laboratory. Introductory problem solving and computer programming using object-oriented techniques. Theoretical and practical aspects of programming and problem solving. Designed for CS, CPE, and SE majors.

**CSE 1384. Intermediate Computer Programming. (4)** (Prerequisite: CSE 1284 with a grade of C or better). Three hours lecture. Three hours laboratory. Object-oriented problem solving, design, and programming. Introduction to data structures, algorithm design and complexity. Second course in sequence designed for CSE, CPE and CE majors.

CSE 2383. Data Structures and Analysis of Algorithms. (3) (Prerequisite: CSE 1384 and MA 1713 both with a grade of C or better). Three hours lecture. Non-linear data structures and their associated algorithms. Trees, graphs, hash tables, relational data model, file organization. Advanced software design and development.

**CSE 2813. Discrete Structures.** (3) (Prerequisite: CSE 1284 with a grade of C or better and MA 1313 or equivalent). Three hours lecture. Concepts of algorithms, induction, recursion, proofs; topics from logic, set theory, combinatorics, graph theory fundamental to study of computer science.

**CSE 3213. Software Engineering Senior Project I. (3)** (Prerequisite: CSE 4214 with grade of C or better). Six hours laboratory. Software requirements elicitation and specification, cost estimation, scheduling, development of project management and quality assurance plans, reviews.

**CSE 3223. Software Engineering Senior Project II.** (3) (Prerequisite: CSE 4214 with grade of C or better). Six hours laboratory. Team work, software design, construction, implementation of project management and quality assurance plans, and configuration management.

**CSE 3324. Distributed Client/Server Programming. (4)** (Prerequisite: CSE 2383 with a grade of C or better). Three hours of lecture. Three hours laboratory. Design of software systems for use in distributed environments. Client/Server models, multi-threaded programming, server-side web programming, graphical user interfaces; group projects involving client/server systems.

**CSE 3813. Introduction To Formal Languages and Automata. (3)** (Prerequisite: CSE 2383 and CSE 2813, both with a grade of C or better). Three hours lecture. Theoretical foundations of computer science; formal languages and automata, parsing of context-free languages; Turing machines; introduction to computability and complexity.

**CSE 3981. Social and Ethical Issues in Computing.** (1) (Prerequisite: Senior standing.) One hour lecture. Study of major social and ethical issues in computing, including history of computing, impact of computers on society, and the computer professional's code of ethics.

**CSE 4153/6153. Data Communications and Computer Networks. (3)** (Prerequisites: CSE 1384 or ECE 3732, and ECE 3724, both with a grade of C or better). Three hours lecture. The concepts and practices of data communications and networking to provide the student with an understanding of the hardware and software used for data communications. (Same as ECE 4833/6833).

**CSE 4163/6163. Designing Parallel Algorithms. (3)** (Prerequisites: CSE 3324 or CSE 4733/6733 with a grade of C or better). Three hours lecture. Techniques for designing algorithms to take advantage efficiently of different parallel architectures. Includes techniques for parallelizing sequential algorithms and techniques for matching algorithms to architectures.

CSE 4214/6214. Introduction to Software Engineering. (4) (Prerequisite: CSE 2383 with a grade of C or better). Three hours lecture. Two hours laboratory. Introduction to software engineering: planning, requirements analysis and specification, design; testing; debugging; maintenance; documentation. Alternative design methods, software metrics, software project management, reuse and reengineering.

**CSE 4223/6223. Managing Software Projects. (3)** (Prerequisite: CSE 4214/6214 with a grade of C or better). Three hours lecture. Concepts in software project management functions such as planning, organizing, staffing, directing and control, estimating, scheduling, monitoring, risk management, and use of tools.

**CSE 4233/6233. Software Architecture and Design Paradigms. (3)** (Prerequisite: CSE 4214/6214 with a C or better). Three hours lecture. Topics include software architectures, methodologies, model representations, component-based design, patterns, frameworks, CASE-based designs, and case studies.

CSE 4243/6243. Information and Computer Security. (3) (Prerequisite: CSE 4733/6733 with a grade of C or better). Three hours lecture. Topics include encryption systems, operating system security, database security, network security, electronic commerce, system threats, and risk avoidance procedures.

CSE 4273/6273. Introduction to Computer Forensics. (3) (Prerequisite: Senior standing in CSE/SE/CPE/MIS/CJ). Three hours lecture. Introduction to computer crime and the study of evidence for solving computer-based crimes. Topics: computer crime, computer forensics and methods for handling evidence.

CSE 4283/6283. Software Testing and Quality Assurance. (3) (Prerequisite: CSE 4214/6214 with a grade of C or better). Three hours lecture. Topics include methods of testing, verification and validation, quality assurance processes and techniques, methods and types of testing, and ISO 9000/SEI CMM process evaluation.

CSE 4383/6383. Cryptography and Network Security. (3) (Prerequisite: CSE 4153/6153). Three hours lecture. Basic and advanced concepts in cryptography and network security: symmetric and asymmetric cryptography, key management, wired and wireless network security protocols, network systems security.

**CSE 4413/6413.** Principles of Computer Graphics. (3) (Prerequisites: MA 1313 and grade of C or better in CSE 2383). Three hours lecture. Graphics hardware; algorithms; graphics primitives; windowing and clipping; transformations; 3D graphics; shading; hidden surfaces; standards.

CSE 4453/6453. Game Design. (3) (Prerequisites: All majors: junior standing, Design-oriented majors: courses in digital art and/or sound design. CS/SE/ CPE majors: CSE 3324 or equivalent with a grade of C or better). Three hours lecture. Principles of computer game design: Game mechanics, structure, narrative, character/environment/level design.

CSE 4503/6503. Database Management Systems. (3) (Prerequisites: CSE 2383 and CSE 2813, both with a grade of C or better). Three hours lecture. Modern database models; basic database management concepts; query languages; database design through normalization; advanced database models; extensive database development experience in a team environment.

**CSE 4613/6613. Bio-computing. (3)** Three hours lecture. Essential programming skills for computational biology. Problem-solving and use of specialized biocomputing libraries. (Credit will not be given to students matriculating in computer science, computer engineering, or software engineering degree programs). **CSE 4623/6623. Computational Biology. (3)** (Prerequisites: BCH 4113/6113 or equivalent and CSE 1384 or CSE 4613/6613) Three hours lecture. Computational analysis of gene sequences and protein structures on a large scale. Algorithms for sequence alignment, structural and functional genomics, comparative genomics, and current topics.

**CSE 4633/6633. Artificial Intelligence. (3)** (Prerequisite: CSE 2383 and CSE 2813 with a grade of C or better). Three hours lecture. Study of the computer in context with human thought processes. Heuristic programming; search strategies; knowledge representation; natural language understanding; perception; learning.

**CSE 4653/6653. Cognitive Science. (3)** (Prerequisite: CSE 4633/6633 or PSY 4713 or PHI 4143/6143 or AN 4623/6623 or EN 4403/6403). Three hours lecture. The nature of human cognition from an interdisciplinary perspective, primarily utilizing a computational model, including insights from philosophy, psychology, linguistics, artificial intelligence, anthropology, and neuroscience. (Same as PSY 4653/6653).

**CSE 4663/6663. Human-Computer Interaction. (3)** (Prerequisite: CSE 3813 for Computer Science majors with a grade of C or better, consent of instructor for non-majors). Three hours lecture. Conceptual models formed by users, aspects of computer systems which affect users, interface design and evaluation, and examples and critiques of specific interfaces.

CSE 4713/6713. Programming Languages. (3) (Prerequisites: ECE 3724 and CSE 3813, both with a grade of C or better). Three hours lecture. An introduction to programming language specification and analysis. Additional topics include control structures, data types and structures, run-time environments, binding strategies, compilers, and interpreters.

**CSE 4723/6723. Compiler Construction. (3)** (Prerequisite: Credit or registration in CSE 4713/6713). Formal treatment of context-free programming language translation and compiler design concepts, including: lexical, syntactic and semantic analysis; machine-dependent code generation and improvement; and error processing.

CSE 4733/6733. Operating Systems I. (3) (Prerequisites: CSE 2383 and ECE 3724, both with a grade of C or better). Three hours lecture. Historical development of operating systems to control complex computing systems; process management, communication, scheduling techniques; file system concepts and operation; data communication, distributed process management.

**CSE 4743/6743. Operating Systems II. (3)** (Prerequisites: CSE 4733/6733 with a grade of C or better). Three hours lecture. Integrated treatment of hardware and software concepts in operating systems design; procedure implementation; creation and control of processes; name and space management.

CSE 4833/6833. Introduction to Analysis of Algorithms. (3) (Prerequisites: CSE 2383, CSE 2813, and MA 2733, all with a grade of C or better). Three hours lecture. Study of complexity of algorithms and algorithm design. Tools for analyzing efficiency; design of algorithms, including recurrence, divide-and-conquer, dynamic programming, and greedy algorithms.

**CSE 6753. Foundations in Computation. (3)** (Prerequisite: CSE 1213 or CSE 1233 or CSE 1273 or CSE 1284 with a grade of C or better, or consent of instructor). Three hours lecture. Foundational concepts of computational algorithm design and analysis. (No credit for students in Computer Science, Computer Engineering, or Software Engineering degree programs.

**CSE 8011. Graduate Seminar.** (1) One hour. Reports on recent advances and problems in computer science by guest speakers, faculty and students; student participation, general discussion.

**CSE 8080. Directed Project in Computer Science.** (1-3) Hours and credits to be arranged. An individual professional project open only to candidates for the Master of Science degree (project option). Formal written and oral project reports are required.

**CSE 8153.** Advanced Data Communications. (3) (Prerequisite: CSE 4153/6153 or equivalent). Three hours lecture. A study of advanced concepts and practices of data communications with particular emphasis on Local Area Networks and Transmission Control Protocol/Internet Protocol (TCP/IP).

**CSE 8163. Parallel and Distributed Scientific Computing. (3)** (Prerequisite: CSE 4163/6163). Three hours lecture. Algorithms for distributed scientific computing; performance evaluation; scheduling and load balancing issues for scientific applications; architectural issues affecting performance.

**CSE 8233. Software Engineering Project Management. (3)** (Prerequisite: CSE 4214/6214). Three hours lecture. Management of the engineering of software products including estimating, planning, process management, and special topics.

**CSE 8243. Software Specification. (3)** (Prerequisite: CSE 4214/6214). Three hours lecture. Writing software specifications, transforming specifications into code, and verifying transformations using formal methods.

**CSE 8253. Software Design. (3)** (Prerequisite: CSE 4214/6214). Three hours lecture. Software design principles, attributes, models, and methodologies; object-oriented designs; real-time system design; user interface design; design verifica-tion; reusability issues; tools; current issues.

**CSE 8263. Software Verification and Validation. (3)** (Prerequisites: CSE 3813 and either CSE 4214/6214 or CSE 8253). Three hours lecture. The theory and practice of ensuring high-quality software products, including quality assessment, proof of correctness, testing, and verification and validation methodology.

**CSE 8273.** Software Requirements Engineering. (3) (Prerequisites: CSE 4214/6214 with a grade of C or better). Three hours lecture. An in-depth study of current research and practice in requirements elicitation, requirements analysis,

requirements specification, requirements verification and validation, and requirements management.

**CSE 8283. Empirical Software Engineering. (3)** (Prerequisite: CSE 4214/6214). Three hours lecture. Basics of empirical software engineering, metrics and modeling of the software development process, validating and comparing software engineering methods, and methods for data analysis.

**CSE 8413. Visualization. (3)** (Prerequisite: CSE 4413/6413). Three hours lecture. Essential algorithms for three-dimensional rendering and modeling techniques; viewing transformations, illumination, surface modeling; methodologies for visualization of scalar and vector fields in three dimensions.

**CSE 8433. Advanced Computer Graphics. (3)** (Prerequisites: CSE 4413/6413). Three hours lecture. Realistic, three-dimensional image generation; modeling techniques for complex three-dimensional scenes; advanced illumination techniques; fractal surface modeling; modeling and rendering of natural phenomena.

**CSE 8613. Cognitive Models of Skill. (3)** (Prerequisite: Graduate standing). Three hours lecture. Introduction to cognitive modeling, with a focus on computational models of skill acquisition and expert skill.

**CSE 8673.** Machine Learning. (3) (Prerequisite: CSE 4633/6633). Three hours lecture. Introduction to machine learning, including computational learning theory, major approaches to machine learning, evaluation of models, and current research.

**CSE 8733.** Advanced Systems Programming. (3) (Prerequisite: CSE 4733/6733). Three hours lecture. Concepts of multi-programming, multi-processing, time-sharing; topics to include interruptibility, priority scheduling, error recovery procedures, storage management, input-output.

**CSE 8813. Theory of Computation. (3)** (Prerequisite: CSE 3813). Three hours lecture. Study of abstract models of computation, unsolvability, complexity theory, formal grammars and parsing, and other advanced topics in theoretical computer science.

**CSE 8833. Algorithms. (3)** (Prerequisites: CSE 4833/6833). Three hours lecture. Advanced techniques for designing and analyzing algorithms; advanced data structures; case studies, NP-completeness including reductions; approximation algorithms.

**CSE 8843. Complexity of Sequential and Parallel Algorithms. (3)** (Prerequisite: CSE 4833/6843). Three hours lecture. Complexity of sequential algorithms, theory of complexity parallel algorithms.

**CSE 9133. Topics in High Performance Computing. (3)** (Prerequisite: Consent of Instructor). Three hours lecture. Reading and study of current work related to the area of high performance computing. Intended for doctoral students. (May be taken for credit more than once).

**CSE 9633.** Topics in Artificial Intelligence. (3) (Prerequisite: Consent of instructor). Three hours lecture. Reading and study of current work related to the area of artificial intelligence. Intended for doctoral students. (May be taken for credit more than once.)

## College of VETERINARY MEDICINE

Offices: College of Veterinary Medicine Building (Wise Center)

CVM 2443. Essentials of Biotechnology. (3). Three hours lecture. An introduction to principles and applications of biotechnology. (Same as FO 2443)

**CVM 3101. Veterinary Technology Medical Terminology.** (1) One hour lecture. Veterinary medical terminology, focusing on fundamental recognition, interpretation and usage of medical terms.

**CVM 3013. Small Animal Diseases and Management. (3)** (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Three hours lecture. Pathophysiology, transmission, diagnostic process, clinical management and prevention of canine and feline diseases, as well as emergency and critical care.

CVM 3014. Applied Anatomy and Physiology for Veterinary Technologists. (4) Three hours lecture. Three hours laboratory. Study of anatomical and physiological systems of animals commonly encountered by veterinary technologists with emphasis on specie differences and clinical applications. (Offered to students enrolled in the Veterinary Technology Program only.)

CVM 3022. Small Animal Technical Skills & Nursing Care. (2) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). One hour lecture. Two hours laboratory. Principles of small animal medical management topics and techniques, behavior, and overview of critical care techniques for small animals.

**CVM 3032. Food Animal Diseases and Management. (2)** (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture. Diseases, husbandry, preventative health care, epidemiology, public health and client education for the food animal species.

CVM 3031. Food Animal Technical Skills & Nursing Care. (1) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours laboratory. Fundamentals of handling of the food animal species. Breed identification, specimen collection, physical exam, medication administration and other nursing care procedures relevant to the species. **CVM 3042. Equine Diseases and Management. (2)** (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture. Diseases, husbandry, preventative health care and client education for the equine species.

**CVM 3041. Equine Technical Skills & Nursing Care.** (1) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture/laboratory. Fundamentals of handling of the equine species. Breed identification, specimen collection, physical exam, medication administration and other nursing care procedures relevant to the species.

**CVM 3051. Laboratory Animal Health Management. (1)** (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). One hour lecture. Diseases, husbandry and preventative health care for the Laboratory animal species.

**CVM 3061. Laboratory Animal Technical Skills. (1)** (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours laboratory. Fundamentals of the handling of the laboratory animal species. Species and breed identification, specimen collection, physical exam, medication administration and other nursing care procedures.

**CVM 3111.** Parasitology for Veterinary Technologists. (1) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture/laboratory. Parasites of veterinary and public health importance, including gross and microscopic morphology, transmission, and control.

**CVM 3112.** Animal Handling, Husbandry, and Nutrition (2). (Prerequisites: admission to the veterinary medical technology program). One hour lecture. One hour laboratory. General handling and restraint, basic husbandry techniques, and the nutritional needs for companion animals and production animals.

**CVM 3121. Hematology for Veterinary Technologists.** (1) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). One hour lecture. Structure and function of normal blood cells, cellular and humoral immunity, mechanisms of hemostasis, blood group serology, transfusion medicine and vaccinology.

**CVM 3132. Clinical Pathology Laboratory Techniques. (2)** (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). One hour lecture. Two hours laboratory. Procedures in hematology, serology and ELISA methodology, cytology, urology, chemistries, and microbiology (culture and sensitivity).

**CVM 3141. Anatomical Pathology Laboratory Techniques.** (1) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture/laboratory. Veterinary anatomical pathology laboratory including necropsy, sample collection and submission, and disposal of animal tissues.

**CVM 3201. Dental Principles for Veterinary Technologies (1)** (Prerequisite: Admission to the junior year of the Veterinary medical Technology program). One hour laboratory. Students are expected to become proficient in dental techniques of all small animal species, instrumentation, and dental radiology positioning in additions to common dental disorders

**CVM 3202. Diagnostic Imaging for Veterinary Technologists. (2)** (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). One hour lecture and two hours laboratory. Diagnostic imaging (x-ray, CT, MRI, ultrasound), production of images, use of screens and grids, handling film, imaging quality, film processing, patient positioning, radiation safety.

CVM 3212. Anesthesiology for Veterinary Technologists. (2) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture. Pharmacologic action of preanesthetic and anesthetic drugs. Principles and techniques of induction, maintenance, monitoring, and recovery of the patient. Humane methods of euthanasia.

CVM 3222. Surgical Skills & Nursing Care for Veterinary Technologists. (2) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture. Role of the veterinary technician as a member of the veterinary surgical team.

**CVM 3221. Surgical Nursing & Anesthetic Management Laboratory.** (1) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours laboratory. Principles and techniques in veterinary surgical nursing and anesthesia.

CVM 3232. Pharmacology & Toxicology for Veterinary Technologists. (2) (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture. Characteristics, classification and usage of veterinary pharmaceuticals. Introduction to and application of dosage and formulation calculations. Overview of common toxins, clinical signs and associated treatments.

**CVM 3243. Basics of Practice Procedures and Management. (3)** (Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Three hours lecture. Veterinary practice economics, personnel management, professional and client communications, inventory control, and marketing techniques.

**CVM 4003. Internship Experience (3)** (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). Three hours practicum. Students choose a facility to complete a three week internship. Choices include zoos, laboratory, research, equine, emergency, and small animal. Facility is approved by director.

**CVM 4101. Veterinary Technology Academic Elective (1)** (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One hour practicum. The student will work one on one with a faculty member in areas of

academic standard, course design, laboratory/lecture preparation, and other aspects of undergraduate programs.

**CVM 4102.** Professional Development for Veterinary Technologists (2). (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). Two hours lecture. Professional, ethical, and legal considerations of clinical practice. Professional development, career opportunities, and advancements in veterinary technology. Interdisciplinary, teams and human-animal bond in community and practice.

**CVM 4103. Large Animal Clinical Experience (2).** (Prerequisites: admission to the senior year of the veterinary medical technology program). Three hours clinical instruction. Supervised rotation through the MSU-CVM Large Animal Clinics (Equine and Food Animal) and Large Animal Ambulatory Rotation.

CVM 4113. Large Animal Clinical Experience II (3) (Prerequisite: CVM 4103). Three hours clinical instruction. Supervised advanced rotation through the MSU-CVM Large Animal Clinics (Equine and Food Animal) and Large Animal Ambulatory Rotation.

**CVM 4201. Clinical Experience Elective (1)** (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One hour practicum. This course allows senior students in an elected clinical experience, either within MSU-CVM or at an outside approved facility; animal clinic/hospital, laboratory, research

**CVM 4206. Small Animal Clinical Experience (6).** (Prerequisites: admission to the senior year of the veterinary medical technology program). Six hour practicum. Students will rotate through 3 weeks in Community Veterinary Services, 1 week in laboratory animal, 1 week in shelter medicine, and 1 week in internal medicine.

CVM 4213. Small Animal Surgery & Anesthesia Clinical Experience. (3). (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). Three hours clinical instruction. Supervised rotation through the Small Animal Emergency/ Critical Care unit. Students participate in all technical aspects of the patients.

**CVM 4223. Small Animal Primary Care Clinical Experience.** (3). (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). Three hours clinical instruction. Supervised rotation through the Primary Care Service of the Small Animal Clinic. Students participate in all technical aspects of patient care and management.

**CVM 4333. Emergency/ICU Clinical Experience (3)** (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). Three hours clinical instruction. Supervised rotation through the Small Animal Emergency/Critical Care unit. Students participate in all technical aspects of the patients.

**CVM 4501. Diagnostic Laboratory Experience (1).** (Prerequisites: admission to the senior year of the veterinary medical technology program). One hour practicum. Supervised rotation through the disciple areas of the State Diagnostic Laboratory in Pear, MS.

**CVM 4511. Biomedical Research Experience Elective (1)** (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One week rotation at the Laboratory Animal Facilities, University of Mississippi Medical Center. Principles of animal research and application animal welfare regulations.

**CVM 4601. Animal Emergency & Referral Center Elective (1)** (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One week practicum. Supervised rotation through the Animal Emergency and referral Center in Flowood. Students participate in technical aspects of referral and emergency and critical care nursing

**CVM 4701. Application & Process for VTNE (1)** (Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One hour lecture. VTNE application process and how to review for the national board examination.

#### Doctor of Veterinary Medicine

#### YEAR 1: Fall

CVM 5011. Professional Development I. (1) (Prerequisite: Enrollment in the professional veterinary degree program). One hour lecture. This course will include COPE, personality profiles and understanding personality, dealing with stress, and study skills.

CVM 5013. Veterinary Neuroscience. (3) (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. One hour laboratory for the entire course. Basic anatomic and physiologic concepts foundational to understanding animal behaviors and veterinary neurology.

**CVM 5023. Infectious Agents I. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Three hours lecture. Principles regarding immune responses and the classification, pathyphysiological mechanisms, control and diagnosis of viruses, bacteria and fungi of importance in veterinary medicine.

**CVM 5032. Immunology. (2)** (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Presentation of the principles regarding immune responses in health and disease.

**CVM 5036. Veterinary Physiology. (6)** (Prerequisite: Enrollment in the professional veterinary degree program). Six hours lecture. Presentation of fundamental concepts, principles and issues in veterinary physiology specifically related to cellular physiology, muscle and nerve function, cardiovascular, respiratory, urinary, digestive, endocrine and reproductive physiology.

**CVM 5046. Veterinary Anatomy I. (6)** (Prerequisite: Enrollment in the professional veterinary degree program). Six hour lecture-lab combination. Study of gross anatomy through dissection with integration of embryological and radiographic anatomy. Hindlimb, forelimb, vertebral column, head, and neck. Canine and equine models primarily.

**CVM 5073. Veterinary Histology. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Two hours laboratory. Basic microscopic anatomy of cells, tissues, organs, and organ systems.

#### YEAR 1: Spring

**CVM 5021.** Professional Development II. (3) (Prerequisite: Enrollment in the professional veterinary degree program). One hour lecture. This course will include presentations and discussions on ethics, jurisprudence, business, and professionalism.

**CVM 5022. Veterinary Epidemiology. (2)** (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Presentation of basic concepts and principles of epidemiology and the relationship to animal and human health.

**CVM 5044. Veterinary Pathology. (4)** (Prerequisite: Enrollment in the professional veterinary degree program). Four hours lecture. Introduction to the host response to endogenous and exogenous injury. Emphasis will be on general and systematic anatomic pathology.

CVM 5072. Veterinary Anatomy II. (2) (Prerequisite: CVM 5046 and enrollment in the professional veterinary degree program). Six hours lecture-lab combination. Study of anatomy through dissection with integration of embryological/radiographic anatomy. Thorax, alimentary system/abdomen, urogenital system, pelvic cavity, and mammary gland. Canine and bovine models primarily.

**CVM 5133. Veterinary Preventive Medicine. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Three hours lecture. Management and prevention of animal diseases that impact animal and human health.

**CVM 5163. Veterinary Parasitology. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Two hours laboratory. Presentation of principles essential to understanding the classification, pathophysiological mechanisms, control and diagnosis of parasites of importance in veterinary medicine.

**CVM 5193. Veterinary Agents of Infectious Disease. (3)** (Prerequisite: CVM 5023). Three hours lecture. A systematic presentation of viruses, bacteria, and fungi causing diseases of importance in veterinary medicine.

**CVM 5223. Veterinary Pharmacology I.** (3) (Prerequisite: Enrollment in the professional veterinary degree program). Three hours lecture. Molecular basis for absorption, mechanism of action, metabolism, excretion and toxicity focusing on pharmaceuticals used to treat hemostatic, neoplastic, parasitic, and inflammatory disorders

#### YEAR 2: Fall

**CVM 5123. Veterinary Clinical Pathology.** (3) (Prerequisite: Enrollment in the professional veterinary degree program). Three hours lecture. This course covers the basic concepts of hematology, clinical chemistry, and cytology. The interpretation of laboratory methods used in evaluation will also be covered.

**CVM 5143. Theriogenology. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Two hours laboratory. The pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related to the urogenital system of domestic species.

**CVM 5152.** Toxicology. (2) (Prerequisite: Enrollment in the professional veterinary degree program). One hour lecture. Two hours laboratory. Diagnosis and management of animal intoxications.

CVM 5153. Equine Medicine & Surgery I. (3) (Prerequisite: Enrollment in the professional veterinary degree program). Three hours lecture. Two hours laboratory. Clinical reasoning, principles of diagnosis and the medical and surgical management of multi-systemic disorders involving the equine cardiovascular, endocrine, gastrointestinal, immune and urinary systems.

**CVM 5185. Small Animal Medicine and Surgery I. (5)** (Prerequisite: Enrollment in the professional veterinary degree program). Four hours lecture. Two hours laboratory. This course covers diagnosis and treatment of medical and surgical conditions of the cardio-respiratory, dermatological and urogenital systems.

**CVM 5213. Introduction to Veterinary Anesthesiology. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Two hours laboratory. Introduction to principles of anesthesia for the common veterinary species, and includes equipment, drugs, methods of administration, monitoring, and methods for specific disease states.

#### YEAR 2: Spring

**CVM 5162. Diagnostic Imaging. (2)** (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. This course introduces the fundamental principles of radiographic diagnosis of abnormal body systems. Included are the physics and principles of interpretation and visual perception.

CVM 5173 Equine Medicine & Surgery II. (3) (Prerequisite: Enrollment in professional veterinary degree program). Three hours lecture/lab. Clinical reasoning, principles of diagnosis and the medical and surgical management of multi-systemic disorders involving the equine cardiovascular, endocrine, gastrointestinal, respiratory, nervous, immune and urinary systems.

**CVM 5175. Food Animal Medicine and Surgery. (5)** (Prerequisite: Enrollment in the professional veterinary degree program). Four hours lecture. Two hours laboratory. Diseases and common surgical conditions of food animals including history, clinical signs, diagnostic methods, medical treatment, surgical correction, prognosis, and prevention.

**CVM 5183. Special Species. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Three hours lecture. This course will cover applied anatomy, physiology, husbandry and common diseases in avian, aquatic, reptiles, amphibians, rodents and other minor species.

**CVM 5196. Small Animal Medicine and Surgery II.** (6) (Prerequisite: Enrollment in the professional veterinary degree program). Four hours lecture. Two hours laboratory. Course covers diagnosis and treatment of medical and surgical conditions of the musculoskeletal, digestive, and endocrine systems.

#### YEAR 3: The Clinical Problem

#### Services and Practices

**CVM 5214. Laboratory Services.** (4) Four hours practicum. Supervised rotation through the Diagnostic Laboratory of the Animal Health Center. Responsibilities include diagnostic techniques and data interpretation in clinical pathology, pathology, parasitology and bacteriology.

**CVM 5224. Radiology.** (4) Four hours practicum. Supervised rotation in Radiology. Areas of study include radiographic and ultrasound techniques and interpretation and radiotherapy.

**CVM 5234. Anesthesiology.** (4) Four hours practicum. Supervised rotation in Anesthesiology. Areas of study include preanesthetic patient evaluation, anesthetic induction, maintenance and monitoring and postanesthetic patient management.

**CVM 5246. Community Veterinary Services.** (6) Six hours practicum. Supervised rotation through the Community Veterinary Services of the Animal Health Center. Students participate in all aspects of patient care and health management.

**CVM 5256. Small Animal Surgery. (6)** Six hours practicum. Supervised rotation through Small Animal Surgery. Students participate in the receiving, analysis, surgery and management of patients referred for surgical care.

**CVM 5266. Equine Medicine & Surgery.** (6) Six hours practicum. Supervised rotation through the Equine unit of the Large Animal Clinic. Students participate in the receiving, analysis, and management of patients referred for care.

**CVM 5276. Food Animal Practice.** (6) Six hours practicum. Supervised rotation through the Food Animal section of the Animal Health Center. Students participate in problem analysis, case management and development of health maintenance programs.

#### YEAR 4: Career Options

CVM 5282. Ambulatory/Large Animal Primary Care (2) (Prerequisite: Enrollment in professional veterinary degree program.) Two credit hours practicum. Supervised clinical rotation through the Ambulatory/Large Animal Primary Care service. Students participate in large animal medicine and surgery in a field setting.

**CVM 5292. Flowood/MVRDL Externship. (2)** (Prerequisite: Enrollment in the CVM professional curriculum) Two credit hours practicum. Supervised clinical rotation at the Animal Emergency and Referral Center, Flowood, Miss., where veterinary students will actively participate in all aspects of patient care. Additional clinical experiences will be provided at the Mississippi Veterinary Research and Diagnostic Laboratory.

**CVM 5302.** Professional Development IV. (2) One hour lecture. Three hours laboratory. Advanced communications skills. Professional writing and public speaking to the scientific audience.

**CVM 5310. Small Animal Emergency and Critical Care Medicine. (4-6)** Variable hours, four to six hours practicum. Supervised clinical rotation in the small animal intensive care and emergency services. Emphasis on the evaluation and management of the critically ill or injured animal.

**CVM 5380. Small Animal Internal Medicine 2. (6-8)** Variable hours practicum. Advanced supervised rotation through the Small Animal Clinic. Students participate in the receiving, analysis, and management of patients referred for medical care.

**CVM 5392. Pharmacy. (4)** Two hours practicum. Supervised clinical rotation in the pharmacy of the Animal Health Center. Students participate in all activities of these units.

**CVM 5420.** Advanced Rotation in Radiology. (2,4) Two to four hours practicum. (Prerequisite: CVM 5204). (May be repeated for credit). Areas of study include advanced radiographic and ultrasound techniques and interpretation and use of radioisotopes in therapy.

**CVM 5430.** Advanced Rotation in Anesthesiology. (1-6) Variable hours practicum. (Prerequisite: CVM 5414). (May be repeated for credit). Advanced rotation in Anesthesiology. Areas of study include pre-anesthetic patient evaluation, and advanced techniques in anesthetic induction, anesthetic maintenance, patient monitoring and post-anesthetic care.

**CVM 5454.** Advanced Rotation in Small Animal Surgery. (4) Four hours practicum. (Prerequisite: Consent of instructor). (May be repeated for credit). Students assume primary responsibility for the receiving, diagnosis, treatment and management of small animal surgery patients.

**CVM 5460.** Advanced Rotation in Equine Medicine and Surgery. (0-4) (Prerequisite: CVM 5266) (May be repeated for credit). Practicum. Students assume primary responsibility for the resolving, diagnosis, treatment and management of equine patients.

**CVM 5474.** Advanced Rotation in Food Animal Practice. (4) Four hours practicum. (Prerequisite: CVM 5276). (May be repeated for credit). Students assume primary responsibility in problem analysis, case management and development of health maintenance programs for food animals.

**CVM 5484.** Advanced Rotation in Small Animal Internal Medicine. (4) Four hours practicum. (Prerequisite: CVM 5256). (May be repeated for credit). Students assume primary responsibility for patient diagnosis and care in small animal internal medicine.

**CVM 5510. Veterinary Medicine/Animal Industry Externship 1. (1-6)** Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, catfish, swine, dairy, beef or other commercial animal operation.

**CVM 5520. Veterinary Medicine/Animal Industry Externship 2.** (1-6) Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, catfish, swine, dairy, beef or other commercial animal operation.

**CVM 5530. Veterinary Medicine/Animal Industry Externship 3. (1-6)** Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, catfish, swine, dairy, beef or other commercial animal operation.

**CVM 5540. Veterinary Medicine/Animal Industry Externship 4. (1-6)** Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, catfish, swine, dairy, beef or other commercial animal operation.

**CVM 5550. Veterinary Medicine/Animal Industry Externship 5. (1-6)** Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, catfish, swine, dairy, beef or other commercial animal operation.

**CVM 5553. Pharmacology II.** (3). Three hours lecture. There is an emphasis on antimicrobial therapy. The course also addresses regulatory issues, vaccinology, and the management of disease syndromes.

**CVM 5560. Advanced Clinical Rotation 1. (1-6)** Variable hours practicum. (May be repeated for credit). Supervised rotation through one of the defined units of the Animal Health Center. Students assume primary responsibility for patient diagnosis and care.

**CVM 5570. Advanced Clinical Rotation 2. (1-6)** Variable hours practicum. (May be repeated for credit). Supervised rotation through one of the defined units of the Animal Health Center. Students assume primary responsibility for patient diagnosis and care.

**CVM 5580. Advanced Clinical Rotation 3. (1-6)** Variable hours practicum. (May be repeated for credit). Supervised rotation through one of the defined units of the Animal Health Center. Students assume primary responsibility for patient diagnosis and care.

**CVM 5602.** Comparative Endocrinology I. (2). (Prerequisite: Enrollment in Phase II of the professional veterinary degree program). Two week practicum. An in-depth analysis including the pathophysiology, diagnosis, and treatment of endocrine disease in veterinary species, with emphasis on small animal patients.

**CVM 5604.** Professional Development III. (4) Four hours lecture. Comprehensive review for National Board Examinations. Will be graded on a Pass/ Fail basis.

**CVM 5622. Veterinary Diagnostic Toxicology. (2)** (Prerequisite: Consent of instructor). Two hours lecture. Phase 2 elective emphasizes diagnosis and treatment of animal poisoning including environmental toxins.

**CVM 5632.** Advanced Large Animal Techniques. (2) (Prerequisite: Consent of instructor). Four hours laboratory. Provides students hands-on techniques experience required in a progressive large animal/equine referral practice or an internship position at a veterinary hospital.

**CVM 5640. Shelter Medicine Spay Neuter.** (0-6) (Prerequisite: CVM 5246). Variable hour practicum. This course will provide in-depth understanding and practical experience in dealing with issues surrounding pet overpopulation, responsible pet ownership, shelter medicine and surgery.

**CVM 5644. Applied Gross Anatomy. (4)** (Prerequisite: Consent of instructor). Eight hours laboratory. Phase 2 elective emphasizes review and further study of anatomy with relation to clinical and diagnostic applications.

**CVM 5652. Equine Podiatry. (2)** (Prerequisite: Enrollment in CVM professional curriculum) One hour lecture. Two hours laboratory. Fundamental of horseshoeing, anatomy, diseases of the equine digit, and therapeutic techniques.

**CVM 5654. Applied Veterinary Parasitology.** (4) Four hours practicum. (Prerequisite: Consent of Instructor). Provides opportunities to use problemsolving skills in the diagnosis, treatment, and control of both newly emerging and commonly encountered parasitic diseases.

**CVM 5662.** Clinical Neurology. (2) (Prerequisite: Consent of instructor). Two hours lecture. Phase 2 elective emphasizes basic procedures and concepts required to diagnose and manage neurologic diseases.

**CVM 5672. Veterinary Dentistry. (2)** Two hour practicum. (Prerequisite: consent of instructor). Phase 2 elective emphasizing diagnostic and therapeutic approach to dentistry in small animals and equine species.

**CVM 5682. Veterinary Ophthalmology. (2)** (Prerequisite: Consent of instructor). Two hours lecture. Phase 2 elective emphasizing the diagnosis and treatment of ophthalmic diseases.

**CVM 5692. Veterinary Art and Business Management. (2)** (Prerequisite: Consent of instructor). Two hours lecture. Lecture, group discussion, and focused independent study of the art and business of veterinary medicine. This course will emphasize non-technical veterinary skills. (Phase 2 elective)

CVM 5714. Advanced Small Animal Dermatology. (4) Three hour lecture. One hour laboratory. Advanced study of small animal dermatology. Emphasis will be disease conditions with primary impact on the integumentary system of small animals.

CVM 5722. Small Ruminant Production Medicine. (2) (Prerequisite: CVM 5276). Two hours practicum. An elective focused on sheep and goat production. Experience in common surgery/treatment procedures provided. Small ruminant production medicine topics and current literature review discussed.

CVM 5754. Advanced Small Animal Surgery. (4) One hour lecture. Three hours laboratory. Exercises to provide additional understanding and "hands-on" experience for students interested in orthopedic surgery, neurosurgery, plastic and reconstructive surgery, and other selected soft tissue procedures.

**CVM 5764.** Advanced Equine Reproduction. (4) (Prerequisite: Consent of instructor). Fours hours lecture. Phase 2 elective emphasizing review of basic equine reproduction and exposure to advanced diagnostic and therapeutic modalities.

**CVM 5772. Canine Theriogenology. (2)** Two hour practicum. (Prerequisite: Consent of instructor). Advanced study of canine reproduction. Review of basic diagnostics and procedures followed by an introduction to assisted reproductive technology (ART).

CVM 5784. Clinical Behavioral Medicine. (4) (Prerequisite: Consent of Instructor). Four hours lecture and discussion. Case oriented study of normal and abnormal behaviors and underlying influences in domestic animals, with focus on dogs, cats, and horses.

**CVM 5802. Practical Small Animal Oncology. (2)** (Prerequisite: Enrollment in the professional veterinary degree program). Two week practicum. Practical clinical oncology at the general practice level to include an overview of individual disease behaviors and diagnostic techniques and an introduction to therapy modalities.

CVM 5814. The Feline Patient. (4) Four hours lecture. Lecture, group discussion, and focused independent study on a variety of feline-related topics, with emphasis on medical problems which are unique to the cat.

**CVM 5844. Clinical Pharmacology. (4)** Four hours lecture. Use of pharmacologic agents in the treatment of disease syndromes. Emphasis will be placed on therapeutic alternatives for the treatment of specific diseases or syndromes.

CVM 5854. Aquarium Health Management. (4) (Prerequisite: Consent of instructor). Concepts and techniques for the maintenance of common aquarium species. This course will provide students opportunities to develop selected skills relating to aquarium medicine.

**CVM 5864.** Bovine Production Medicine. (4) ). (Prerequisite: Enrollment in the CVM professional curriculum). Four hours lecture. Reproductive and nutritional management, record-keeping, data analysis, herd health programs, and other advanced bovine production topics will be covered, building on student's core veterinary education.

**CVM 5862. Equine Lameness. (2)** Two hour practicum. Advanced study of equine lameness. Provides opportunities to develop and use problem-solving skills in the diagnosis, treatment, and management of lameness and related topics.

**CVM 5874. Bovine Theriogenology.** (4) (Prerequisite: Consent of instructor) Four hours practicum. Advanced study of bovine theriogenology. Review of basic diagnostics, surgical procedures, and obstetrics followed by an introduction to assigned reproductive technology (ART).

#### Graduate-Level Courses

**CVM 4134/6134. Aquatic Animal Health Management. (4)** (Prerequisite: One course in microbiology and one course in physiology). Three hours lecture. Three hours laboratory. Fundamentals concepts of preventing, diagnosing and treating economically important diseases in wild and cultured stocks and invertebrates through didactic and laboratory instruction.

**CVM 4180/6180. Emergency Prep for Animal Health. (Variable credit)** (Prerequisite: Permission of instructor). Introduction to emergency preparedness concerning health/well-being of animals. Incident Command System (ICS) leading to subjects pertinent to animal health during natural/man-made disasters.

CVM 4263/6263. Wildlife Diseases. (3) Two hours lecture. Four hours laboratory, alternate weeks. Effects and management of parasites and diseases in wild bird and mammal populations. (Same as WFA 4263/6263)

CVM 4513/6513. Environmental Toxicology. (3) (Prerequisites: 8 hours biological sciences and 8 hours chemistry). Three hours lecture. The disposition and toxicological effects of environmentally-relevant toxicants (such as agrochemicals, petroleum and industrial pollutants) within organisms, and aquatic and terrestrial ecosystems.

**CVM 4523/6523. Basic Neuroscience.** (3) Three hours lecture. This course is a targeted study of the mammalian nervous system, stressing cellular and molecular elements/function, neuronal development and regulation.

**CVM 6021. Essentials of Research Practice & Profession.** (1) One hour lecture. An introduction to fundamental research methodologies, compliance, communication, and basic research ethics to prepare students for becoming a member of a research team.

**CVM 6023. Infectious Agents I. (1)** (Prerequisites: Enrollment in the professional veterinary degree program and enrollment in a Ph.D. program). Two hours lecture. Two hours laboratory. Completion of project assigned by course leader required. Principles regarding immune responses and classification, pathophysiological mechanisms, control/diagnosis of viruses, bacteria, and fungi in veterinary medicine.

**CVM 6033. Physiology I. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Three hours lecture. Completion of project assigned by course leader required. Presentation of concepts/principles/issues in veterinary physiology related to cellular, membrane, muscle, cardiovascular, respiratory, and renal physiology.

**CVM 6036. Veterinary Physiology. (6)** (Prerequisite: Enrollment in the professional veterinary degree program and enrollment in a PhD program). Completion of project assigned by course leader required. Six hours lecture. Fundamental concepts, principles, and details of veterinary physiology specifically related to cellular, membrane, muscle, cardiovascular, respiratory, urinary, gastrointestinal, endocrine, and reproductive systems.

**CVM 6083. Physiology II. (3)** (Prerequisite: CVM 5033 or CVM 6033 and enrollment in a Ph.D. program). Three hours lecture. Completion of project assigned by course leader required. Presentation of fundamental concepts, principles, and issues in veterinary physiology specifically related to digestive, endocrine and reproductive physiology.

**CVM 6163. Vet Parasitology. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Two hours laboratory. Completion of project assigned by course leader required. Presentation of principles essential to the classification, pathophysiological mechanisms, control/diagnosis of parasites of importance in veterinary medicine.

**CVM 6223.** Pharmacology I. (3) (Prerequisites: Enrollment in the professional veterinary degree program and enrollment in a Ph.D. program) Three hours lecture. Completion of project assigned by course leader required. Molecular basis for absorption, mechanisms of action, metabolism, excretion and toxicity focusing on pharmaceuticals used to treat haemostatic, neoplastic, parasitic, and inflammatory disorders.

**CVM 6602.** Comparative Endocrinology II. (2). (Prerequisite: Enrollment in a veterinary graduate degree program; instructor approval). Two week practicum. An in-depth analysis including the pathophysiology, diagnosis, and treatment of endocrine disease in veterinary species, with emphasis on small animal patients.

**CVM 8011. Seminar.** (1) One hour lecture. A seminar which provides the student with a forum for presentation of current topics in veterinary medical research.

**CVM 8031. Current Topics in Molecular Mechanisms of Disease.** (1) 1.5 hours discussion. The molecular biology of pathogens, hosts and their interactions are covered by students presenting recently published papers. This course can be taken six times.

**CVM 8041. Advanced Clinical Radiology Seminar.** (1). (May be repeated for credit). (Prerequisite: Course leader approval). A bi-weekly seminar to present, discuss, and interpret radiographic, ultrasound, CT scan, and other advanced diagnostic imaging findings of current and archived clinical cases.

**CVM 8051. Advanced Clinical Pathology Seminar.** (1). (May be repeated for credit). (Prerequisite: Course leader approval). Bi-weekly seminar to present, discuss, and interpret body fluid analysis, cytology, biopsy, toxicology, and/or necropsy findings and other findings of current and archived clinical cases.

**CVM 8061. Small Animal Surgery Literature Seminar. (1).** One hour seminar. Weekly seminar focusing on current literature pertaining to small animal surgery.

**CVM 8091. Current Topics in Production Animal Medicine.** (1) 1.5 hour discussion. (Prerequisite: Consent of Instructor). A weekly seminar to address issues of current interest in production animal medicine (i.e., cattle, swine, poultry, aquaculture.) May be repeated four times for credit.

**CVM 8101.** Case Studies in Scientific Research Ethics. (1) One hour seminar. Practical application of research ethics using case scenarios to direct discussions on data ownership, plagiarism, authorship, conflict of interest, and other regulatory compliance related issues. (Same as PHI 8101)

**CVM 8105.** Avian Extensibility. (5) (Prerequisite: Consent of instructor). Extensive field experience with poultry companies is provided. Breeder, pullet, layer, and broiler management, ration formulation, poultry inspection, and hatchery practices are emphasized.

CVM 8113. Advanced Diseases of Poultry. (3) Three hours lecture. Advanced study of the major poultry diseases; the mechanisms of each disease, diagnosis, prevention and control.

**CVM 8134.** Advanced Fish Diseases. (4) Prerequisite: CVM 6134 or permission). Three hours lecture. Three hours laboratory. Detailed investigations into the mechanisms involved in the development and management of infectious and non-infectious diseases in fish.

CVM 8143. Epidemiology/Biostatistics. (3) Three hours lecture. Fundamental principles of descriptive and analytical epidemiology.

CVM 8153. Histopathology of Fish Diseases. (3) (Prerequisite: CVM 4134/6134 or equivalent). Three hours lecture. (Prerequisite: CVM 6134 or equiv-

alent). Study of the pathophysiology response of fish to a variety of environmental, infectious, parasitic and neoplastic diseases based upon histologic interpretation of case materials.

**CVM 8190. Aquatic Diagnostic Investigation.** (1-9) (Prerequisite: CVM 6134, equivalent, or consent of instructor). Variable hours practicum. (May be repeated for credit). A practical exercise in diagnosis and therapeutic recommendation for health management and maintenance in aquatic animal medicine.

**CVM 8301.** Advanced Topics in Comparative Immunology. (1) 1.5 hours discussion. Current controversies, discoveries, and experimental approaches in comparative immunology will be covered by students' presentations. This course can be taken 4 times for repeated credit.

**CVM 8303. Advanced Immunology. (3)** (Prerequisite: BIO 6413 or equivalent or consent from the instructor). Three hours lecture. Advanced theory and concepts of immunology, structure and function of immune mechanisms are discussed in detail.

**CVM 8315. Immunological Techniques.** (5) Two hours lecture. Six hours laboratory. An in-depth course to teach the student a variety of modern methods of immunology. (Same as BIO 8315).

**CVM 8323.** Zoonotic Disease in Public Health. (3) Three hours lecture. Major zoonotic diseases affecting humans, their role in bioterrorism, and CDC category A and B disease are studied with focus on epidemiology and prevention.

**CVM 8333. Food Safety and Security in Public Health. (3)** (Prerequisite: enrolled in graduate school, MPH program, or consent of instructor). Three hours lecture. Epidemiology and risk factors for illness from microbial food contaminates. Pre and post-harvest interventions will be addressed. (Same as FNH 8333)

**CVM 8343. Biosecurity in Environmental Health. (3)** (Prerequisite: Enrolled in graduate school or permission of instructor). Three hour lecture. Application of biosecurity principles, focusing on food producing animals, especially relating to bioterrorism and foreign animal disease.

**CVM 8403. Principles of Pharmacology and Pharmacokinetics. (3)** Three hours lecture. This course addresses basic principles of how the body reacts to the presence of a drug or toxin and the mathematical expression of drug residues.

**CVM 8503. Epidemiology/Biostatistics. (3)** (Prerequisite: ST 8114) Three hours lecture. Fundamental principles of descriptive and analytical epidemiology.

**CVM 8513.** Applied Veterinary Epidemiology. (3) Three hours lecture. Applications of qualitative veterinary epidemiology in animal and human health. Includes uses of epidemiologic methodology in field investigations and disease control programs.

CVM 8523. Organ Systems Toxicology I. (3) Three hours lecture. The course covers an in-depth understanding of toxic responses of the liver, kidney, lung, cardiovascular, blood, and immune systems.

**CVM 8533.** Organ Systems Toxicology II. (3) Three hours lecture. The course covers an in-depth understanding of toxic responses of the nervous, reproductive, endocrine, eye and skin systems.

CVM 8543. Mechanisms of Toxic Action. (3) Three hours lecture. The course covers the basic mechanisms underlying the toxicity of chemicals to animals.

**CVM 8552.** Foreign and Emerging Animal Diseases. (2) (Prerequisite: not open to students who have completed CVM 5133.) Study of the recognition, treatment and prevention of economically important animal diseases considered foreign to the U.S. Overview of factors affecting emerging animal diseases.

**CVM 8614. Helminthology. (4)** (Prerequisite: BIO 1144 or equivalent). Three hours lecture. Three hours laboratory. This course will cover current concepts in morphology and identification, life cycle, and host-parasite relationships of helminthic parasites.

**CVM 8624.** Protozoology. (4) (Prerequisite: BIO 1504 or equivalent). Three hours lecture, two hours laboratory. This course will cover the morphology and identification, life cycles, epidemiology and control of protozoans in vertebrates.

**CVM 8701. Veterinary Histopathology Seminar. (1)** (Prerequisite: CVM 5044 or permission of instructor). (Course can be repeated for credit). One hour lecture. A weekly seminar to present and discuss current topics relevant to veterinary pathology and diagnostic medicine. Emphasis on the characterization of disease using histopathology.

**CVM 8721.** Gross Veterinary Pathology Seminar. (1) (Prerequisite: CVM 5044 or consent of instructor). One hour seminar. Weekly seminar on the gross pathologic lesions of diseases. Emphasis will be on classical diseases and gross changes encountered and brief discussion of pathogenesis and etiology. (May be repeated for credit)

**CVM 8733.** Pathological Basis of Disease. (3) (Prerequisite: Acceptance to Dual Degree DVM/MS program or consent of instructor) The course covers basic mechanisms of disease in mammals. Topics include cellular and organisms response to inflammatory, hemodynamic, genetic immunological, and neoplastic disorders.

**CVM 8743. Emerging Infectious Diseases and Zoonoses. (3)** (Prerequisite: Acceptance to dual degree program or consent of instructor). Three hours seminar. An advanced discussion of emerging and currently relevant veterinary health issues with emphasis on zoonoses.

**CVM 8790. Laboratory Diagnostic Services. (Hours vary)** Variable hours practicum. (May be repeated for credit). Experimental training in laboratory investigation of animal health-related problems to include pathological, microbiological, parasitic, and toxicological problems.

**CVM 8801.** Seminars in Veterinary Anesthesiology. (1) (Prerequisite: DVM or equivalent degree, or consent of instructor). One hour seminar. Topics include physiology and pharmacology in veterinary anesthetic practice, anesthesia equipment, and anesthetic techniques.

**CVM 8802.** Canine Theriogenology. (2) (Prerequisite: consent of instructor). Two hours practicum. Advanced study of canine reproduction. Review of basic diagnostics and procedures followed by an introduction to assisted reproductive technology (ART).

**CVM 8803. Advanced Small Animal Clinical Neurology. (5)** (Prerequisite: Must already have registered veterinary degree and consent of instructor). Five hours practicum. Advanced-level study of neurologic disease in small animals, with an emphasis on case management, oral and written presentation skills, and teaching internship.

**CVM 8812. Equine Reproductive Ultrasound. (2)** (Prerequisite: Consent of instructor). One hour lecture. Two hours laboratory. Advanced study of ultrasound diagnostics of the equine urogenital systems in the male and female.

**CVM 8825. Large Animal Urogenital Surgery.** (5) (Prerequisite: Consent of instructor). Three hours lecture. Four hours laboratory. Urogenital surgery of the male and female in the equine and bovine species.

**CVM 8890. Economic and Performance Medicine.** (1-9) Variable hours practicum. (May be repeated for credit). (Prerequisite: Consent of instructor). Advanced training in the identification and management of health related problems in commercial food animal production units.

**CVM 8961.** Nobel Topics in Physiology/Medicine and Chemistry. (1) (Prerequisite: Graduate standing and consent of instructor). One hour seminar. Course provides historic and current understanding of topics awarded with a Nobel Prize. May be repeated three times for credit. (Same as GNS 8961 and FO 8961)

**CVM 8973. Scientific Writing.** (3). (Prerequisite: Graduate standing and consent of instructor). Three hours lecture. The course provides advanced training in research proposal, grant proposal, and manuscript writing. (Same as ADS 8973 and FO 8973).

**CVM 8983.** Advanced Biotechnology. (3). Prerequisite: BCH 6603, BCH 6613, BCH 6713 or consent of instructor). Three hours lecture. Advanced biotechnology course with an emphasis on environmental, biopharmaceutical, industrial, and medical technologies. (Same as FO 8983).

**CVM 8993. Functional Genomics. (3)** (Prerequisites: BCH 6713 Molecular Biology and ST 6243 Data analysis or consent of instructor). Three hours lecture. Fundamental concepts, technology, and applications of functional genomics, such as microarray, yeast hybrid systems, and RNA inference, emphasizing experimental design, analysis, and applications in biomedical research.

## DIVISION of TECHNOLOGY

#### MERIDIAN CAMPUS ONLY

**DTF 4923. Technology Career Seminar. (3)** (Prerequisite: DTF 4613). Three hours lecture. Critical evaluation of current issues in technology, examination of career opportunities and approved project completion status.

**DTF 4936. Technology Field Practicum I. (6)** (Co-requisite: DTF 4926). The course provides students opportunities to apply contemporary practices by completing a minimum of 340 supervised hours in an approved industry.

**DTF 4946.** Technology Field Practicum II. (6) (Prerequisite: DTF 4936 or concurrent enrollment in DTF 4936). The course provides students opportunities to apply contemporary practices by completing a minimum of 340 supervised hours in an approved industry.

**DTM 4213. Manufacturing Regulatory Agencies. (3)** Three hours lecture. An introduction to the effects that regulatory agencies, both public and private, have on contemporary manufacturing operations.

**DTM 4313. Transportation and Packaging. (3)** Three hours lecture. A study of internal and external product transportation for a manufacturing facility. Emphasis on the reduction of time and cost to include protective packaging.

**DTM 4413. Facilities Operations. (3)** Three hours lecture. An introduction to the many facets of manufacturing facility operations. Emphasis on key areas such as maintenance, employee services, and public utility optimization.

DTM 4553. Production Standards & Measurement. (3) Three hours lecture. A study to focus upon the application of theoretical and contemporary methods of manufacturing production standards and appropriate measurement techniques.

#### Department of FINANCE and ECONOMICS

#### Office: 312 McCool Hall

Professors Liano, Millea, Miller, and Rogers Associate Professors Campbell, Garner, Highfield (head), Rezek, Roskelley, and Thomas; Assistant Professors Cline, Orozco, Wade, and Young ; Instructors He, Henry, and Metz EC 1033. Economics of Social Issues. (3) Three hours lecture. Basic economic principles introduced and developed through the study of important social issues such as unemployment, health care, poverty, crime, pollution, inflation, and government debt. (Not open to students with prior credit in Principles of Economics).

EC 2113. Principles of Macroeconomics. (3) (Prerequisite: Sophomore standing.) Three hours lecture. Introduction to macroeconomics: free enterprise principles, policies, institutions; national income, employment, output, inflation, money, credit, business cycles, and government finances.

EC 2123. Principles of Microeconomics. (3) (Prerequisite: EC 2113 and Sophomore standing.) Three hours lecture. Introduction to microeconomics: emphasizes American industrial structure, demand and supply, pricing and output, income distribution, factor pricing, international trade.

EC 3113. Intermediate Macroeconomics. (3) (Prerequisites: EC 2113 and EC 2123). Measurement and determination of national income, employment, and output; economic significance of consumption, saving, investment, foreign trade, money and prices, fiscal and monetary policy.

EC 3123. Intermediate Microeconomics. (3) (Prerequisites: EC 2113 and EC 2123). Theory and application of microeconomics; demand, supply, optimal consumer choice, production, cost, profit-maximizing pricing and output decisions, employment of resources, externalities, efficiency and welfare.

EC 3333. Managerial Economics. (3) (Prerequisites: EC 2113 and EC 2123). Three hours lecture. The application and use of economic models in analyzing and solving selected problems of the firm such as product pricing, product mix, demand forecasting, market analysis.

EC 3423. Economics of Regulation and Antitrust. (3) (Prerequisites: EC 2113 and EC 2123). Three hours lecture. Examination of the evolution and composition of the economic relationship between government and business in the U.S., focusing on regulation and antitrust.

EC 3513. Comparative Economic Policy. (3) (Prerequisites: EC 2113 and EC 2123 or consent of instructor). Three hours lecture. Comparative analysis of major government policies, economic structure, institutions around the world, emphasis on the organization of production and distribution of goods and resources.

EC 4043. Survey of Economics. (3) (Prerequisite: Senior or Graduate standing). Three hours lecture. Introduction to macro and microeconomics, national income accounts, monetary system, macroeconomic policy, international trade, supply and demand, distribution of income, markets, pricing, and output. (Not open to BACC or BBA Business majors ).

EC 4183/6183. U.S. Economic History. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. An intensive study of economic change in the United States and its impact on political and social development. (Same as HI 4183/6183).

EC 4213/6213. Personnel Economics. (3) (Prerequisites: EC 2113 and EC 2123). Three hours lecture. Economic analysis of human resource issues within business organizations. Theoretical examination of hiring standards, productivity, compensation schemes, training, teamwork, incentives, benefits, worker empowerment, and evaluation

EC 4223/6223. Labor Law and Employment Policy. (3) (Prerequisites: Three hours credit of economics or consent of instructor). Three hours lecture. Examination of the legal and regulatory environment of the employment relationship in today's American economy; including, unionization, equal employment opportunity, occupational health and safety.

EC 4233. Labor Economics. (3) (Prerequisites: EC 2113, EC 2123 and EC 3123.) Three hours lecture. Labor market behavior of households and firms. Emphasizes wage determination, optimal employment decisions, income distribution, unionization, human capital, and discrimination.

EC 4303/6303. International Economic Development. (3) (Prerequisites: EC 2113 and EC 2123). An analysis of problems facing developing economies and policies designed to promote economic growth with an emphasis on income distribution, trade, agriculture, industry, and technology.

EC 4313/6313. Introduction to Regional Economic Development. (3) (Prerequisites: EC 2113 and EC 2123 or consent of instructor). Three hours lecture. Regional economic differences; location theory (industrial, agricultural, and residential); Land use patterns; Regional structure, growth, and methods of analysis; National assistance for regional economic development.

EC 4323/6323. International Economics. (3) (Prerequisites: EC 2113 and EC 2123). Three hours lecture. The nature of international trade. International economic theory. Economic analysis of the movement of goods, resources, and financial assets across national borders.

EC 4333/6333. Applied Regional Economic Development. (3) (Prerequisite: EC 4313/6313). Three hours lecture. Economic analysis and effects of regional resources and development potentials, economic factors affecting industrial location decisions, planning and organization of industrial development.

EC 4423/6423. Public Finance. (3) (Prerequisites: EC 2113, EC 2123 and EC 3123). Three hours lecture. Economics of the public sector. Analysis of government's influence on distribution, allocation, and stabilization functions. Emphasis on public goods, externalities, social insurance, and taxation.

EC 4433/6433. State and Local Finance. (3) (Prerequisites: EC 2113 and EC 2123). Three hours lecture. Fiscal and economic effects of state and local budgets; alternative tax and expenditure models; fiscal administration and budgeting with emphasis on local economic development.

EC 4523/6523. History of Economic Thought. (3) (Prerequisites: EC 2113 or consent of instructor). Three hours lecture. Survey of economic ideas from Ancient Greece to present, emphasizing the changing foci and methodologies of economics relative to economic problems perceived at the time.

EC 4643/6643. Economic Forecasting and Analysis. (3) (Prerequisites: EC 2113, EC 2123 and BQA 2113 (or equivalent) or consent of instructor.) Three hours lecture. Forecasting tools and econometric estimation techniques utilizing regression, exponential smoothing, decomposition, frontier analysis, etc. Real-world data, business applications, and model building are emphasized.

**EC 4713. Industrial Organization. (3)** (Prerequisites: EC 2113, EC 2123 and EC 3123). Three hours lecture. Behavior of firms in imperfectly competitive markets. Analysis of market structure, strategic interaction, price and non-price competition with emphasis on the implications for public policy.

EC 8103. Economics for Managers. (3) (Prerequisites: EC 2113 and EC 2123, or EC 8043). Three hours lecture. Primarily for masters-level candidates. Exposition of the fundamental theoretical and analytical tools of economics used by business managers engaged in decision making.

**EC 8113. Labor Theory and Analysis. (3)** (Prerequisites: Graduate Standing). Three hours lecture. Theoretical and empirical examination of labor market processes and policy; Wage determination, resource allocation, labor mobility, human capital investment, discrimination and income distribution.

EC 8133. Econometrics I. (3) (Prerequisites: AEC 8413 or consent of instructor). Econometric theory and methods. Topics include the classical linear regression model, maximum likelihood estimation, generalized least squares, and estimation with panel data.

**EC 8143. Econometrics II. (3)** (Prerequisite: EC 8133). A continuation of EC 8133. Topics include advanced theories of simultaneous equations estimation methods, time series econometrics, and estimation with qualitative and limited dependent variables.

EC 8163. Microeconomics I. (3) (Prerequisite: EC 3123 or EC 8103 or equivalent). Three hours lecture. Survey of demand analysis, production, cost, and supply relationships, analysis of pricing under competitive and noncompetitive conditions, analysis of income distribution with emphasis on input pricing.

EC 8173. Macroeconomics I. (3) (Prerequisites: EC 3113, EC 3123, and one semester of calculus, or consent of instructor). Three hours lecture. Synthesis of short and long run analysis of the macroeconomy with special emphasis on the role of fiscal and monetary policy.

EC 8263. Microeconomics II. (3) (Prerequisite: EC 8163). Three hours lecture. An exposition of general equilibrium theory, the theory of welfare economics and the economics of information.

EC 8273. Macroeconomics II. (3) (Prerequisites: EC 8173 or equivalent). Three hours lecture. Examination of the modern macroeconomic synthesis. Studies in dynamic economic growth, rational expectations, monetarism, disequilibrium analysis, and open market economies.

EC 8313. Regional Economic Analysis. (3) (Prerequisite: EC 4313/6313 and EC 8133 or equivalent or consent of instructor). Three hours lecture. Theories and tools. Includes economic base, recursive and simultaneous equation econometric models, input-output analysis, and mixed models.

EC 8323. Economic Analysis of Developing Nations. (3) (Prerequisites: 9 hours in economics, including EC 6303 or consent of instructor). Three hours lecture. In-depth analysis of economic issues of developing nations and emerging markets; emphasis on public policies to promote economic growth and transition.

EC 8403. Game Theory. (3) Three hours lecture. (Prerequisites: AEC 8163 or EC 8163; or consent of instructor). An exploration of how economics agents interact strategically. (Same as AEC 8403)

EC 8522. Seminar in the History of Economic Thought. (2) (Prerequisite: Graduate standing or consent of the instructor). The evolution of economic ideas from Ancient Greece to present. Emphasis is placed on the role of heterodoxy and the rise of new paradigms.

EC 8643. Applied Economic Skills: Advanced Estimation and Diagnostics of Econometric Models. (3) (Prerequisites: EC 8133 and EC 8143 or consent of the instructor). Advanced econometric tools, diagnostics, and estimation techniques with an emphasis on applied economic model building. Application of econometric theory to real-world problems and issues.

## Department of ELECTRICAL and COMPUTER ENGINEERING

Office: 216 Simrall Electrical Engineering Building

Professors Younan (Head), L. Bruce, Donohoe, Fowler, Grzybowski, King, Mazzola, Molen, Moorhead, Rajala, and Winton; Associate Professors Abdelwahed, J. Bruce, Du, Jones, Karimi, Koshka, Reese and Topsakal; Assistant Professors Anderson, Follett, Fu, Li and Morris

**ECE 1002.** Introduction to Electrical & Computer Engineering. (2) (Prerequisite: Credit or registration in MA 1713). One hour lecture. Three hours lecture. Three hours laboratory. What is means to be an engineer, engineering ethics, engineering modeling, the design process, areas of ECE, communication skills, ECE computer account, MATLAB, the Internet.

**ECE 3183. Electrical Engineering Systems. (3)** (For non-Electrical Engineering majors). (Prerequisite: MA 2743). Three hours lecture. Definitions and laws relating to electrical quantities; circuit element descriptions; development of techniques in network analysis; semiconductor devices; integration of devices into digital networks.

ECE 3213. Introduction to Solid State Electronics. (3). (Prerequisite: grade of C or better in ECE 3424). Three hours lecture. Introduction to quantum mechanics, semiconductor physics and solid state electronics. Energy band structure and charge carriers in semiconductors. Junctions, diodes and transistors.

ECE 3281. Electronics Laboratory. (1) (For non-Electrical Engineering majors). (Prerequisite: Credit or registration in ECE 3283). Laboratory procedures in electronic circuits and measurements.

ECE 3283. Electronics. (3) (For non-Electrical Engineering majors). (Prerequisites: Grade of C or better in either ECE 3413 or ECE 3183). Three hours lecture. Fundamentals of active devices, linear amplifiers, digital logic, digital devices, and microprocessors.

**ECE 3313. Electromagnetics I. (3)** (Prerequisite: MA 3253 and PH 2223). Three hours lecture. Introduction to engineering electromagnetics with applications. Vector analysis, static and time-varying electromagnetic fields, wave propagation, and transmission lines.

**ECE 3323. Electromagnetics II. (3)** (Prerequisite: Grade of C or better in ECE 3313). Three hours lecture. Waveguides and cavity resonators, fiber optics, antennas, electromagnetic compatibility, analytical and numerical solution techniques in electromagnetics.

ECE 3413. Introduction to Electronic Circuits. (3) (Prerequisites: Credit or registration in ECE 1002, MA 3113, and PH 2223). Three hours lecture. Fundamentals of electric circuits and network analysis. Transient analysis and frequency response of networks. Introduction to operational amplifiers. AC power.

**ECE 3424. Intermediate Electronic Circuits. (4)** (Prerequisites: Grade of C or better in ECE 3413 and credit or registration in MA 3253). Three hours lecture. Three hours laboratory. Operation circuit models and application of diodes and field-effect and bipolar junction transistors. Electronic instrumentation. Foundations of electrical communications systems.

**ECE 3434.** Advanced Electronic Circuits. (4) (Prerequisites: Grade of C or better in ECE 3424). Three hours lecture. Three hours laboratory. Feedback and stability. Operational-amplifier and data-converter circuits. Introduction to CMOS logic circuits. Filters and tuned amplifiers. Signal generator circuits. Power amplifiers.

**ECE 3443. Signals and Systems. (3)** (Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Modeling of analog and discrete-time signals and systems, time domain analysis. Fourier series, continuous and discrete-time Fourier transforms and applications, sampling, z-transform, state variables.

ECE 3614. Fundamentals of Energy Systems. (4) (Prerequisite: Grade of C or better in ECE 3413 and credit or registration in ECE 3313). Three hours lecture. Three hours laboratory. Synchronous generators; power transmission lines and cables; power transformers; induction and direct current motors; power electronic and programmable controllers; National Electric Code and electrical safety.

ECE 3714. Digital Devices and Logic Design. (4) (Prerequisite: Credit or registration in CSE 1213, CSE 1233, or CSE 1284). Three hours lecture. Three hours laboratory. Binary codes, Boolean, algebra, combinational logic design, flip-flops, counters, synchronous sequential logic, programmable logic devices, MSI logic devices, adder circuits.

ECE 3724. Microprocessors. (4) (Prerequisites: Grade of C or better in both CSE 1384 and ECE 3714). Three hours lecture. Three hours laboratory. Architecture of microprocessor-based systems. Study of microprocessor operation, assembly language, arithmetic operations, and interfacing.

ECE 4193/6193. Automotive Engineering. (3) Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical systems, and industrial and systems engineering aspects. (Same as CHE 4193/6193, ME 4193/6193 and IE 4193/6193).

**ECE 4243/6243. Introduction to Physical Electronics. (3)** (Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Introduction to quantum mechanics and solid state physics. Physical principles of pn junctions, bipolar transistors, field effect transistors. Applications include electro-optics, integrated circuits, gaseous electronics.

ECE 4263/6263. Principles of VLSI Design. (3) (Prerequisites: Grade of C or better in both ECE 3724 and ECE 3424). Two hours lecture. Three hours laboratory. Classic and dynamic CMOS circuit design using state-of-the-art CAD tools, with emphasis on digital system cells and architecture.

**ECE 4273/6273. Microelectronics Device Design. (3)** (Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Theory of semiconductors in equilibrium and non-equilibrium, advanced theory of p-n junctions, bipolar junction transistor and advanced theory and operation of field dependent devices.

**ECE 4283/6283.** Microelectronics Process Design. (3) (Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Introduction to device fabrication technologies, semiconductor parameter measurement techniques, and the principles of design relative to the LSI technologies.

ECE 4313/6313. Antennas. (3) (Prerequisite: Grade of C or better in ECE 3323 or consent of instructor). Three hours lecture. Introduction to antennas and electromagnetic radiation, antenna design and analysis, antenna performance measures, antenna types, antenna arrays.

ECE 4323/6323. Electromagnetic Compatibility. (3) (Prerequisite: Grade of C or better in ECE 3323 or consent of instructor). Three hours lecture. Introduction to EMC, EMC standards, EMC measurements, emissions and susceptibility, non-ideal behavior of components, signal spectra, crosstalk and shielding.

ECE 4333/6333. RF and Microwave Engineering. (3) (Prerequisite: Grade of C or better in ECE 3323 or consent of instructor). Three hours lecture. Introduction to RF and microwave engineering, unguided and guided wave types, transmission lines, waveguides, microwave networks, impedance matching techniques, and microwave components.

ECE 4411/6411. Remote Sensing Seminar. (1) (Prerequisite: Junior Standing). One hour Lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on next-generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, FO 4411/6411, GR 4411/6411)

**ECE 4413/6413. Digital Signal Processing. (3)** (Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. Discrete-time signals, Z-Transform, Discrete Fourier Transform, digital filter design including IIR, FIR and FFT synthesis.

ECE 4423/6423. Introduction to Remote Sensing Technologies. (3) (Prerequisite: Senior or graduate standing, or consent of instructor). Three hours lecture. Electromagnetic interactions, passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR, Lidar, digital image processing, natural resource applications. (Same as PSS 4483/6483 and ABE 4483/6483).

ECE 4512. EE Design I. (2) (Prerequisite: Grade of C or better in each of ECE 3434, ECE 3443, and ECE 3724; grade of C or better in one of either ECE 3323 or ECE 3614; co-registration in GE 3513; and consent of instructor). One hour lecture. Three hours laboratory. Lectures on design, teaming, entrepreneurship, project management, professional development, and ethics. Students must select mentor, perform project design, document and present orally.

**ECE 4522. EE Design II. (2)** (Prerequisite: Grade of C or better in ECE 4512). One hour lecture. Three hours laboratory. Prototyping, documentation, and oral presentation of an engineering design project. Lectures on legal aspects and industry standards relating to design, professional ethics, career design skills.

**ECE 4532. CPE Design I. (2)** Prerequisite: grade of C or better in both CSE 3324 and ECE 4743; grade of C or better in either ECE 3434 or ECE 3443; coregistration in GE 3513; and consent of instructor). One hour lecture. Three hours laboratory. Lectures on teaming, project management, engineering standards, economics, and ethical and professional issues. Student must select faculty mentor, perform project design, and present orally.

**ECE 4542. CPE Design II. (2)** Prerequisite: Grade of C or better in both ECE 3434 and ECE 4532). One hour lecture. Three hours laboratory. Development of design, teaming, presentation, and entrepreneurial skills. Teams must complete their project designs, and present written and oral results.

**ECE 4613/6613. Power Transmission Systems. (3)** (Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Transmission of power from generator to distribution system; transmission line design; load flow; symmetrical components; balanced/unbalanced faults; stability.

ECE 4633/6633. Power Distribution Systems. (3) (Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Distribution of power from transmission system to users; primary and secondary feeders; voltage regulation; distribution transformers; protective device coordination; system design; load management.

ECE 4643/6643. Power Systems Relaying and Control. (3) (Prerequisite: Grade of C or better in ECE 4613). Three hours lecture. Protection objectives and fundamentals; inputs; protection of generators, transformers, busses and lines; stability and control.

ECE 4653/6653. Introduction to Power Electronics. (3) (Prerequisite: Grade of C or better in both ECE 3614 and ECE 3424 or equivalent). Three hours lecture. Introduction to power electronic circuits, with emphasis on design and analysis of power semiconductor converters including DC-DC converters. PWM inverters, and DC power supplies.

ECE 4663/6663. Insulation Coordination in Electric Power Systems. (3) (Prerequisite: Credit or registration in ECE 4613). Three hours lecture. Lightning phenomena; switching surges and temporary system overvoltages; laboratory generation and application of high voltages and currents; basic insulation levels; surge arresters; system insulation design.

ECE 4673/6673. Fundamentals of High Voltage Engineering. (3) (Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Electrical fields, fields in multi-dielectrics, breakdown mechanisms in gases, liquids, and solid dielectrics, laboratory generation of high voltages, high voltage insulators and cables.

ECE 4713/6713. Computer Architecture. (3) (Prerequisites: Grade of C or better in ECE 3724). Three hours lecture. Detailed design and implementation of a stored-program digital computer system. Designs for the CPU, I/O subsystems, and memory organizations. ALU design and computer arithmetic.

ECE 4723/6723. Embedded Systems. (3) (Prerequisites: Grade of C or better in either ECE 3424 or CSE 4153 and grade of C or better in both CSE 3324 and ECE 3724). Two hours lecture. Three hours laboratory. Advanced topics in embedded systems design using contemporary practice. Interrupt-driven, reactive, real-time, object-oriented, and distributed client/server embedded systems.

ECE 4743/6743. Digital System Design. (3) (Prerequisites: Grade of C or better in ECE 3724. Credit or registration in ECE 3424). Two hours lecture. Three hours laboratory. Hierarchical digital design using available design software.

Computer aided design workstations will be used to give students access to stateof-the-art design techniques.

ECE 4753/6753. Introduction to Robotics. (3) (Prerequisite: Grade of C or better in each of ECE 3724, MA 3113, and MA 3253) Two hours lecture. Two hours laboratory. This course covers mathematical foundations (kinematics and dynamics and hardware implementations actuators and sensors) of modern robots.

ECE 4763/6763. Information and Computer Security. (3). (Prerequisite: Grade of C or better in CSE 4733/6733). Three hours lecture. Topics include encryption systems, network security, electronic commerce, systems threats, and risk avoidance procedures. (Same as CSE 4243/6243).

ECE 4813/6813. Communications Theory. (3) (Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. The frequency and time domain; modulation; random signal theory; network analysis using nondeterministic signals; basic information theory; noise.

ECE 4823/6823. Digital Communications. (3) (Prerequisite: Grade of C or better in ECE 4813/6813 or equivalent.) Three hours lecture. Digital communications systems design trade-offs and performance analysis in the presence of AWGN. Principle topics: transmission and detection, link analysis, channel coding, multiple access, spread-spectrum.

ECE 4833/6833. Data Communications and Computer Networks. (3) (Prerequisite: CSE 1384 or ECE 3732 and ECE 3724, both with a grade of C or better). Three hours lecture. The concepts and practices of data communications and networking to provide the student with an understanding or the hardware and software used for data communications. (Same as CSE 4153/6153).

ECE 4843/6843. Error Correcting Digital Codes. (3) (Prerequisite: Senior or Graduate standing). Three hours lecture. A survey, in depth, of current error correcting coding techniques for providing digital data transmission with protection from random and burst noise sources. Many practical and currently used techniques are discussed in detail and some hands on experience is provided.

**ECE 4853/6853. Electro-Optics. (3)** (Prerequisite: Grade of C or better in ECE 3244 or consent of instructor). Three hours lecture. Linear system theory of optical processes; Electroptic systems; electro-optical information processing.

**ECE 4913/6913. Feedback Control Systems I. (3)** (Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. Laplace transforms; transient and frequency response of feedback systems; transfer functions; Nyquist criterion, root locus; compensation of feedback systems; logarithmic analysis and design.

ECE 4923/6923. Feedback Control Systems II. (3) (Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. Finite difference and recurrence equations. Z-transform theory. Analysis of sample-data control systems. Design of digital control systems.

ECE 4933/6933. State Space Design and Instrumentation. (3) (Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. State space representation. Dynamic systems. Controllability and observability. Full-state feedback observers. Instrumentation: sensors and interfacing.

ECE 8223. Analog Integrated Circuit Design. (3) (Prerequisite: ECE 3434). Analysis and design of analog integrated circuits. Selected topics on operational amplifiers, A-to-D converters and communication circuits. Bi-polar and MOSFETS.

ECE 8273. VLSI Systems I. (3) (Prerequisite: ECE 4263/6263). Three hours lecture. VLSI design extended into controller concepts, self-timed logic; system design with CAD tools, parameterized block generators, silicon compilers; projects submitted to commercial silicon foundries.

ECE 8313. Electromagnetic Theory. (3) (Prerequisite: ECE 3254). Three hours lecture. Static boundary value problems, conformal transformation; Schwarz-Christoffel transformation; harmonics; applications of Maxwell's equations to plane waves in dielectrics and conductors; antennas; and radiation. (Same as PH 8313)

ECE 8401. Current Topics in Remote Sensing. (1) (Prerequisite: Credit or registration in ECE 4423/6423 or PSS 4483/6483 or ABE 4483/6483). One hour lecture. Review of current literature dealing with the technical issues of remote sensing technologies.

ECE 8413. Digital Spectral Analysis. (3) (Prerequisite: ECE 3443 or consent of instructor). Three hours lecture. Spectral estimation problem, classical methods, parametric modeling, statistical estimation, sinusoidal estimation, and high order spectra. Time series applications.

ECE 8423. Adaptive Signal Processing. (3) (Prerequisite: ECE 3443 or consent of instructor). Three hours lecture. Adaptive filtering, theoretical foundation, algorithms, structures, and implementations. Applications are included.

ECE 8433. Statical Signal Processing. (3) (Prerequisite: MA 4533/6533 or consent of instructor). Three hours lecture. Detection theory and design, statistical decisions, Bayes, and Neymen-Pearson detection, asymptotic performance, signal processing applications.

**ECE 8443. Pattern Recognition. (3)** (Prerequisite: MA 4533/6533 or consent of instructor). Three hours lecture. Classification, description, and structure of pattern recognition, patterns and feature extractions, engineering approaches including statistical and syntactic, and signal processing applications.

ECE 8453. Introduction to Wavelets. (3) (Prerequisite: ECE 3443 or consent of instructor). Three hours lecture. Wavelet-expansion systems, discrete wavelet transform, multiresolution analysis, time-frequency analysis, filter banks and the discrete wavelet design, wavelet-based applications.

ECE 8463. Fundamentals of Speech Recognition. (3) (Prerequisite: ECE 4413/6413 or consent of instructor). Three hours lecture. Acoustic Phonetics; Lin-

ear Prediction; Feature Extraction; Dynamic Programming and Time-Warping; Hidden Markov Models; Statistical Language Modeling; Decision Trees; Introduction to Natural Language Processing; Implementation Issues.

ECE 8473. Digital Image Processing. (3) (Prerequisites: CSE 1233, CSE 1284 or equivalent, ECE 4413/6413). Three hours lecture. A study of digital image processing principles, concepts, and algorithms; mathematical models; image perception; image sampling and quantization, transforms, image coding.

ECE 8483. Image and Video Coding. (3) (Prerequisite: ECE 8473 or consent of instructor). Three hours lecture. Intraframe predictive coding, intraframe transform coding, still-image coding standards, motion compensation, video-coding standards, image transmission and error control.

ECE 8503. Spacecraft Electrical Systems. (3) (Prerequisite: consent of instructor). Three hours lecture. Introduction to electrical and computer subsystems required to develop and operate satellites and space-borne instrumentation. Topics include space sensors, imaging, communications, and data-handling.

ECE 8623. Stability and Control of Power Systems. (3) (Prerequisite: Consent of instructor). Three hours lecture. Transient and dynamic stability; effect of excitation on stability; control of system in steady state (AGC); economic dispatch.

ECE 8663. High Voltage Engineering. (3) (Prerequisite: ECE 3313). Three hours lecture. Emission, mobility, breakdown, corona, arcs impulse generation, measurement, analysis, dielectric materials, design laboratory demonstration.

ECE 8673. Computer Methods in Power Systems Analysis. (3) (Prerequisite: ECE 4613/6613 or equivalent). Three hours lecture. Algorithms for formation and techniques for manipulation of network matrices. Problem formulation and numerical solution techniques for load flow and stability studies.

ECE 8713. Switching Theory I. (3) (Prerequisites: ECE 3434, ECE 4713/6713, or consent of instructor). Three hours lecture. Theory of combinational and sequential (synchronous and fundamental-mode) circuits with emphasis on performance, robustness, cost, and testability objectives.

ECE 8723. Introduction to Computer Arithmetic. (3) (Prerequisite: ECE 4263/6263). Three hours lecture. Fixed point number systems; algorithms and associated logic level implementations for fixed point addition, subtraction, multiplication, and division; floating-point formats and operation.

ECE 8733. Parallel Computing Architectures I. (3) (Prerequisite: ECE 4713/6713, CSE 4113/6113). Three hours lecture. Study of hardware structures relevant to concurrent computing; evaluation and design methods associated with memory, pipelining, and multiple processors.

ECE 8743. Advanced Robotics. (3) (Prerequisite: Grade of C or better in ECE 4753/6753) Three hours lecture. Rotations and their parameterization, Lie group theory, and shape determination of continuum robots.

ECE 8803. Random Signals and Signs. (3) (Prerequisite: IE 4613 or MA 4523 or equivalent). Three hours lecture. Probability and random processes, autoand cross-correlation, energy and power spectral densities, mean-square calculus, ergodicity. Response of linear systems to random signals, and Markov chains.

ECE 8813. Information Theory. (3) (Prerequisite: ECE 8803 or consent of instructor). Three hours lecture. Entropy, the asymptotic equipartition property, entropy rate, data compression, channel capacity, differential entropy, the Gaussian channels, rate distortion theory.

**ECE 8913.** Advanced Feedback Control Systems. (3) (Prerequisite: ECE 4913/6913). Three hours lecture. Review of linear feedback systems; root locus; signal flow diagrams; stability citerion; distributed parameter systems; selfadaptive control systems.

**ECE 8923.** Non-Linear Control Systems. (3) (Prerequisite: ECE 4913/6913 or equivalent). Three hours lecture. A study of techniques available to analyze non-linear system and a study of associated synthesis procedures.

**ECE 8933. Random Processes in Automatic Control. (3)** (Prerequisite: ECE 4913/6913 or equivalent). Three hours lecture. Principles and application of statistical design; random processes in automatic control; time invariant systems.

ECE 8943. Optimal Control of Dynamic Systems. (3) (Prerequisite: ASE 4123 or ECE 4913/6913 or equivalent.) Three hours lecture. State variable description of systems; maximum principle of Pontryagin, dynamic programming, optimization of linear systems with quadratic performance measures; time optimal and fuel optimal systems. (Same as ASE 8863)

ECE 8963. Digital Control Systems. (3) (Prerequisites: ECE 4913/6913 and ECE 4923/6923 or consent of instructor). Three hours lecture. Z-Transform theory and analysis; modified x-transform; design principles; digital state observers; introduction to optimal control, introduction to computer-aided digital control system design and analysis.

## Department of CURRICULUM, INSTRUCTION, and SPECIAL EDUCATION

#### 310 Allen Hall

Professors Brenner, Burroughs, Coffey, Devlin; Associate Professors: Franz, Hopper, Pope and Robichaux; Assistant Professors: Miller

## **ELEMENTARY EDUCATION**

**EDE 3123. Early Childhood Education. (3)** (Prerequisite: Admission to teacher education. Co-requisite: RDG 3113 and RDG 3123). Three hours lecture. Overview of early childhood education. Understanding young learners and creating learning environments. Assessing young children. Field experience.

**EDE 3223. Middle Level Education. (3)** (Prerequisite: Admission to teacher education. Co-requisite: RDG 3413 and 3423). Three hours lecture. Understanding the learning needs of young adolescents (grades 4-8); study of appropriate teaching strategies, engaging learning environments, and assessments for young adolescents.

EDE 3233. Teaching Children's Literature at the Elementary and Middle Levels. (3) Three hours lecture. Teaching children's literature at the elementary and middle levels. Introduction, selection, presentation, and utilization of a variety of children's literature.

**EDE 3343. Teaching Adolescent Literature. (3)** Three hours lecture. A study of the types of literature read by older children and adolescents with emphasis upon the criteria for the choice of good books and knowledge of available books and teaching materials.

**EDE 3443.** Creative Arts for Elementary and Middle Levels. (3) (Prerequisite: Admission to teacher education). Three hours lecture. An exploration of musical and artistic elements utilizing a variety of multicultural music, dance, drama, and aesthetic visuals. (Same as MU 3123).

EDE 3523. Foundations of Elementary & Middle Level Mathematics Education. (3) (Co-requisites: RDG 3413 and RDG 3423) Three hours lecture. Field based. The theoretical pedagogical foundations and current issues and perspectives of teaching elementary mathematics; a framework for the teaching of mathematics content and processes.

**EDE 4113. Teaching Elementary and Middle Level Science. (3)** (Co-requisites: EDE 4143, RDG 4133, and EDE 4123; admission to Teacher Education). Two hours lecture. Two hours laboratory. Field-based. Selection, organization and presentation of natural science content for elementary and middle school students; assessment of student learning and general effectiveness of instruction.

**EDE 4123. Teaching Elementary and Middle Level Mathematics. (3)** (Co-requisites: EDE 4113, RDG 4133, and EDE 4143; admission to Teacher Education). Two hours lecture. Two hours laboratory. Field-based. The content and process of mathematics instruction for elementary and middle grades children; teaching principles, mathematical tools, and assessment of student progress.

**EDE 4143. Teaching Elementary and Middle Level Social Studies. (3)** (Prerequisite: Admission to Teacher Education; Co-requisite: EDE 4113, EDE 4123, and RDG 4133). Two hours lecture. Two hours laboratory. Field-based. Selection, organization and presentation of social studies content for K-8 students; assessment of student learning and effectiveness of instruction.

**EDE 4883. Managing the Elementary and Middle Level Classroom. (3)** (Prerequisite: Admission to Teacher Education, completion of all professional development courses, and concurrent enrollment in EDE 4886). Three hours lecture. Developing and managing an appropriate learning environment for elementary and middle level students.

**EDE 4886,4896. Elementary and Middle Level Teaching Internship. (6,6)** (Prerequisite: Admission to Teacher Education, minimum GPA of 2.5 overall and in major, and completion of all professional education courses with a C or better). Two six hour internships. A supervised observation and teaching experience in an elementary and/or middle level classroom.

**EDE 8113. Middle Level Management and the Young Adolescent. (3)** Three hours lecture. Understanding the characteristics of middle level learners; study of appropriate classroom management for middle level children.

**EDE 8123. Foundations for Teaching Middle Level Mathematics. (3)** Three hours lecture. The theoretical and pedagogical foundations, issues and perspectives of teaching middle level mathematics; a standards-based framework for relevant teaching of number and operations.

**EDE 8133. Middle Level Internship I. (3)** Three hours clinical instruction. (Prerequisites: Admission to MAT-M. EDE 8113 and EPY 8473). First semester of directed teaching in a middle level classroom.

**EDE 8143. Middle Level Internship II. (3)** Three hours clinical instruction. (Prerequisites: Admission to MAT-M degree program. EDE 8113, EDE 8133, and EPY 8473). Second semester of directed teaching in a middle level classroom.

**EDE 8153. Professional Roles of the Middle Level Educator. (3)** Three hours lecture. Understanding developmentally responsive middle schools and the professional roles of middle level educators; study of professional roles.

EDE 8163. Teaching Middle Level Mathematics Content. (3) Three hours lecture. Research-based pedagogy and current issues and perspectives of teaching the content of algebra, geometry, measurement, and data analysis and probability in the middle level. **EDE 8173. Teaching Middle Level Social Studies. (3)** Three hours lecture. An introduction to the history, purposes, and current issues associated with middle level social studies education. Course to include research, trends, methods, and materials.

**EDE 8183. Teaching Middle Level Science.** (3) Theory, applied methods, and techniques for teaching middle level physical, life, and earth science. Content knowledge, inquiry, planning, and assessment for teaching.

**EDE 8313. Theory and Development of Early Childhood Education. (3)** Three hours lecture. A study of the historical development and the theoretical bases for early childhood education.

**EDE 8423. Elementary School Methods.** (3) Three hours lecture. Seminartype course in synthesis of methods and techniques applicable to elementary teaching; readings; reports; research.

**EDE 8433. The Elementary School Curriculum. (3)** Three hours lecture. Principles of curriculum construction as they apply to the elementary school program.

**EDE 8443. Seminar in Elementary Education. (3)** Three hours lecture. A study of current issues in elementary education. Designed for elementary and school administration majors.

EDE 8463. Readings and Research in Children's Literature. (3) Three hours lecture. Research involving the characteristics of quality literature for children, investigation of illustrators, illustrations and role of children's literature in the school.

**EDE 8473 The Elementary Social Studies Curriculum. (3)** Three hours lecture. Seminar-type course to include research; trends, methods; provision for individual differences; multi-level materials.

EDE 8513. Curriculum and Program Developments in Early Childhood Education. (3) Three hours lecture. The recent and most promising developments in curriculum for preschool through primary aged children.

EDE 8523. Practicum: Language Arts and Literacy Development in Early Childhood Education. (3) (Prerequisites: RDG 4133, RDG 3113, RDG 3123, or the equivalent). Two hours lecture. Two hours laboratory. A study of language development; the language arts curriculum for young children. Observation and participation in a preschool.

**EDE 8533. Behavioral Experiences in Early Childhood Education. (3)** Three hours lecture. The world of the child from preschool through early primary years with emphasis on child behavior.

**EDE 8543.** Mathematics Experiences in Early Childhood Education. (3) (Prerequisites: EDE 4123 or the equivalent). Three hours lecture. Materials, methods and the preparation and use of instructional media in providing mathematical experiences for young children.

**EDE 8623.** Content Area Literacy Instruction. (3) Three hours lecture. Theory, research, and methods for teaching elementary school students to use literacy as a tool for learning.

**EDE 8633. The Teaching of Writing. (3)** Two hours lecture. Two hours laboratory. Methods and materials for teaching writing grades K-12. Formal and informal writing assessments. Writing across the curriculum.

**EDE 8713. Educating Young Adults. (3)** Three hours lecture. Examination of issues influencing the education of young adolescents, including instructional methods, curricular models, organizational patterns, and developmentally responsive schools. Observation/participation in 4-8 settings.

EDE 8733. Teaching Physical, Life and Earth Science in the Elementary and Middle School Classroom. (3). Three hours lecture. Theory, applied methods, and techniques for teaching K-8 physical, life, and earth science. Content knowledge, inquiry, discovery learning, and technology of teaching.

**EDE 8763. Elementary and Middle Level Mathematics Education. (3).** Three hours lecture. Methods and materials and the preparation and use of instructional and assessment tools to be used in providing research-based mathematical experiences for K-8 students.

**EDE 8893. Readings in Elementary Education.** (3) (Prerequisites: Doctoral or Specialist standing or consent of the instructor). Readings and in-depth discussions to include innovation, controversy, and authoritative studies in the field.

**EDE 9221.** Professional Practice in Teacher Education. (1) One hour lecture. Students will examine potential careers for graduates with a doctorate in education and develop professional documents patient to their career paths. (Same as EDX 9221 and EDS 9221).

**EDE 9413. Practicum in College Teaching. (3)** Three hours practicum. Teaching of at least one course in education, under the supervision of a senior staff member. (Same as EDS 9413)

**EDE 9420. Research Practicum in Early Childhood Education. (1-6)** (Prerequisites: EDE 8513, EDE 8523, EDE 8533, EDE 8543). Research experiences through participation, observation, and experimental projects related to early childhood settings.

EDE 9553. Teaching and Teacher Education. (3) Analysis of current research on teacher education including pre-service teacher education and professional development for practicing teachers. (Same as EDS 9553 and EDX 9553).

## Department of LEADERSHIP and FOUNDATIONS

#### Office: 245 Allen Hall

Professors Blendinger, Hare, and Xu;

Associate Professors Brocato, Coats, Davis, Prince, Stumpf, and Williams; Assistant Professors Boggan, King, and Wallin

#### EDUCATIONAL LEADERSHIP

EDA 8163. Public School Finance. (3) Three hours lecture. Legal and other factors governing financial policies and practices in public schools; sources of revenue; budgeting; disbursement of funds; school plant; records; insurance.

**EDA 8190.** Workshop in Educational Administration and Supervision. (1-3) This course is for practicing school administrators who need courses of varying length, format, and focus in areas not covered by the regular curriculum.

**EDA 8210.** Internship in Supervision and Administration. (1-3) Opportunity under direct supervision of regular university staff for practical experience in the major area of interest. May be repeated for credit.

EDA 8223. Seminar in Administration. (3) (Prerequisite: Administrative experience or graduate standing). Three hours lecture. Specialized study of selected problems in school administration; research.

**EDA 8273. Educational Administration and Supervision. (3)** (Prerequisite: Advanced graduate standing). Three hours lecture. Fundamentals of leading and managing at the central office executive level, e.g., assistant superintendent. Emphasis on policy development, curriculum and instruction, planning, operations, and public relations.

EDA 8283. Educational Leadership. (3) (Prerequisite: EDL 8113). Three hours lecture. Nature of educational leadership. The roles of leadership in staff and program development, diffusion of innovations, and the uses of power in making educational decisions.

EDA 8293. Professional Development of Educational Personnel. (3) (Prerequisite: EDL 8143). Three hours lecture. Collaborative approaches to processes of individual and group professional development for instructional and non-instructional personnel; ensuring, supporting, enhancing best practices for teaching, learning, school improvement.

EDA 8323. Educational Facilities Design. (3) Three hours lecture. Studies design issues in learning environments/facilities, examines contemporary design models, their impact on learning and uses this information in the design process.

**EDA 8353.** Applications of Theory to Educational Administration. (3) Three hours lecture. The nature of theory; types of educational administrative theories; uses of organizational and administrative theory in administrative problem solving; applications of general systems theories in education.

**EDA 8383. Ethical Decision Making in Educational Administration. (3)** (Prerequisites: EDA 8283 or HED 8123). Three hours lecture. Case studies are used to analyze educational decisions. Multiple decision models and ethical concepts are applied to problems and moral dilemmas.

#### EDUCATIONAL FOUNDATIONS

**EDF 3333. Social Foundations of Education.** (3) Three hours lecture. A study of the sociological, historical, political, legal, and philosophical bases of American education.

**EDF 3413. Writing for Thinking. (3)** (Prerequisites: Completion of EN 1103 and 1113 or equivalent with grade of C or better in each and junior standing). Designed to enhance participants' writing/thinking skills and to prepare participants to use writing as a learning process with groups they teach or lead.

**EDF 3423. Exploring Diversity Through Writing.** (3) (Prerequisite: Admission to Teacher Education). Three hours lecture. Using writing to explore issues of diversity in the classroom. Creating a learning community for diverse learners.

EDF 4243/6243. Planning for the Diversity of Learners. (3) Three hours lecture. A study of variables contributing to the creation and management of a positive learning environment for the complexity and diversity of middle and high school students.

**EDF 8323.** Comparative Education. (3) Three hours lecture. Contemporary educational movements in Denmark, France, Great Britain, India, Russia, and the United States; technical changes and their effects. Spring, summer semesters.

EDF 8353. Principles of Curriculum Development. (3) Three hours lecture. An examination of principles, problems, and practices influencing curriculum planning; relationships between elementary and secondary school curriculums; research in general curriculum problems.

**EDF 8363. Function and Methods of Research in Education. (3)** Three hours lecture. The function of research in the development and conduct of the educational program; research methods and techniques in education and the contributions of research to public education; rules and principles governing evidence and conclusions.

EDF 8383. Issues in Education. (3) Three hours lecture. A critical study of current issues in education.

EDF 8393. History of Education in the United States. (3) Three hours lecture. A history of the growth and development of education in the United States from earliest Colonial times to the present, including recent movements and trends.

EDF 8553. Research in the Classroom. (3) Three hours lecture. An examination of research methods used by teachers in the classroom setting.

EDF 9313. Philosophy of Education. (3) Three hours lecture. An examination of educational beliefs and their justification.

**EDF 9373. Educational Research Design. (3)** (Prerequisites: EDF 8363 and EPY 8214 or equivalents; consent of instructor). Three hours lecture. A study of various designs of research and preparation of research proposals.

**EDF 9443. Single-Subject Research Designs for Education. (3)** Three hours lecture. A detailed examination of single-subject research designs and their associated research methods including data collection and data evaluation techniques. (Same as EPY 9443)

**EDF 9453. Introduction to Qualitative Research in Education. (3)** (Prerequisites: EPY 8214, EDF 9373). Three hours lecture. Introduction to qualitative research, including theoretical considerations and applied methods, techniques, and analysis of field based educational research.

**EDF 9463.** Qualitative Data Collection in Education. (3) (Prerequisite: EDF 9453). Three hours lecture. An in-depth examination of interviewing and observation as two primary qualitative data sources in educational settings.

**EDF 9473.** Qualitative Data Analysis and Presentation in Education. (3) (Prerequisite: EDF 9463). Three hours lecture. Examination, application, and assessment of a range of approaches to analysis and presentation in the design of qualitative research studies in educational settings.

#### EDUCATIONAL LEADERSHIP

**EDL 8113. Contexts of Educational Leadership. (3)** Three hours lecture. Exploration of the educational leader's responses to historical, philosophical, sociocultural, democratic and educational contexts affecting leadership; school culture and climate; change processes for school improvement.

EDL 8123. Principles of Educational Leadership. (3) (Prerequisite: EDL 8113). Three hours lecture. Applying democratic processes to school governance and leadership; decision making; consensus building; empowerment; vision; mission; and school improvement.

**EDL 8143. Educational Leaders as Instructional Supervisors. (3)** Three hours lecture. Applying interpersonal and clinical skills, techniques and approaches in the observation, supervision, and empowerment of teachers and in the facilitation of teaching and learning environments.

**EDL 8163. Educational Budgeting and Resource Allocation. (3)** Three hours lecture. Administrative leadership for organization, management, allocation or resources to enhance and support teaching and learning; four modules: budgeting, facilities, personnel, student and family services.

**EDL 8173. Legal and Ethical Perspectives of Leadership in Schools. (3)** Three hours lecture. Examination of legal and ethical issues in educational leadership. Analysis of impact of laws and legal decisions on policy formation and decision implementation in education.

**EDL 8193. Educational Environments. (3)** (Prerequisites: EDL 8201 and EDL 8202). Three hours lecture. Capstone course of Master's/Specialist AA Certification program. Theories, roles, functions of leadership in educational environments; organizational structures; community and board relationships; policy; strategic planning.

EDL 8213. Internship I: Observation and Field Applications. (3) Interns experience designated observation, authentic application, and mentorship activities at educational sites under joint supervision of university and school-based leaders.

**EDL 8223. Internship II: Administrative Applications. (3)** Interns observe and apply techniques of administrative leadership in authentic educational situations under joint supervision of university and school-based staff at school sites.

**EDL 8233. Internship III: Instructional Applications. (3)** Focus on instructional leadership experiences; designated culminating internship activities at school sties; joint supervision by university staff and school-and/or district-based leadership.

## SECONDARY EDUCATION

#### Office: 310 Allen Hall

(For departmental information, see CURRICULUM, INSTRUCTION and SPECIAL EDUCATION.)

**EDS 3411.** Practicum in Secondary Education. (1) (Prerequisite: Admission to Teacher Education. Co-requisite: EPY 3143). One hour lecture. Field-based. An introduction to the organization and activities of middle and secondary schools.

EDS 3633. Secondary Mathematics Education. (3) (Prerequisite: Admission to Teacher Education). Three hours lecture. Examine the concepts and tools used to teach mathematics in the secondary classroom, connections between algebra and geometry concepts, and national and state mathematics standards.

**EDS 3643. Secondary Social Studies Education. (3)** (Prerequisite: Admission to Teacher Education) Three hours lecture. An introduction to the history, purposes, and current issues associated with middle and secondary social studies education.

**EDS 3653. Secondary Science Education. (3)** (Prerequisite: Admission to Teacher Education). Three hours lecture. Fundamentals of science education including the National Science Education Standards and NSTA recommendations required for teaching science in grades 7-12.

**EDS 3663. Secondary Foreign Language Education. (3)** (Prerequisite: Admission to Teacher Education). An introduction to the history, theoretical perspective, and issues in foreign language education.

**EDS 3673. Secondary Language Arts Education. (3)** (Prerequisite: Admission to Teacher Education) Three hours lecture. Essential knowledge, skills, and attitudes necessary for the successful teaching of the language arts.

EDS 4633/6633. Methods of Teaching Mathematics. (3) (Prerequisites: Admission to Teacher Education and EDS 3633). Three hours lecture. Field based. Aims and purposes of teaching mathematics in high school, curriculum problems, organization and presentation of subject matter, methods of teaching and evaluation.

**EDS 4643/6643. Methods of Teaching Social Studies. (3)** (Prerequisites: Admission to Teacher Education and EDS 3643). Three hours lecture. Field based. An examination of teaching methods and instructional materials and media appropriate for use in middle and secondary social studies classrooms.

EDS 4653/6653. Methods of Teaching Science. (3) (Prerequisites: Admission to Teacher Education and EDS 3653). Three hours lecture. Field based. Students will gain insight into the methods of teaching science in grades 7-12, including selection, organization, presentation and assessment by National Science Education Standards.

EDS 4673/6673. Methods of Teaching Language Arts. (3) (Prerequisites: Admission to Teacher Education and EDS 3673). Three hours lecture. Field based. Objectives of English/language arts; content, organization, methods of teaching language, literature, and composition. Designed primarily for secondary teachers of language arts.

**EDS 4683/6683. Methods in Foreign Language Teaching. (3)** (Prerequisite: Admission to Teacher Education and EDS 3663). An examination of the methodologies, instructional techniques, and methods of assessment to facilitate foreign language learning in the K-12 setting.

EDS 4873. Seminar in Managing the Secondary Classroom. (3) (Prerequisites: Admission to Teacher Education. Co-requisites: EDS 4886 and EDS 4896.) Three hours lecture. A seminar that addresses classroom management issues, theories and practices.

**EDS 4886,4896. Teaching Internship in Secondary Education. (6,6)** (Prerequisite: Admission to Teacher Education, minimum GPA of 2.5 overall and in major, and completion of all professional education courses with a C or better). Professional full-day public school teaching experience in two consecutive placements or one 16-week placement in diverse settings under direction of supervising teachers and university supervisor.

EDS 8103. Advanced Methodologies in Middle and Secondary Education. (3) (Prerequisite: TKT 1273 or equivalent). Three hours lecture. Using technology as instructional tools, evaluate software, consider ethical issues; design technology-based classrooms, mini-grants, and lesson modules aligned with curriculum standards.

EDS 8243. Advance Planning and Managing of Learning. (3) Three hours lecture. An advanced study of variables contributing to efficiency and competency in planning for teacher-learner activities and the creation and maintenance of positive learning environments.

EDS 8613. Middle and Secondary School Curriculum. (3) Three hours lecture. Principles of curriculum construction as they apply to the middle and secondary school and the various subject areas. Fall term.

**EDS 8623. Principles of Effective Instruction in Secondary Schools. (3)**. Three hours lecture. An examination of the theories, trends, best practices, issues, challenges, and complexities pertinent to teaching and learning in secondary schools.

EDS 8633. Problems of Secondary Education. (3) (Prerequisite: Master's degree or consent of instructor). Three hours lecture. Study of critical problems in secondary education. Spring term.

EDS 8643. Directed Reading in Secondary Education. (3) Intensive supervised readings in the field of secondary education.

**EDS 8653. Issues of Accountability in Schools. (3)**. (Prerequisite: EPY 3253 or EPY 6313 or permission of instructor). Three hours lecture. Study of the critical educational issues in school-based accountability. Particular attention will be given to the impact accountability has on student learning in the classroom.

EDS 8663. Improving Instruction in Secondary Schools. (3). Three hours lecture. An investigation into the application of classroom-based inquiry, exploration, and action research as means of improving teaching and learning in secondary schools.

EDS 8683. Dispositions and Reflective Practice In Teaching. (3). (Prerequisite: EDS 8623 or permission of instructor). Three hours lecture. Study of teaching behavior and reflexive practices as catalysts for instructional improvement.

EDS 8713. Curriculum Adjustments. (3) Three hours lecture. Adjusting the school curriculum to meet individual pupil differences.

**EDS 8886. Dimensions of Learning I. (3)** (Prerequisite: admission to MATS program. EDS 8243, EPY 6313, and EDS 6633 or EDS 6653 or EDS 6673 or other methods related course). Six hours clinical instruction. Supervised observation and directed teaching in respective field of endorsement.

EDS 8896. Dimensions of Learning II. (3) (Prerequisite: admission to MATS program. EDS 8243, EPY 6313, and EDS 6633 or EDS 6653 or EDS 6673 or other methods related course). Six hours clinical instruction. Supervised observation and directed teaching in respective field of endorsement.

EDS 9221. Professional Practice in Teacher Education. (1) One hour lecture. Students will examine potential careers for graduates with a doctorate in education and develop professional documents patient to their career paths. (Same as EDX 9221 and EDE 9221).

EDS 9413. Practicum in College Teaching. (3) Three hours practicum. Teaching of at least one course in education, under the supervision of a senior staff member. (Same as EDE 9413)

EDS 9553. Teaching and Teacher Education. (3) Analysis of current research on teacher education including pre-service teacher education and professional development for practicing teachers. (Same as EDE 9553 and EDX 9553).

**EDS 9603. Practicum in College Teaching of Secondary Education. (3)** Teaching of at least one course in education under the supervision of a senior staff member. Supervision of student teachers.

## SPECIAL EDUCATION

#### Office: 310 Allen Hall

#### (For departmental information, see CURRICULUM, INSTRUCTION and SPECIAL EDUCATION.)

EDX 3203. Introduction to Learning Disabilities. (3) Three hours lecture. Integrities for learning; receptive, associative, and expressive disorders; specific learning disabilities.

EDX 3213. Psychology and Education of Exceptional Children and Youth. (3) Three hours lecture. Introduction to exceptional children and youth who deviate from the average in physical, mental, emotional, and social characteristics. Program planning is surveyed.

**EDX 3223. Introduction to the Emotional/Behavioral Disorders. (3)** Three hours lecture and field trips. Survey to acquaint students with emotionally disturbed and behaviorally disordered children, giving an overview of the theoretical approaches in their education.

**EDX 3233.** Contingency Management with Exceptional Children (3) Three hours lecture. Competency-Based Instructional Sequence and field experience. A study of the components of contingency management with emphasis on application in the field with exceptional children.

EDX 4113/6113. Diagnostic-Prescriptive Methods and Materials for Early Childhood Disabled. (3) Admission to Teacher Education required. Three hours of lecture and laboratory work including assessment and individualized programming utilizing methods and materials for EMR and LD preschool and primary level children.

EDX 4123/6123. Diagnostic-Prescriptive Methods and Materials for Elementary Age Disabled. (3) Admission to Teacher Education required. Three hours of lecture and laboratory work including assessment and individualized programming utilizing methods and materials for EMR and LD elementary school-age children.

EDX 4133/6133. Diagnostic-Prescriptive Methods and Materials for Secondary Age Disabled. (3) Admission to Teacher Education required. Three hours of lecture and laboratory work including assessment and individualized programming utilizing methods and materials for EMR and LD secondary school-age children.

EDX 4353/6353. Assistive Technology in Special Education. (3) Admission to Teacher Education required. Three hours lecture. Application of adaptive technology with microcomputers in the education of students with special needs.

EDX 4413/6413.Working with Parents of Exceptional Children. (3) Admission to Teacher Education required. Three hours lecture. A study of the development, goals, and objectives of organized parent educational groups. A study of problems of parents of children who have disabilities.

EDX 4423. Teaching the Disadvantaged Child. (3) The study of the disadvantaged child in terms of theories, cultures, and techniques of teaching and exploration of curricular innovations.

EDX 4503/6503. Teaching the Severely and Profoundly Impaired Child. (3) Admission to Teacher Education required. Two hours lecture. One hour practicum. A survey of operational models and techniques to be implemented with the Severely/Profoundly Impaired; to include curriculum, methods and administrative educational adjustments.

EDX 4603/6603. Children and Youth with Physical/Multiple Disabilities. (3) Admission to Teacher Education required. Three hours lecture. Educational implications and adaptations of procedures in schools, homes, hospitals and special schools for children with orthopedic and/or neurological impairments. EDX 4613/6613. Teaching Children and Youth with Physical/Multiple Disabilities. (3) Admission to Teacher Education required. Three hours lecture. Methods and materials applicable to teaching children and youth with physical or multiple conditions which are the results of neurological or orthopedic impairments.

EDX 4623/6623. Curricular and Mobility Adaptations for Physical/ Multiple Disabilities. (3) Admission to Teacher Education required. Three hours lecture. The study of motor functions including range of motion, gait training, and other environmental adjustments that can be implemented by classroom teachers.

EDX 4873. Professional Seminar in Special Education. (3) A seminar dealing with legal, professional, administrative, and curriculum issues as they relate to special education in the schools.

**EDX 4886/4896. Teaching Internship in Special Education. (6,6)** (Prerequisite: Admission to Teacher Education, minimum GPA of 2.5 overall and in major, and completion of all professional education courses with a C or better). Professional full-day public school teaching experience in two consecutive 8-week placements in diverse settings and grade levels under direction of supervising teachers and university supervisor.

EDX 4953/6953. Introduction to Sign Language. (3) Development of basic sign language skills, study of special needs of deaf persons, and understanding use of interpreters. (Same as COE 4363/6363).

EDX 8103. Advanced Contingency Management. (3) Three hours lecture. This course is designed to utilize the principles and procedures of contingency management and applied behavioral analysis research to design, implement, and evaluate behaviorally oriented programs.

EDX 8123. Organization and Supervision of Special Education. (3) Three hours lecture. Organizational theory of special education. Leadership behavior and role of special education supervisor; grant writing.

EDX 8133. Readings and Research in Exceptional Education. (3) Three hours lecture. Emphasis on current literature in all areas of exceptionality. Understanding and interpretation of psychological diagnosis. Individual and group research.

EDX 8143. Early Education for the Disabled. (3) Three hours lecture. Rationale; characteristics; educational approaches; exemplary programs; research in the field.

EDX 8163. Teaching Strategies for the Gifted. (3) (Prerequisite: Consent of instructor). Teaching approaches, development of special problems, selection of materials, and remediation of problems related to learning.

EDX 8173. Special Education in the Regular Classroom. (3) Three hours lecture. Provides a greater understanding of the disabled child who may be in the regular classroom and suggests methods and techniques for teaching the disabled student in the regular classroom.

**EDX 8183. Seminar in Learning Disabilities. (3)** (Prerequisite: EDX 3203 or equivalent). Three hours lecture. An advanced course dealing with the condition of learning disabilities. Current research dealing with causes, treatments, and prevention strategies will be studied.

**EDX 8203. Practicum: Diagnosis of Special Education Populations. (3)** (Prerequisite: Approval of instructor). Hours and credits to be arranged. Practicum experience utilizing a multi disciplinary team approach to the diagnosis and educational planning for students suspected of being mildly, moderately, and multiply impaired.

**EDX 8213. Practicum: Remediation of Special Education Populations. (3)** One hour seminar, three hours practicum. Selection, utilization, and evaluation of specialized remedial materials and techniques with special education populations.

**EDX 8303. Seminar in Mental Retardation.** (3) (Prerequisite: EDX 8103). Three hours lecture. An advanced course dealing with the condition of mental retardation. Educational implication and research involving those classified as mentally retarded.

**EDX 8393. Seminar in Education for the Emotionally Disabled. (3)** (Prerequisite: EDX 8403.) Three hours lecture. A comprehensive study of contributing factors in emotional disturbance and the educational technology of the treatment of emotionally handicapped children.

EDX 8403. Teaching the Emotionally Disabled. (3) Three hours lecture and practicum. The curriculum, methods, and principles and problems of working with the emotionally disabled.

**EDX 8780.** Internship in Special Education. (3-6) Three hours practicum. Supervised observation, participation, and teaching of exceptional children in classrooms and resource rooms. Supervised experiences in community, state departments, supervisory positions.

EDX 9221. Professional Practice in Teacher Education. (1) One hour lecture. Students will examine potential careers for graduates with a doctorate in education and develop professional documents patient to their career paths. (Same as EDE 9221 and EDS 9221).

EDX 9413. Practicum in College Teaching in Special Education. (3) Three hours practicum. Supervised experience in design, delivery, and evaluation of a college course in special education.

EDX 9553. Teaching and Teacher Education. (3) Analysis of current research on teacher education including pre-service teacher education and professional development for practicing teachers. (Same as EDE 9553 and EDS 9553).

## **ENGINEERING GRAPHICS**

#### Office: 260 McCain Engineering Building

EG 1142. Engineering Graphics. (2) Two hours lecture. One hour demonstration. Presentation of sketching techniques, lettering and computer aided drafting with traditional engineering drawing topics, including orthographic projection, engineering documentation, auxiliary views, and working drawings.

EG 1143. Graphic Communication. (3) One hour lecture. Five hours laboratory. Orthographic projection, instrumental drawing, point, line, plane identities, first and second auxiliaries, computer assisted design and drafting using personal computers.

EG 1443. Technology Graphics. (3) (Prerequisite: EG 1143.) Two hours lecture. Two hours laboratory. The use of drawings to communicate ideas of manufacturing and maintenance in machining, electricity/electronics, welding, and hydraulics/pneumatics.

EG 1513. Architectural Graphics. (3) One hour lecture. Five hours laboratory. Survey of various drawing systems. Practical exercises in orthographic multiview projection, isometric, oblique and perspective drawing systems, with emphasis on lettering, reflections and cast shadows.

EG 2513. Construction Drawing. (3) (Prerequisite: EG 1143 or EG 1513). One hour lecture. Five hours laboratory. Survey of building and construction industries; materials and types of construction; specifications; use of architectural graphic standards and minimum construction requirements; construction details; drawings; lettering.

EG 3113. CATIA Solid Modeling. (3) Three hours lecture. Design, assembly, and finite element analysis utilizing CATIA, a state-of-the-art 3-D solid modeling package.

## **ENGINEERING MECHANICS**

#### Office: 330 Walker Engineering

Engineering Mechanics is one of the basic engineering sciences. Faculty in Aerospace Engineering, Civil and Environmental Engineering, and Mechanical Engineering teach courses in Engineering Mechanics. The Aerospace Engineering Department manages the Engineering Mechanics offerings.

**EM 2413. Engineering Mechanics I. (3)** (Prerequisites: Grade of C or better in MA 1723 and PH 2213). Three hours lecture. Concepts of forces, moments and other vector quantities; analysis of force systems; conditions of equilibrium; friction; centroids and moments of inertia.

**EM 2433. Engineering Mechanics II. (3)** (Prerequisites: Grade of C or better in EM 2413 and MA 2733). Three hours lecture. Kinematics of particles and rigid bodies, kinetics of particles and rigid bodies using force-mass-acceleration, energy, momentum methods.

**EM 3213.** Mechanics of Materials. (3) (Prerequisite: Grade of C or better in EM 2413 and MA 2733). Three hours lecture. Free body diagrams, equilibrium of simple structures; shear and bending moment diagrams; analysis of stress and strain; deflections of beams.

**EM 3313. Fluid Mechanics. (3)** (Prerequisite: Grade of C or better in EM 2413 and MA 2733). Three hours lecture. Fluid statics; analysis of fluid motion using the continuity, momentum and energy relationships; introduction to viscous flows.

**EM 3413. Vibrations. (3)** (Prerequisites: Grade of C or better in EM 2433, MA 3113 and MA 3253). Three hours lecture. Fundamentals of free vibration, energy methods; forced and damped vibration, single degree of freedom; two degrees of freedom.

EM 4123/6123. An Introduction to the Finite Element Method. (3) (Prerequisite: Consent of instructor). Three hours lecture. Introduction to the finite element theory and formulation; use of existing computer programs, with applications to the area of mechanics.

**EM 4133/6133. Mechanics of Composite Materials. (3)** (Prerequisites: EM 3213 and MA 3253.) Three hours lecture. Stress, strain, constituative relations for anisotropic material, lamina properties, laminate properties, composite beams and plates.

EM 4143/6143. Engineering Design Optimization. (3) (Prerequisite: Consent of instructor). Three hours lecture. Introduction to optimality criteria and optimization techniques for solving constrained or unconstrained optimization problems. Sensitivity analysis and approximation. Computer application in optimization. Introduction in MDO. (Same as ASE 4553/6553 and IE 4743/6743).

**EM 4213/6213. Advanced Mechanics of Materials. (3)** (Prerequisite: EM 3213). Three hours lecture. Stress, strain, stress-strain relationships, strain energy, failure theories, curved beams, unsymmetrical bending, shear center, torsion of noncircular sections, energy principles, Castigliano's theorem, inelastic behavior.

**EM 8113. Theory of Continuous Media. (3)** (Prerequisite: MA 3353 or consent of the instructor). Three hours lecture. An introduction to the general theory of continuous media and its application to the theories of elasticity and fluid mechanics.

**EM 8203. Applied Elasticity. (3)** Three hours lecture. Analysis of stress and strain; stress-strain relations; bending and torsion of beams; stress functions; strain energy.

**EM 8213. Fracture Mechanics. (3)** (Prerequisite: EM 3213 or consent of instructor). Three hours lecture. History of fracture and development of fracture mechanics principles. Linear elastic and elastic-plastic stress analysis of cracked bodies. ASTM standards and applications.

**EM 8313. Advanced Dynamics. (3)** (Prerequisites: EM 2433 and MA 3253). Three hours lecture. Fundamental considerations, Hamilton's principle, Lagrange's equations, rigid body dynamics.

**EM 8323.** Advanced Vibrations. (3) (Prerequisite: EM 3413). Three hours lecture. Oscillatory systems, matrix formulation by Lagrange's equations, natural modes of discrete and continuous systems, approximate methods, modal analysis.

## Department of ENGLISH

#### Office: 316 Lee Hall

Professors Creevy, Lyons, Myers, and Raymond (Head); Associate Professors Anderson, Bentley, Dodds, Hagenston, Hanshaw, Johnson, Little, Marsh, and West; Assistant Professors Atkinson, Claggett, DeGabriele, Fogle, Herd, Kardos, O'Donnell, O'Neill, Pierce, Pizer, Shaffer, and Spain; Instructors Bogard, Campbell, Gilmer, Leonard, Price, Sanders, Sheperis, Sneed, Spurlock, White, and Whitten

NOTE: Entering freshmen may enter honors or special sections of first-semester composition depending on standard and other tests. Students with ACT scores in English from 16 or below take EN 0103, from 17 to 28 take EN 1103, and of 29 and above take EN 1163 or EN 1103H (honors). International students of non-English background will be placed in composition sections appropriate to their needs as determined by TOEFL scores.

**EN 0003. Developmental English. (3)** Emphasizes the use of standard American English. Offered only to students required to enroll in developmental studies; prerequisite to any English courses applicable to requirements.

**EN 0103. Basic English. (3)** (Prerequisite: A score of 15 to 18 on the English section of the ACT). Three hours lecture. A study of grammar and mechanics as basic to composition, with emphasis on the sentence and the paragraph. Does not count toward any degree.

**EN 1103. English Composition I. (3)** (Prerequisite: A score of 19 or above on the English section of the ACT or EN 1003). Three hours lecture. A study of logical and rhetorical principles and organizational strategies that contribute to effective writing. 1103H. Honors section open through invitation only. The analytical study and frequent practice of interdisciplinary writing coupled with the analytical study of major literary genres - fiction, poetry, and drama.

**EN 1111. English Studies. (1)** One hour lecture. Introduction to English Studies: a survey of the profession, including disciplinary assumptions, research processes, sub-fields, and career opportunities.

**EN 1113. English Composition II. (3)** (Prerequisite: EN 1103, 1163, or 1183). Three hours lecture. An expanded study of and practice in stylistics, logic, and research as contributions to analytical writing. 1113H. Honors section open through invitation only. Continuation of EN 1103H.

**EN 1163. Accelerated Composition I. (3)** (Prerequisite: A score of 29 or above on the English section of the ACT or consent of the instructor). Three hours lecture. An expanded study of and practice in stylistics, logic, and research as contributions to expository writing, designed for students who exhibit command of basic rhetorical principles.

EN 1173. Accelerated Composition II. (3) (Prerequisite: EN 1163 or an ACT sub-score in English of 28 or higher). Three hours lecture. An expanded study of and practice in stylistics, logic, and research as contributions to analytical writing, with emphasis on extensive study of diverse rhetorical models.

**EN 2203. Introduction to Literature. (3)** (Prerequisite: Completion of freshman composition). (Not open to English majors or honors students who complete accelerated or honors composition). Three hours lecture. The critical and appreciative study of masterpieces in various genres chosen from English and world literature.

**EN 2213. English Literature Before 1800.** (3) (Prerequisite: Completion of freshman composition). Three hours lecture. A survey of English literature from the Medieval to the Neo-classical periods, including works by Shakespeare, Milton and Pope.

**EN 2223. English Literature After 1800. (3)** (Prerequisite: Completion of freshman composition). Three hours lecture. A Survey of English Literature including the Romantic, Victorian, and Modernist periods.

**EN 2243. American Literature Before 1865.** (3) (Prerequisite: Completion of freshman composition). Three hours lecture. A survey of American literature and culture, including letters, sermons, essays, fiction and poetry, from the fifteenth century through the antebellum period's "American Renaissance."

EN 2253. American Literature After 1865. (3) (Prerequisite: Completion of freshman composition). Three hours lecture. A survey of representative authors,

texts, and periods that demonstrate the richness and diversity of American literature and culture after 1865.

**EN 2273. World Literature Before 1600. (3)** (Prerequisite: Completion of freshman composition). Three hours lecture. Selected writings from ancient times to 1600 in translation.

**EN 2283. World Literature After 1600.** (3) (Prerequisite: Completion of freshman composition). Three hours lecture. Selected works since 1600, excluding literature of the U.S., Britain, and Ireland.

**EN 2434. Literature and Film. (4)** (Prerequisite: Completion of English composition requirements). Three hours lecture. One laboratory. Introduction to literary and cinematic techniques, methods of analysis, and structures.

**EN 2443. Introduction to Science Fiction. (3)** (Prerequisite: Completion of English requirements of the student's major field). Three hours lecture. A study of major science fiction writers of the past two centuries, with emphasis on human experience in a technological society.

**EN 2503. Teaching Grammar. (3)** (Pre- or Co-requisite: EN 1113) Three hour lecture. The study of English grammar and the strategies used to teach grammar in modern classrooms.

**EN 3303. Creative Writing. (3)** (Prerequisite: Completion of freshman composition). Three hours lecture. Basic techniques in writing fiction and poetry; meter and rhyme, metaphor and image, plot, characterization, dramatic detail.

**EN 3313. Writing for the Workplace. (3)** (Prerequisite: EN 1113 or equivalent). Three hours lecture. Advanced writing course focused on communication in the workplace, including correspondence, technical descriptions, instruction writing, proposals, and recommendation reports.

**EN 3414.** Critical Writing and Research in Literary Studies. (4) (Prerequisite: Twelve hours of English). Four hours lecture. An introduction to the application of critical theories and research methods in writing about literature, for English and English Education majors.

**EN 3423. Descriptive English Grammar. (3)** (Prerequisite: Twelve hours of English). Three hours lecture. Advanced course in English grammar.

EN 3513. Women and Literature: Selected Topics. (3) (Prerequisites: Completion of EN 1103). Three hours lecture. A study of literary works by or about women. Texts are selected according to theme, genre, and/or historical period. (Same as GS 3513).

**EN 3523.** Shakespeare and Film. (3) (Prerequisites: EN 1103 and EN 1113 or equivalent) Three hours lecture. This course offers a focused study of Shakespeare on page and screen. Specific plays and film adaptations are selected by the instructor.

**EN 3533. Selected Authors. (3)** (Prerequisites: EN 1103 and EN 1113 or their equivalent). Three hours lecture. This course offers a focused study of the major works by selected authors. Authors and texts are selected by the instructor. (May be repeated for credit).

**EN 3903.** Intermediate Fiction Writing. (3) (Prerequisite: EN 3303). Three hours lecture. An intermediate course in the craft and art of fiction writing, focusing on techniques such as setting, dialogue, and characterization.

**EN 4111. Portfolios and Reflective Writing.** (1) (Prerequisite: Senior standing). One hour lecture. The study and practice of writing application letters/resumes and preparing academic portfolios.

**EN 4223/6223.** Principles of Legal Writing. (3) (Prerequisites: EN 1103 and EN 1113 or equivalents and junior standing, or consent of instructor). Three hours lecture. Introduction to prose of the legal profession, emphasizing rhetorical strategy and style. Advanced composition, including work with contracts, letters, regulations, memoranda of law, and briefs.

EN 4233/6233. Composition Pedagogy. (3) (Prerequisite: EN 1113 or consent of instructor). Three hours lecture. Introduction to practices and debates in college composition pedagogies. Develops practical strategies for instruction in composition; introduces historical and theoretical scholarship in rhetoric and composition.

**EN 4243/6243. Writing Center Tutor Training. (3)** (Prerequisite: Grade of B or better in EN 1113 and consent of instructor). Three hours lecture. Introduction to the practices and theories of college writing consultation in Writing Centers.

EN 4303/6303. Craft of Poetry. (3) (Prerequisite: EN 3303 or consent of instructor). Three hours lecture. The craft and practice of writing poetry.

**EN 4313/6313. Craft of Fiction. (3)** (Prerequisite: EN 3903 or consent of instructor). Three hours lecture. The craft and practice of writing fiction.

**EN 4323/6323. Literary Criticism from Plato to the Present. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A survey of literary criticism from Plato to the present.

**EN 4333/6333. Southern Literature. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A survey of southern literature from the antebellum period to the "post southern" present. Features selected works representing the diverse literary heritage of the U.S. South

**EN 4343/6343.** African American Literature. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of African American literature, especially that of the Twentieth Century. (Same as AAS 4343.)

EN 4353/6353. Critical Theory Since 1900. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of major twentieth-century strategies of interpretation, including psychoanalysis, Marxism, structuralism, feminism, deconstruction.

**EN 4403/6403. Introduction to Linguistics. (3)** (Prerequisite: Twelve hours of English). Three hours lecture. The descriptive and historical study of language; linguistic analysis and comparisons; language classification; language in its social and cultural setting. (Same as AN 4403/6403).

**EN 4413/6413. History of the English Language. (3)** (Prerequisite: Twelve hours of English). Three hours lecture. The origin and development of the English language; past and ongoing changes in sounds and structure; influence of social history on language variation and change.

EN 4433/6433. Approaches to TESOL. (3) (Prerequisite: EN 4403 or EN 3423 or consent of instructor). Three hours lecture. Methodology of Teaching English as a Second Language, with emphasis upon theory of second language acquisition, teaching techniques, and evaluation of relevant textbooks.

**EN 4443/6443. English Syntax. (3)** Three hours lecture. Grammatical analysis of English with emphasis on pedagogical applications to teaching English as a foreign/second language.

**EN 4453/6453 Methods in TESOL. (3)** (Prerequisite: EN 4403/6403 or permission of instructor). This course covers the various practical pedagogical approaches common in TESOL including methods for teaching reading, listening, speaking, and writing as well as communicative approaches.

**EN 4463/6463. Studies in Second Language Acquisition. (3)** (Prerequisite: EN 4403/6403 or consent of instructor). Three hours lecture. A survey of the major theories of language acquisition, concentrating on accounts of second language acquisition.

**EN 4493/6493. TESOL Practicum. (3)** (Prerequisite: EN 4403/6403) Three hours practicum. A pedagogical practice class that focuses on the practical application of TESOL approaches, methods, and techniques.

**EN 4503/6503. Shakespeare. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Shakespeare's plays through 1599.

**EN 4513/6513. Shakespeare. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Shakespeare's plays from 1600.

**EN 4523/6523. Chaucer. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Studies in the major works of Chaucer. Readings in Middle English.

EN 4533/6533. Milton. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. The principal writings of Milton, including all of PARADISE LOST and PARADISE REGAINED, and some of the chief prose works.

**EN 4623/6623. Language and Culture. (3)** (Prerequisite: EN 4403/6403 or consent of instructor). Three hours lecture. Examination of language as a part of culture, a source of knowledge about other aspects of culture, and a social behavior. (Same as AN 4623/6623 and SO 4623/6623).

EN 4633/6633. Sociolinguistics. (3) (Prerequisites: EN 4403 or consent of instructor). Three hours lecture. Examination of relationship between language and society. How language varies regionally and socially; people's use of and attitudes toward different ways of speaking. (Same as AN 4633/6633 and SO 4633/6633).

**EN 4643/6643. The Eighteenth-Century British Novel. (3)** (Prerequisite: Completion of twelve hours of English). Three hours lecture. A study of the early cultural and critical history of the novel, focusing on the novelists who invented and refined the form.

**EN 4653/6653. The Nineteenth-Century British Novel. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of major nineteenth-century British novelists

EN 4663/6663. British and Irish Novel Since 1900. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of British and Irish novelists from Conrad and Woolf to Rushdie and Byatt, as well as literary movements including modernism, postmodernism, and postcolonialism.

**EN 4703/6703. English Literature of the Sixteenth Century. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Study of the development of the English literary tradition, including works by Wyatt, Sidney, Spenser, Marlowe and others in their cultural and historical contexts.

**EN 4713/6713. English Literature of the Seventeenth Century. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Study of major works of poetry, prose, and drama, including works by Donne, Jonson, Wroth and others in their literary, cultural, and historical contexts.

**EN 4723/6723. British Literature and Culture from 1600-1700. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. An exploration of the literature and culture of the Restoration and late seventeenth century. Covers a variety of genres.

EN 4733/6733. British Literature and Culture of the Eighteenth Century. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. An exploration of important literary, political and cultural phenomena from the British eighteenth century.

**EN 4803/6803. Types of Drama Since 1900. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. The development of modern American, British, and Continental drama since Ibsen.

EN 4813/6813. The World Novel Since 1900. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Major world novelists of the Twentieth Century, excluding British, Irish, and American.

**EN 4823/6823. Poetry Since 1900. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Chief American and British poets; their verse technique and their contribution to poetic art.

EN 4833/6833. The American Short Story. (3) (Prerequisite: completion of English requirements in the student's major) Three hours lecture. A study of the American short story from Washington Irving to the present, as well as relevant literary movements.

EN 4863/6863. The Romantic Poets and Prose Writers. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. An intensive study of the major Romantic poets— Wordsworth, Shelley, Keats, Byron, Coleridge—along with some of the non-fiction prose of the period.

EN 4883/6883. Victorian Poets and Prose Writers. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Intensive study of Tennyson, Browning, Arnold, Swinburne, and other Victorian poets, along with some of the non-fiction prose of the period.

**EN 4903/6903. American Literature: 1800-1860. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Studies in Irving, Cooper, Poe, Hawthorne, the Transcendentalists, and Southern Humorists. This course cannot be taken before EN 2243.

EN 4913/6913. American Literature: 1860-1900. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Studies in Twain, Whitman, Dickinson, James, Crane, and others. This course cannot be taken before EN 2253.

**EN 4923/6923.** American Novel Since 1900. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of the American novel since Dreiser.

**EN 4933/6933. Survey of Contemporary Literature. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Significant trends in European and American literature since the outbreak of World War II.

**EN 4943/6943. Form and Theory of Fiction. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Theoretical aspects of fictional technique, genre, style; readings include novels, short stories, and writings about the craft of fiction. Recommended complement to creative writing courses.

**EN 4953/6953. Form and Theory of Poetry. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Poetic theory; formal conventions, techniques, and innovations in the tradition of English and American poetry. Recommended complement to creative writing courses.

EN 6013. Internship in Compositional Theory and the Teaching of College Writing. (3) (Prerequisite: Acceptance as a teaching assistant in the Department of English). Three hours lecture. Compositional theory in relation to teaching and evaluating traditional modes of writing, coordinated with at least twenty hours per week of supervised professional experience.

**EN 8103. Graduate Research in English. (3)** Three hours lecture. A required introduction to fields of study and to scholarly research and writing in English language and literature.

EN 8333. Studies in Southern Literature. (3) Three hours lecture. Studies in the literature of the U.S. South.

EN 8513. Studies in English Literature to 1485. (3)

EN 8523. Studies in English Literature 1485-1660. (3)

EN 8533. Studies in English Literature 1660-1832. (3)

EN 8543. Studies in English Literature 1832-1900. (3)

EN 8553. Studies in American Literature to the Civil War. (3)

EN 8563. Studies in American Literature from Civil War-1914. (3)

EN 8573. Studies in Literature since 1900. (3)

EN 8583. Selected Topics in Language and Literature. (3)

**EN 8593. Studies in Post-Colonial Literatures. (3)** Three hours lecture. Studies in the literatures of the English-speaking world, excluding Great Britain and the United States.

## **ENVIRONMENTAL SCIENCE**

Office: 117 Dorman Hall

#### Professor Massey

**ENS 2103. Introduction to Environmental Science. (3)** Three hours lecture. A survey course to acquaint the beginning students with the various issues and disciplinary contributions regarding environmental science.

**ENS 4102. Practicum. (2)** (Prerequisite: Permission of ENS advisor). A directed field experience of an assigned environmental problem and an associated weekly seminar.

## EXERCISE PHYSIOLOGY

#### (For departmental information, see KINESIOLOGY)

**EP 2013.** Introduction to Exercise Science. (3) Three hours lecture. The course introduces the history of exercise science and examines the academic disciplines and professions comprising exercise science and kinesiology.

**EP 3183. Exercise Psychology. (3)** Three hours lecture. Contemporary psychological research and theory as related to human behavior and health in an exercising setting.

**EP 3233.** Anatomical Kinesiology. (3) Three hours lecture. A functional account of body structure, analysis of human movement and related injury mechanisms.

**EP 3304. Exercise Physiology. (4)** (Prerequisite: BIO 1004 or BIO 3014 and CH 1043 or CH 1213). Three hours lecture. Two hours laboratory. Examines physiological systems central to exercise performance, interrelationships of those systems during exercise, and adaptations of the human body during both acute and chronic exercise.

**EP 3613. Exercise Electrocardiography. (3)** (Prerequisite: BIO 1004 or BIO 3014). Three hours lecture. Basic and intermediate electrocardiography including cardiac function, lead systems, rate, rhythm, axis, infarction, ischemia, hypertrophy and effects of cardiovascular drugs and exercise on ECG.

**EP 3643.** Applied Anatomy and Pathophysiology. (3) (Prerequisites: BIO 1004 or BIO 3004). Three hours lecture. Anatomical foundation of the human body with related pathophysiology of the cardiovascular, peripheral and central nervous system, and musculoskeletal disease states.

**EP 3663. Personal Fitness Training. (3)** (Prerequisites: EP 3183, EP 3304). Two hours lecture. Two hours laboratory. Fundamentals of personal training including skill development in leading others to become physically active and developing a lifestyle conducive to good health.

**EP 4113/6113. Fitness Programs and Testing Procedures. (3)** (Prerequisite: EP 3304). Two hours lecture. Two hours laboratory. Provides study of and practice in conducting adult fitness programs and fitness testing procedures.

**EP 4123.** Aging and Physical Activity. (3) (Prerequisites: EP 3304). Three hours lecture. The effects of normative aging processes on homeostatic mechanisms and how these changes relate to exercise and sport performance in later life.

**EP 4133. Exercise Programs for Clinical Populations. (3)** (Prerequisite: EP 3304). Three hours lecture. This course describes the methods of prescribing exercise programs for individuals with special medical conditions.

**EP 4143. Aging and Disability. (3)** (Prerequisites: EP 4123). Three hours lecture. An examination of the disablement process, chronic diseases, and aging. Issues and implications of disablement are discussed.

**EP 4153/6153. Training Techniques for Exercise and Sport. (3)** (Prerequisite: PE 3304). Three hours lecture. Training techniques used for exercise and sport and their acute and chronic effects.

**EP 4183. Exercise and Weight Control. (3)** (Prerequisite: PE 3304). Two hours lecture. Two hours laboratory. The course describes the relationship between physical activity and nutrition for the maintenance of ideal body weight and optimal health throughout life.

**EP 4210. Health Fitness Studies Internship. (3,6)** (Prerequisite: EP 3233, EP 3663, EP 4113, EP 4153, EP 4183, and final semester senior status). Hours and credits to be arranged. A supervised observation and teaching experience in a fitness/health enhancement facility.

EP 4503. Mechanical Analysis of Movement. (3) (Prerequisite: EP 3233). Three hours of lecture. Overview of biomechanical principles and applications to the musculoskeletal system with an emphasis on the clinical setting for the treatment and rehabilitation of orthopedic injuries.

**EP 4603.** Physical Activity Epidemiology. (3) (Prerequisites: EP 3304). Three hours lecture. Biological mechanisms and behavioral determinants for healthy adaptation to physical activity forms.

**EP 4703. Neural Control of Human Movement. (3)** (BIO 1004 or BIO 3014; EP 3643). Three hours lecture. Overview of the neural processes associated with human movement with the major focus being the mechanistic control of coordinated movement.

**EP 4802.** Professional Seminar in Exercise Science. (2) (Senior standing and concurrent enrollment in the internship course). Two hours lecture. A seminar dealing with issues as they relate to the professional practice requirements.

**EP 4810.** Clinical Exercise Physiology Internship. (3,6) (Prerequisite: KI 2603, EP 3613, EP 3304, EP 4113, EP 4133, EP 4603, EP 4643, and final semester senior status). A supervised observation and teaching experience in a clinical exercise physiology setting.

**EP 8243. Cardiorespiratory Exercise Physiology. (3)** (Prerequisites: EP 3304 or equivalent). Three hours lecture. Advanced principles of cardiovascular and respiratory physiology, with special emphasis on the physiological responses of these systems to acute and chronic exercise.

**EP 8253. Doping and Supplement Use in Sports. (3)** (Prerequisites: EP 3304 or equivalent, or consent of instructor). Three hours lecture. Examination of the pharmacological and nutritional agents used to enhance muscular development and athletic performance. Examination of commonly abused recreational drugs.

**EP 8263. Exercise Biochemistry. (3)** (Prerequisite: EP 3304). Three hours lecture. An advanced review of exercise metabolism with special emphasis on aerobic processes during muscular effort.

**EP 8273. Laboratory Instrumentation. (3)** (Prerequisite: EP 3304). Six hours laboratory. A course in the function, calibration and operation of exercise physiology laboratory instruments.

**EP 8283.** Environmental Exercise Physiology. (3) (Prerequisite: EP 3304). Three hours lecture. Advanced principles and applications in exercise physiology including responses to acute exercise and chronic training in the heat, cold, and at high and low pressures.

**EP 8323. Science and Practice in Cardiopulmonary Rehabilitation. (3)** Three hours lecture. An examination of concepts, design, and implementation of cardiopulmonary rehabilitation programs that focuses on disease treatment and management, patient education, and lifestyle modification.

**EP 8423. Graded Exercise Testing. (3)** (Prerequisite: EP 3304). Two hours lecture. Two hours laboratory. Methods of supervising graded exercise testing, including interpretation of basic electrocardiography.

**EP 8433.** Psychological Aspects of Exercise. (3) (Prerequisite: EP 3183 or equivalent) Three hours lecture. Overview of exercise psychology with the major focus of the affective responses to exercise in both acute and chronic exercise settings.

**EP 8443. Neuromuscular Mechanisms in Exercise. (3)** (Prerequisite: EP 3304 or equivalent) Three hours lecture. Overview of the neural processes associated with movement with the major focus being the adaptation of the human muscular system to exercise.

**EP 8453. Biomechanics of Human Movement. (3)** (Prerequisite: EP 3233 or equivalent) Three hours lecture. Overview of biomechanical principles/laws and their application to human movements (sport techniques and daily activities).

## ENTOMOLOGY and PLANT PATHOLOGY

#### Office: 103 Clay Lyle Entomology Complex 206 Dorman Hall (Plant Pathology)

Professors Willard (Head), Baker, Baird, Brown, Caprio, Chambers, and Schneider; Associate Professors Goddard, Lawrence, Lu, Musser and Sabanadzovic; Assistant Professors Krishnan and Riggins

**EPP 2213. Introduction to Insects. (3)** Two hours lecture. Two hours laboratory. Introduction to structure, function, ecology, taxonomy and evolution of the largest and most diverse group of organisms and how they impact humans and their environment.

**EPP 3124. Forest Pest Management. (4)** Three hours lecture. Three hours laboratory. Study of the biology, damage, survey techniques, and control of forest diseases and insects. Pest management in southern forests will be emphasized.

**EPP 3423. Ornamental and Turfgrass Insects. (3)** Two hours lecture. Two hours lab. Study of the life history, damage, economic importance and control strategies of pests on ornamental plants and turfgrass.

**EPP 4113/6113. Principles of Plant Pathology. (3)** (Prerequisite: BIO 1203 or consent of instructor). Two hours lecture. Three hours laboratory. Acquiring a general knowledge of the principles of plant pathology through a study of selected plant diseases of economic importance for Mississippi.

**EPP 4152/6152. Advanced Fungal Taxonomy - Fungi Imperfecti. (2)** (Prerequisite: Consent of instructor). One hour lecture. Two hours laboratory. Methods and practice in identification of taxon-fungi imperfecti in different ecosystems. Includes conventional macroscopic and microscopic techniques for identification compared with molecular methods.

**EPP 4154/6154. General Entomology. (4)** Two hours lecture. Four hours laboratory. Fall semester. Biology of insects including morphology, physiology, development, ecology and emphasis on classification of orders and common families.

EPP 4162/6162. Advanced Fungal Taxonomy - Ascomycetes. (2). (Prerequisite: Consent of instructor). One hour lecture. Two hours laboratory. Methods and practice in identification of taxon-ascomycetes in different ecosystems. Includes conventional macroscopic and microscopic techniques for identification compared with molecular methods.

**EPP 4163/6163. Plant Disease Management. (3)** (Prerequisite: EPP 4113/6113). Two hours lecture. Three hours laboratory. Techniques and fundamentals of plant disease management. Disease dynamics related to management, avoidance, exclusion, eradication of pathogens; principles of plant protection, spraying techniques; biological control.

**EPP 4164/6164. Insect Taxonomy. (4)** (Prerequisite: EPP 4154). Two hours lecture. Six hours laboratory. Spring semester. Advanced study of insect classification.

EPP 4172/6172. Advanced Fungal Taxonomy - Fleshy Basidiomycetes. (2) (Prerequisite: Consent of instructor). One hour lecture. Two hours laboratory. Methods and practice in identification of taxon-basidiomycetes in different ecosystems. Includes conventional macroscopic and microscopic techniques for identification compared with molecular methods. **EPP 4173/6173. Medical and Veterinary Entomology. (3).** (Prerequisites: EPP 4154 or consent of instructor). Two hours lecture. Two hours laboratory. Essentials of the biology, disease relationships surveillance, and control of arthropods parasitic on humans and animals in the context of clinical and preventive medicine.

EPP 4182/6182. Advanced Fungal Taxonomy-Oomycetes and Zygomycetes. (2) (Prerequisite: Consent of instructor). One hour lecture. Two hours laboratory. Methods and practice in identification of taxon-oomycetes and zygomycetes in different ecosystems. Includes conventional macroscopic and microscopic techniques for identification compared with molecular methods.

**EPP 4214/6214. Diseases of Crops. (4)** (Prerequisite: EPP 4113/6113 or 3124). Three hours lecture. Two hours laboratory. Fundamentals and practical aspects of identification and control of selected diseases of crop plants grown in the southern U.S.

**EPP 4234/6234. Field Crop Insects. (4)** (Prerequisite: EPP 2213 or 4154). Three hours lecture. Two hours laboratory. Fall semester. Recognition, biology, distribution, damage, economic importance and methods of control of insect pests of agronomic and horticultural crops.

**EPP 4244/6244. Aquatic Entomology. (4)** (Prerequisite: EPP 4154 or instructors approval). Three hours lecture. Two hours laboratory. Study of basic biological and ecological principles important to aquatic insects and related arthropods, including life histories, evolutionary adaptations, community and species and identification.

EPP 4263/6263. Principles of Insect Pest Management. (3) Two hours lecture. Two hours laboratory. Discussion of pest management concepts, insect control methods, sampling, and pest management systems. Laboratory involves sampling, calibration, and other exercises related to pest management.

**EPP 4335/6335. Anatomy and Physiology of Insects. (5)** (Prerequisite: EPP 4154). Four hours lecture. Three hours laboratory. Spring semester. Introduction to the basic principles of structure and function of insect organ systems from a comparative and evolutionary viewpoint. (Same as PHY 6335).

**EPP 4523/6523. Turfgrass Diseases. (3)** (Prerequisite: EPP 4113/6113 or 3124). Two hours lecture. Three hours laboratory. Study of the life cycle, damage, economic importance and control strategies of disease turfgrass.

**EPP 4543/6543. Toxicology and Insecticide Chemistry. (3)** (Prerequisite: Organic Chemistry). Two hours lecture. Two hours laboratory. Spring semester. Chemistry, toxicity and mode of action of major groups of insecticides. Laboratory; bioassay methods, insecticide interactions, calculations.

**EPP 8111-8121. Seminar.** (1) One hour. Consideration of recent advances and problems in Entomology and Plant Pathology; student participation, general discussion.

**EPP 8113. Plant Nematology. (3)** (Prerequisite: EPP 4113/6113). Two hours lecture. Three hours laboratory. Basic morphology, taxonomy, and nomenclature; discussion of plant pathogenic general, symptomatology, methods of isolation, control methods, and interrelationship of nematodes to other plant pathogens.

**EPP 8123. Plant Virology**. (Prerequisite: EPP 4113/6113 or consent of instructor). Two hours lecture. Three hours laboratory. Morphology and structure of infectious entity; characteristics of plant virus groups including symptomatology, transmission, vectors, etc. Methods of assay and purification.

**EPP 8133. Plant Bacteriology. (3)** (Prerequisite: EPP 4113, EPP 6163 or consent of instructor). Two hours lecture. Three hours laboratory. Morphology, biology and taxonomy of plant-associated bacteria and physio-biochemical and molecular mechanisms involved in their interactions with plants; development and management of plant bacterial diseases.

**EPP 8143.** Advanced Plant Pathology I. (3) (Prerequisite: EPP 4113/6113). Three hours lecture. The dynamic nature of disease. Genetics and variability of the major groups of plant pathogens. Epidemiology. Genetics of the host-parasitic interaction.

EPP 8144. Transmission Electro Microscopy. (4) (Prerequisite: consent of instructor). One hour lecture. Six hours laboratory. Introduction to TEM including life sciences (tissue) and engineering (Crystalline materials) topics. (Same as ME 8144)

**EPP 8173.** Clinical Plant Pathology. (3) (Prerequisites: EPP 4113/6113 and EPP 4114). Two four-hour laboratories. Clinical techniques, procedures, and experience in diagnosing plant diseases in the laboratory and field. Covers diseases caused by bacteria, fungi, MLO, nematodes, unfavorable environment and viruses.

**EPP 8223. Scanning Electron Microscopy.** (3) (Prerequisite: Graduate Student, consent of instructor). Two hours lecture. Three hours laboratory. Introduction to scanning electron microscopy and associated techniques.

**EPP 8253.** Advanced Plant Pathology II. (3) (Prerequisites: EPP 4113/6113, BIO 4214/6214, or consent of instructor). Three hours lecture. Infection processes, weapons utilized by pathogens in attack, and resultant alterations in ultrastructure, function and metabolism.

**EPP 8272. Empirical Research in Theory and Practice. (2)** Two hours lecture. Introduction to the nature, process, and societal role of research; logical basis, role of chance, researcher attributes, grantsmanship, publication, ethics, and public policy.

**EPP 8333. Advanced Toxicology. (3)** (Prerequisite: EPP 4543. Three hours lecture. Physiological and biochemical actions of pesticides and therapeutic drugs. Pesticide metabolism and resistance. Insecticide synergism. Natural toxins and venoms. (Same as PHY 8333).

**EPP 8483. Ecological Genetics. (3)** (Prerequisites: PO 3103 or equivalent and BIO 4113/6113 or consent of instructor). Three hours lecture. Spring semester, odd-numbered years. Introduction to the application of genetic methods and theory to the study of adaptation in natural populations. (Same as GNS 8483).

EPP 8624. Population Ecology of Insects. (4) (Prerequisite: a course in general ecology). Three hours lecture. Two hours laboratory. Effects of abiotic and biotic factors on distribution and population dynamics of insects mediated through taxis, dispersal, migration, diapause, circadian rhythm, phenology, natality/mortality, and developmental rate.

## EDUCATIONAL PSYCHOLOGY

#### 508 Allen Hall

Professors D. Morse and L. Morse; Associate Professors Doggett, Elder and Henington; Assistant Professors McCleon and Reisener; Instructors Gainer and Taylor

**EPY 2513. Human Growth and Development. (3)** Three hours lecture. Psychological principles in the study of the child from birth to puberty; acquisition of motor skills; advance in perception; language, reasoning, and social behavior.

**EPY 3143. Human Development and Learning Strategies in Education.** (3) (Prerequisites: PSY 1013 and admission to Teacher Education or consent of department head). Three hours lecture. A study of developmental perspectives of learning with emphasis on teaching.

**EPY 3253. Evaluating Learning. (3)** (Prerequisite: Admission to Teacher Education). Three hours lecture. A study of instructional evaluation for the purpose of assessing individual pupil progress and general effectiveness of instruction.

**EPY 3503. Principles of Educational Psychology. (3)** Three hours lecture. Application of psychological principles to the educational process; topics covered include learning, humanism, motivation, cognitive development, creativity, intelligence, exceptionality, classroom management, measurement, and evaluation.

**EPY 3513. Writing in the Behavioral Sciences.** (3) (Prerequisite: EN 1103 and EN 1113; junior standing; EPY majors must enroll concurrently in EPY 3503). Three hours lecture. An introduction to writing skills in the behavioral sciences.

**EPY 3543. Psychology of Adolescence. (3)** Three hours lecture. Physical, intellectual, emotional, and social growth processes from late childhood toward early adulthood; pubertal problems; mental hygiene of adolescence; family and peer relationships.

**EPY 3553. Giftedness/Creativity. (3)** Three hours lecture. An introduction to giftedness and creativity emphasizing uniqueness of gifted/creative individuals; a survey of creative problem-solving approaches.

EPY 4033/6033. Application of Learning Theories in Educational and Related Settings. (3) Three hours lecture. Critical review of literature on learning in applied settings.

EPY 4053/6053. Psychology and Education of the Mentally Retarded. (3) Three hours lecture. Definitions, etiology, evaluation, development, and learning strategies of the mentally retarded; the role of family, community, and school in programming for the mentally retarded.

EPY 4073/6073. Personality Adjustment in Educational and Related Settings. (3) Three hours lecture. Personality development with special attention to motivation, culture, and interpersonal relations; personality problems in educational settings; corrective techniques.

**EPY 4113/6113. Behavioral and Cognitive Behavioral Interventions. (3)** The study of behavioral and cognitive-behavioral assessments and change procedures with special emphasis on non-school settings. This course cannot be used for special education certification.

**EPY 4123/6123. Applications of School Psychology. (3)** (Prerequisite: Consent of instructor) Three hours lecture. Practical application of concepts and principles related to educational and school psychology, implementation and analysis of intervention procedures. 100 hours clinic work required.

EPY 4133/6133. Data-based Decision Making for Interventions in the School Setting. (3) Three hour lecture. Data-based decision making and case methodology to teach theory, techniques, and procedures for educational support teams to address behavioral and academic difficulty in school-aged children. Not for EPY majors.

EPY 4214/6214. Educational and Psychological Statistics. (4) Three hours lecture and three hours laboratory. A course in statistics for education and educational psychology majors. Analysis, description of and inference from various types of data.

**EPY 4313/6313. Measurement and Evaluation. (3)** Three hours lecture. Measurement and evaluation of learning activities and achievement of elementary school pupils and high school students; standardized tests; test construction; statistical techniques.

**EPY 4513. Introduction to Research in Educational Psychology. (3)** Three hours lecture. (Prerequisites: EPY 4214 and 3503). An introduction to conducting educational research focusing on planning and designing research for applied education settings.

**EPY 8113. History and Systems of Psychology. (3)** Three hours lecture. Seminar class for students at the advanced level in psychology fields. Examines the history and systems in psychology.

**EPY 8123.** Assessment of Infants, Toddlers, and Special Populations. (3) Two hours lecture. Two hours practicum. Legal and professional aspects involved in assessment of young children. Administration, interpretation, and decision making in evaluation of infants, toddlers, and difficult-to-assess populations.

**EPY 8133. Crisis Prevention and Intervention in Schools and Related Settings.** (3) Three hours seminar. Study of school crisis prevention and intervention strategies with emphasis on preventing, preparing for, responding to, and recovering from crisis impacting students and schools.

**EPY 8214.** Advanced Educational and Psychological Statistics. (4) (Prerequisite: EPY 4214/6214 or its equivalent.) Three hours lecture and three hours laboratory. A survey of advanced statistical methods with emphasis upon the design and analysis of research problems in education and psychology.

**EPY 8223. Psychological Foundations of Education. (3)** Three hours lecture. The role of psychology in a changing context of organized education; the learner, content, structure, and management of the learning situation; studies of persistent problems.

**EPY 8253.** Child & Adolescent Development & Psychopathology. (3) Three hours lecture. Critical survey of recent problems, methods, and research in both the normal and abnormal psychological development of children and adolescents.

**EPY 8263.** Psychological Testing in Educational and Related Settings. (3) Three hours lecture. Principles and techniques involved in selecting, administering, scoring and interpreting tests of personality, interest, vocational aptitude, achievement, and intelligence.

**EPY 8273. Neuropsychology. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Study of brain-behavior relationships with emphasis on neuroscience. Overview of assessment techniques, rehabilitation planning, and research contributions.

**EPY 8293. Cognitive Development. (3)** Three hours lecture. The study of cognitive/intellectual development including the theories derived from the work of information-processing psychologists and Jean Piaget.

**EPY 8473. Middle Level Assessment and Evaluation. (3)** A study of middle level assessment and instructional evaluation for monitoring individual student progress, general effectiveness of instruction, and communicating assessment results.

**EPY 8493. Child Behavior and Personality Assessment. (3)** (Prerequisites: EPY 8263 and consent of instructor). Three hours lecture. Selection, administration, scoring, and interpretation of behavior and personality instruments.

**EPY 8513. Psychometric Theory. (3)** (Prerequisite: EPY 6214, EPY 8214, EPY 8263 or equivalent) Three hours lecture. Classical and modern models and their application to solving measurement problems, including developing and evaluation assessment instruments.

EPY 8523. Psychology of the Gifted. (3) Three hours lecture. Characteristics, identification and evaluation of gifted individuals. Social, physical, emotional, and intellectual development of the gifted.

**EPY 8533. Practicum in Teaching Educational Psychology. (3)** (Prerequisite: EPY 8223). One hour lecture. Two hours practicum. Establishing objectives; selecting and organizing learning experiences; guiding and evaluating learning; supervised practicum in teaching educational psychology.

EPY 8694. Supervised Experiences in School Psychology: Assessment. (4) (Prerequisites: EPY 8933, EPY 8723, EPY 8493, and consent of instructor). Supervised assessment experiences in educational settings utilizing psychological principles and techniques in teaching/learning problems. Three hundred plus hours of applied-supervised assessment experiences in a school setting.

**EPY 8703.** School Psychology. (3) Two hours lecture, two hours field experience. A course covering the history, current objectives, organization and administration of school psychology combined with appropriate field experience.

EPY 8723. Individual Assessment for Educational and Related Settings. (3) (Prerequisite: EPY 6073 and EPY 8263 or equivalent). Two hours lecture, two hours practicum. Training in administering individual psychometric instruments; verbal and nonverbal linguistic techniques; interpretation of scores, writing psychometric reports.

EPY 8763. Advanced Child Behavioral & Cognitive-Behavioral Intervention. (3) Three hours lecture. Identification, analysis, treatment, and evaluation of behavioral and cognitive-behavioral problems presented by children and youth.

**EPY 8773.** Assessment and Interventions for Academic Skills Deficits. (3) Three hours lecture. Study of theories, techniques, and procedures that have been shown to prevent and remedy academic skills deficits.

**EPY 8780.** Internship in School Psychology. (3 or 6) (Prerequisite: Consent of instructor). Supervised professional experience in an appropriate setting. Three hundred clock hours required for three semester hours credit.

**EPY 8794. Supervised Experiences in School Psychology: Consultation.** (4) (Prerequisites: EPY 9713, EPY 8763, and consent of instructor). Supervised consultation and intervention experiences in educational settings utilizing psychological principles and techniques in teaching/learning problems. Three hundred plus hours of supervised consultation experience.

EPY 8890. Supervised Experiences in School Psychology: Clinic Settings. (1-6) (Prerequisite: Consent of instructor). Supervised school psychology experiences in clinic settings utilizing psychological principles and techniques in teaching/learning problems.

**EPY 8913. Psychology of Creative Imagination. (3)** (Prerequisite: EPY 8523). A study of creative intellectual functioning and advances in thought on imagination imagery as they apply to measurement, nurture, development and related dimensions.

**EPY 8933. Integrated Psycho-Educational Assessment. (3)** (Prerequisites: EPY 8493, EPY 8723, consent of instructor). Two hours lecture, two hours practicum. Integration of assessment, interpretation, and report writing skills for intellectual, adaptive, personality, and academic instruments.

**EPY 9213. Advanced Analysis in Educational Research. (3)** (Prerequisites: EPY 6214 and EPY 8214, or equivalent course work). Three hours lecture. An examination of quantitative problem-solving methods, with special emphasis on modern techniques for investigating multivariable research problems in education.

**EPY 9263. Applied Research Seminar. (3)** (Prerequisites: EPY 6214, EDF 8363, and EDF 9373). Three hours lecture. Study of advances in thought on research approaches and doing research in educational psychology.

**EPY 9313. Education Evaluation Methods. (3)** Three hours lecture. (Prerequisites: EPY 8214; EDF 9373 or equivalent course work). Introduction to evaluation contract development procedures, and planning and management of program evaluation in education and related settings.

**EPY 9443. Single Subject Research Designs in Education. (3)** Three hours lecture. A detailed examination of single-subject research designs and their associated research methods including data collection and data evaluation techniques (same as EDF 9443).

EPY 9703. Contemporary, Legal, Ethical, and Professional Issues in School and Educational Psychology. (3) (Prerequisite: consent of instructor). Three hours lecture. Psychology as a profession: Foundations of practice, roles and functions, professional issues and standards with emphasis on legal and ethical means in psychology.

**EPY 9713. Advanced Psychological Consulting: Theory and Practice. (3)** (Prerequisite: Consent of the instructor). Two hours lecture. Two hours practicum. Systematic investigation and application of psychological consultation in schools/ human service settings. Consultation as applied to individuals and organizational structures. Study of research contributions.

**EPY 9723. Seminar in Contemporary School Psychology. (3)** (Prerequisite: consent of instructor). Study of current issues and problems in school psychology. Includes the synthesis/refinement of students' personal philosophy of psychological practice in human-service settings.

**EPY 9730.** Doctoral Internship in School Psychology. (3 or 6) (Prerequisite: consent of instructor). Supervised internship involving the theory and practice of evaluations, consultation, interventions, research, and related activities within a school, clinic, or other human service agency.

## ENGLISH as a SECOND LANGUAGE

Office: International Education, 103 Memorial Hall

Instructors: Watkins (Manager) Jacobs, Powe, and Stamps

**ESL 5110.** American Language and Culture I. (1-18) (Prerequisite: TOEFL score between 53 and 60 or consent of the instructor). Credit to be arranged. An intermediate level English language course designed to improve the oral communication and literacy skills of international students. (Does not count towards any degree).

**ESL 5120.** American Language and Culture II. (1-18) (Prerequisite: ESL 5110, or TOEFL score between 61 and 70, or consent of instructor). Credit to be arranged. An advanced level English language course designed to improve the oral communication and literacy skills of international students. (Does not count towards any degree).

ESL 5313. Classroom Communication and Presentation. (3) (Prerequisite: ESL 5120 or TOEFL score above 71 or consent of instructor). Three hours lecture. An English language course designed to prepare second language speakers for university-level work. This course is designed to improve students' communication in classroom settings. (Does not count toward any degree.)

**ESL 5323.** Academic Research and Writing. (3) (Prerequisite: ESL 5120 or TOEFL score above 71 or consent of instructor). An English language course designed to prepare second language speakers for university-level course work. This course is designed to improve students' research and writing skills. (Does not count toward any degree.)

**ESL 5333. Critical Reading. (3)** (Prerequisite: ESL 5120 or TOEFL score above 71 or consent of instructor). Three hours lecture. An English language course designed to prepare second language speakers for university-level work. This course is designed to improve students' authentic reading and comprehension skills. (Does not count toward any degree.)

## EXPERIENTIAL LEARNING

#### Office: 608 Allen Hall

EXL 0190. Experiential Learning. (0) (Prerequisite: Permission of Department). Non-classroom learning experience arranged through agreement of student and department; written approval required. Registration provides equivalent of full time enrollment status but no academic credit. This course will not contribute to a student's academic standing or earn credit toward graduation. Coordinated through Academic Affairs.

EXL 1191 Leadership Studies Internship I. (1) (Prerequisites: Permission of Leadership Studies minor advisor in student's major department and prior completion of 12 hours toward Leadership Studies minor.) Brief internship for leadership studies minor. Arranged with departmental leadership studies minor advisor. Registration provides equivalent of full time enrollment status. Coordinated through Academic Affairs.

**EXL 1193 Leadership Studies Internship II. (3)** (Prerequisites: Permission of Leadership Studies minor advisor in student's major department and prior completion of 12 hours toward Leadership Studies minor.) Brief internship for leadership studies minor. Arranged with departmental leadership studies minor advisor. Registration provides equivalent of full time enrollment status. Coordinated through Academic Affairs.

**EXL 3100.** Career Center Professional Practice Internship I. (0) (Prerequisite: 60 hours, 2.75 GPA and permission of Career Center). Career-related work experience arranged through mutual agreement of the student and employer with confirmation by the Career Center. Registration provides equivalent of full-time enrollment but no academic credit. This course will not contribute to a student's academic standing or earn credit toward graduation. Coordinated by the Career Center.

**EXL 3200.** Career Center Professional Practice Internship II. (0) (Prerequisite: EXL 3100, 2.75 GPA and permission of Career Center). Career-related work experience arranged through mutual agreement of the student and employer with confirmation by the Career Center. Registration provides equivalent of full-time enrollment but no academic credit. This course will not contribute to a student's academic standing or earn credit toward graduation. Coordinated by the Career Center.

## **FINANCE**

## Office: 312 McCool Hall

#### (For departmental information, see FINANCE and ECONOMICS

**FIN 2003. Personal Money Management. (3)** Three hours lecture. The individual's acquisition and management of an optimal personal income and expenditure pattern over a lifetime to best meet his/her financial objectives. (Same as INS 2003. Not open to Finance majors or as part of BUAD Finance concentration.)

FIN 3113. Financial Systems. (3) (Prerequisites: EC 2113, EC 2123 (or AEC 2713) and junior standing). Three hours lecture. Study of interest rates, basic security valuation, money and capital markets, financial institutions and the roles financial institutions play in the financial markets.

FIN 3123. Financial Management. (3) (Prerequisites: EC 2123, ACC 2023, and BQA 2113 and junior standing). Three hours lecture. Study of objectives, tools, methods, and problems of financial management; financial analysis, planning, control, sources/uses of funds, capital budgeting decisions and working capital.

**FIN 3203. Financial Statement Analysis. (3)** (Prerequisite: ACC 2023). Three hours lecture. For non-accounting majors. A study of financial statements from an external users perspective; an analysis of statements for purposes of determining loan and investment potential. (Same as ACC 3203)

**FIN 3723. Financial Markets and Institutions. (3)** (Prerequisite: FIN 3113 or equivalent.) Three hours lecture. Study of the functions of financial markets. Major topics include interest rates, their role in securities markets and financial institutions, and interest rate risk.

FIN 4011. Finance Internship Seminar. (1) (Prerequisite: Approval of Department). Examination of topics related to developing a successful career in finance during work semester.

**FIN 4021. Finance Career Planning Seminar.** (1) (Prerequisite: approval of Department). Exploration and examination of issues relating to successful careers in finance. Open only to students who have not completed a work semester.

**FIN 4123/6123. Financial and Commodities Futures Marketing. (3)** (Prerequisite: Junior standing). Three hours lecture. Discussion of the purpose, function, mechanics, analysis and application of financial and commodity futures markets in pricing and hedging opportunities. (Same as AEC 4123/6123).

**FIN 4223. Intermediate Financial Management. (3)** (Prerequisite: FIN 3123). Three hours lecture. Building on foundational concepts, this course provides a more in-depth coverage of financial analysis, valuation principles, the financial environment, capital budgeting and capital structure.

FIN 4233. Working Capital Management. (3) (Prerequisite: FIN 3123.) Three hours lecture. Analysis of selected problems in the short-term financial management of the firm, including cash management, investment opportunities, financing requirements, budgeting and planning.

**FIN 4243. Senior Seminar in Finance. (3)** (Prerequisites: FIN 3723 and FIN 4223). Three hours seminar. Comprehensive case study to bring out the problems involved in organizing, financing, and managing various types of business enterprises.

**FIN 4423. Investments. (3)** (Prerequisite: FIN 3123). Three hours lecture. Survey of various financial instruments and their characteristics, investor choice, and an introduction to the basics of security analysis, portfolio management, and speculative markets.

**FIN 4433. Security Analysis and Portfolio Management. (3)** (Prerequisites: FIN 4423.) Three hours lecture. Analysis of individual investments, creation and management of investment portfolios to achieve specific investor goals, and evaluation of portfolio performance.

**FIN 4723. Bank Management. (3)** (Prerequisites: FIN 3113 and FIN 3723.) Three hours lecture. Study of banking environment, functional areas of banking, and tools and techniques required to effectively manage a bank in a highly competitive, dynamic environment.

FIN 4733. Advanced Bank Management. (3) (Prerequisites: ACC 3203, FIN 4423, and FIN 4723.) Three hours seminar. Applications of financial management techniques to bank management decisions through experiential learning opportunities. Computer-based analysis, simulations, and written and oral presentations.

**FIN 4923/6923. International Financial Management. (3)** (Prerequisite: FIN 3123 or consent of instructor). Three hours lecture. A study of the theory and actual behavior of international financial management, foreign financial markets, exchange rate risk management, and foreign direct investments.

**FIN 8113. Corporate Finance. (3)** (Prerequisite: Graduate standing and FIN 3123 or equivalent). Three hours lecture. An examination of the interaction between financial accounting, cash flow estimation, capital budgeting, risk and return, capital structure, and working capital management.

**FIN 8223.** Case Problems in Corporate Finance. (3) (Prerequisites: FIN 8112 and FIN 8122 or equivalent). Three hours seminar. Analyses of financial management cases involving working capital, financial analysis, valuation concepts, risk and return, capital budgeting, cost of capital, and financial planning.

**FIN 8233.** Advanced Financial Management. (3) (Prerequisites: FIN 8112 and FIN 8122 or the equivalent). Three hours lecture. A study of the theory and application of valuation, risk return analysis, capital budgeting decisions, and capital structure. Analysis of how these decisions affect firm value.

**FIN 8313. Financial Management of Projects. (3)** (Prerequisite: FIN 3123 or equivalent). Three hours lecture. Focuses on the financial aspects of project management. Topics include capital budgeting, risk assessment, cash flow forecasting, value estimation and identification and valuation of options embedded in the project.

**FIN 8423. Portfolio Management. (3)** (Prerequisites: FIN 8112 and FIN 8122 or the equivalent). Three hours lecture. The application of contemporary investment theory for decision-making purposes in portfolio management, and the formulation of portfolio policies for different types of investors.

**FIN 8723. Financial Institutions Management. (3)** (Prerequisites: FIN 8112 and FIN 8122, or equivalent). Three hours seminar. Cases and readings on the requirements and potential challenges of managing financial institutions in a competitive and rapidly changing environment. Computer simulations.

**FIN 8733. Financial Markets, Rates and Flows. (3)** (Prerequisites: FIN 8112 and FIN 8122 or equivalent). Three hours lecture. An analysis of money and capital market instruments; a study of interest rates and financial flows; the effect of public policy on credit conditions.

**FIN 9233. Seminar in Corporate Finance. (3)** (Prerequisites: FIN 8233 or the equivalent.) Doctoral seminar. Analysis and discussion of the literature dealing with topics in corporate finance. Also, students prepare and present research projects.

**FIN 9433. Seminar in Portfolio Theory. (3)** (Prerequisites: FIN 8423 or equivalent.) Doctoral seminar. Analysis and discussion of the literature dealing with topics in portfolio theory and management. Also, students prepare and present research projects.

**FIN 9733. Seminar in Financial Markets and Institutions. (3)** (Prerequisites: FIN 8733 or equivalent.) Doctoral seminar. Analysis and discussion of the literature dealing with topics in financial markets and institutions. Students prepare and present research projects.

## Department of FOREIGN LANGUAGES

#### Office: 300 Lee Hall

Professors Jordan (Head), Wolverton; Associate Professors Harland and Lestrade; Assistant Professors Barrankes-Martin, Espinosa, Gray, Khan, Moser, and Potter; Instructors Debicka-Dyer, Dunlap, Little, Pruett, Russell and Vozzo

A year's study of the same foreign language in high school will normally be considered the equivalent of one semester's work at MSU for the purpose of determining appropriate placement; no credit hours are earned for MSU courses bypassed in this manner. Students with two or more years of the same foreign language in high school are encouraged to take the Computerized Placement Tests (CPT) in Chinese, French, German, and Spanish, and the Placement Tests (PT) Japanese and Latin administered by the Department, enabling them to earn up to 6 non-transferable MSU credit hours; the tests are free of charge and the credits earned are entered on the student's transcript upon recommendation of the Head of Foreign Languages Department. These tests can be taken by high school seniors; during summer orientations by entering freshman, and during the add/drop period of fall and spring semesters by beginning freshman. Foreign students may not register for credit in elementary and intermediate courses of their native language. *\*No student may take the placement test for credit once courses have been taken at a higher level*.

FL 4023/6023. Introduction to Literary Criticism. (3). An introduction to key theories and practices of literary analysis designed for foreign languages majors.

**FL 4143/6143. Classical Mythology**. (3) Three hours lecture. Myths and legends of Greece and Rome and their use in literature and the arts through the ages. (Same as REL 4143/6143)

#### FRENCH

**FLF 1113. French I. (3)** Two hours lecture. Two recitations. An introduction to conversational French.

**FLF 1123. French II. (3)** (Prerequisite: FLF 1113 or equivalent). Two hours lecture. Two recitations. Conversational French. Reading of graded text.

**FLF 2133. French III. (3)** (Prerequisite: FLF 1123 or equivalent). Three hours lecture. Rapid review of French grammar; oral-aural practice; reading of intermediate texts. Honors section available through invitation.

**FLF 2143. French IV. (3)** (Prerequisite: FLF 2133 or equivalent). Three hours lecture. Oral-aural practice; reading of intermediate texts. Honors section available through invitation.

**FLF 3114.** Advanced French Composition. (4) (Prerequisite: FLF 2143, FLF 2125 or equivalent or consent of instructor). Three hours lecture and laboratory. Required of all majors. Advanced instruction in all aspects of the written language.

**FLF 3124.** Advanced French Conversation. (4) (Prerequisite: FLF 2143, FLF 2125 or equivalent or consent of instructor). Three hours lecture and laboratory. Required of all majors. A continuation of FLF 3114. Advanced instruction in all aspects of the spoken language.

**FLF 3143. French Civilization. (3)** (Prerequisite: FLF 2143, FLF 2125 or equivalent or consent of instructor). Three hours lecture. Illustrated survey of French cultural heritage.

**FLF 3313. Business French I. (3)** (Prerequisite: FLF 2143, FLF 2125 or equivalent or consent of instructor). Three hours lecture. The French language as used in business practices and marketing; emphasis on acquisition and application of French commercial terminology in import/export correspondence.

**FLF 3323. Business French II. (3)** (Prerequisite: FLF 2143, FLF 2125 or equivalent or consent of instructor). Three hours lecture. The French language as used in exchange controls, the Bourse, the banks; acquisition of French business terminology for written and oral expression.

**FLF 3513. Survey of French Literature.** (3). (Prerequisite: FLF 2143 or FLF 2125 or equivalent or consent of instructor). Three hours lecture. Required of all majors. A survey of French literature from the Middle Ages to the Seventeenth-Century.

**FLF 3523. Survey of French Literature. (3)** (Prerequisite: FLF 2143 or FLF 2125 or equivalent or consent of instructor). Three hours lecture. Required of all majors. A survey of French literature from the 18th century to the present.

FLF 4053/6053. 19th Century Studies: Baudelaire Seminar. (3). (Prerequisite: FLF 3124 or consent of instructor). Three hours lecture. A close study of Baudelaire's literary and critical work.

**FLF 4073/6073. French Drama of the 20th Century. (3)** (Prerequisite: FLF 3523 or consent of instructor). Three hours lecture. Reading of works of outstanding writers and discussion of literary currents of the century.

**FLF 4083/6083. Survey of French Lyric Poetry. (3)** (Prerequisite: 3513). Three hours lecture. Reading and interpretation of masterpieces. Discussion of literary currents and personalities of the century.

**FLF 4093/6093. French Novel and Short Story of the 19th Century. (3)** (Prerequisite: FLF 3523 or consent of instructor). Three hours lecture. Reading of selected masterpieces. Discussion of literary currents and personalities of the century.

**FLF 4103/6103. French Novel and Short Story of the 20th Century. (3)** (Prerequisite: FLF 3523 or consent of instructor). Three hours lecture. Reading and critical evaluation of modern French novels and short stories of various literary schools.

**FLF 4143/6143. 17th Century French Literature. (3)** (Prerequisite: FLF 3513). Three hours lecture. An exploration of the major authors, figures, and literary currents from the 17th century.

**FLF 4153/6153. French Classicism. (3)** (Prerequisite: FLF 3513 or consent of instructor). Three hours lecture. A continuation of FLF 4143/6143.

**FLF 4173/6173. Introduction to Francophone Cinema. (3).** (Prerequisite: FLF 3124 or consent of instructor). Three hours lecture. A study of landmark Francophone films, their regions and cultures.

**FLF 4193/6193. 18th Century French Literature. (3).** (Prerequisite: FLF 2143 or the equivalent). Three hours lecture. An introduction to French Literature and essential literary movements from the 18th century.

**FLF 4223/6223. French Novel Before 1945.** (3) (Prerequisite: FLF 2143 or the equivalent). Three hours lecture. A course dedicated to the major French novelists for the first half of the twentieth-century and the literary movements that they represent.

**FLF 4233/6233. Modern French Poetry. (3)**. (Prerequisite: FLF 2143 or the equivalent). Three hours lecture. An introduction into modern French poetry and the literary movements that epitomize this time period.

**FLF 4273/6273. The Human Condition. (3)**. (Prerequisite: FLF 2143 or the equivalent). Three hours lecture. A course emphasizing the concept of the "Human Condition" as conceptualized by seminal French writers and thinkers.

FLF 4323/6323. Studies in the 20th Century: Le Clezio Seminar. (3). (Prerequisite: FLF 2143 or the equivalent). Three hours lecture. A profound exploration of the diverse literary repertoire of one of France's greatest contemporary authors, J.M.G. Le Clezio.

**FLF 4333/6333. 19th Century Studies: Decadents, Dandies, and Bohemians. (3)**. (Prerequisite: FLF 3124 or consent of instructor). Three hours lecture. A study of three subcultures of modernity in 19th century France.

FLF 8073. Seminar in French Drama of the 20th Century. (3) (Prerequisite: Graduate standing).

FLF 8093. Seminar in the French Novel of the 19th Century. (3) (Prerequisite: Graduate standing).

FLF 8103. Seminar in the French Novel of the 20th Century. (3) (Prerequisite: Graduate standing).

FLF 8113. Seminar in French Classical and Neo-Classical Comedy. (3) (Prerequisite: Graduate standing).

FLF 8123. Seminar in the French Novel and Short Story of the Renaissance and Classical Period. (3) (Prerequisite: Graduate standing).

**FLF 8213. Old French. (3)** (Prerequisite: Graduate standing). A philological study of the development of Old Parisian French from Vulgar Latin.

FLF 8223. Seminar in French Classical and Neo-Classical Tragedy. (3) (Prerequisite: Graduate standing).

#### GERMAN

FLG 1113. German I. (3) Two hours lecture. Two recitations. An introduction to conversational German.

**FLG 1123. German II. (3)** (Prerequisite: FLG 1113). Two hours lecture. Two recitations. Conversational German. Reading of graded texts.

**FLG 2133. German III. (3)** (Prerequisite: FLG 1123). Three hours lecture. Rapid review of German grammar; oral-aural practice; reading of intermediate texts.

**FLG 2143. German IV. (3)** (Prerequisite: FLG 2133). Three hours lecture. Oral-aural practice; reading of intermediate texts.

**FLG 3114. Advanced German Composition. (4)** (Prerequisite: FLG 2143 or consent of instructor). Three hours lecture. Two hours laboratory. Required of all majors. Advanced instruction concentrating on German composition.

**FLG 3124.** Advanced German Conversation. (4) (Prerequisite: FLG 2143 or consent of instructor). Three hours lecture. Two hours laboratory. Required of all majors. Advanced instruction concentrating on German conversation.

FLG 3143. German Civilization. (3) (Prerequisite: FLG 2143 or equivalent.) Three hours lecture. A survey of German cultural heritage.

FLG 3153. Modern German Culture. (3) (Prerequisite: FLG 2143 or equivalent). Three hours lecture. A survey of German culture and life today.

**FLG 3313. Business German I. (3)** (Prerequisites: FLG 2143). Three hours lecture. The German language as used in business; emphasis on acquisition and application of German commercial terminology on import/export correspondence.

**FLG 3323. Business German II. (3)** (Prerequisite: FLG 2143). Three hours lecture. The German language as used in the German stock market, trade, and exchange controls; acquisition and application of written and oral German business terminology.

**FLG 4143/6143. Verwandlungen. (3).** (Prerequisite: FLG 2143 or equivalent). Three hours lecture. A study of the theme of "metamorphosis" in various literary genres of the German speaking countries.

**FLG 4163/6163. History of the German Language. (3)** (Prerequisite: FLG 3124). Three hours lecture. The relationship of High German to the parent Indo-European and to the remaining Germanic dialects; linguistic development from the earliest times to the present.

FLG 4303/6303. German Film. (3). (Prerequisite: FLG 2143 or equivalent). Three hours lecture. Study of films from the German-speaking countries from the early twentieth century to today.

FLG 4353/6353. German Novella. (3). (Prerequisite: FLG 2143 or equivalent). Three hours lecture. Study of novellas written in German.

**FLG 4463/6463. German Drama of the 20th Century. (3)** (Prerequisite: FLG 3523). Three hours lecture. Reading of works of outstanding writers and discussion of literary currents of the century.

**FLG 4493/6493. Mysteries in Literature and Film. (3).** (Prerequisite: FLG 2143 or equivalent). Three hours lecture. A study of the genre of mysteries in German-language literature and film.

**FLG 4503/6503. German Literature to 1750. (3).** (Prerequisite: FLG 2143 or equivalent). Three hours lecture. German literature from its origins to Storm and Stress.

**FLG 4523/6523. German Literature from 1750 to Present. (3).** (Prerequisite: FLG 2143 or equivalent). Three hours lecture. A survey of German literature from the Enlightenment to the present.

FLG 8443. Eighteenth-Century German Drama. (3) (Prerequisite: Graduate standing) Three hours lecture. A study of dramas from the Enlightenment, Sensibility, and Storm-and-Stress periods.

**FLG 8483. Twentieth-Century German Short Story. (3)** (Prerequisite: Graduate standing) Three hours lecture. A study of twentieth-century short prose fiction in German.

#### GREEK

FLH 1113. Greek I. (3) Three hours lecture. An introduction to Biblical and Classical Greek.

FLH 1123. Elementary Ancient Greek II. (3) Three hours lecture. A continuation of FLH 1113.

#### JAPANESE

FLJ 1113. Japanese I. (3) Two hours lecture. Two recitations. An introduction to conversational Japanese.

**FLJ 1123. Japanese II. (3)** (Prerequisite: FLJ 1113 or equivalent). Two hours lecture. Two recitations. An introduction to conversational Japanese.

**FLJ 2133. Japanese III. (3)** (Prerequisite: FLJ 1123 or equivalent). Three hours lecture. Rapid review of Japanese grammar; oral-aural practice; reading of intermediate texts.

FLJ 2143. Japanese IV. (3) (Prerequisite: FLJ 2133 or equivalent). Three hours lecture. Oral-aural practice; reading and discussion of intermediate texts.

#### LATIN

FLL 1113. Latin I. (3) Three hours lecture. An introduction to the Latin language.

FLL 1123. Latin II. (3) (Prerequisite: FLL 1113 or equivalent). Three hours lecture. Grammar; elementary reading.

**FLL 2133. Latin III. (3)** (Prerequisite: FLL 1123 or equivalent). Three hours lecture. Review of Latin grammar; reading of intermediate texts.

**FLL 2143. Latin IV. (3)** (Prerequisite: 2133 or equivalent). Three hours lecture. Reading of intermediate texts.

#### RUSSIAN

FLR 1113. Russian I. (3) Two hours lecture. Two recitations. An introduction to conversational Russian.

**FLR 1123. Russian II. (3)** (Prerequisite: FLR 1113). Two hours lecture. Two recitations. Conversational Russian. Reading of graded texts.

**FLR 2133. Russian III. (3)** (Prerequisite: FLR 1123). Three hours lecture. Rapid review of Russian grammar; oral-aural practice; reading of intermediate texts.

**FLR 2143. Russian IV. (3)** (Prerequisite: FLR 2133). Three hours lecture. Oral-aural practice; reading of intermediate texts.

#### SPANISH

FLS 1113. Spanish I. (3) Two hours lecture. Two recitation. An introduction to conversational Spanish.

FLS 1123. Spanish II. (3) (Prerequisite: FLS 1113 or equivalent). Two hours lecture. Two recitations. Conversational Spanish. Reading of graded texts.

FLS 1213. Spanish for the Green Industry I. (3). Three hours lecture. Conversational Spanish for students majoring in agricultural related professions.

**FLS 1223. Spanish for the Green Industry II.** (3). (Prerequisite: FLS 1213 or the equivalent). Three hours lecture. Conversational Spanish for students majoring in agricultural related professions.

**FLS 2133. Spanish III. (3)** (Prerequisite: FLS 1123 or equivalent). Three hours lecture. Rapid review of Spanish grammar; oral-aural practice; reading of intermediate texts. Honors section available through invitation.

**FLS 2143. Spanish IV. (3)** (Prerequisite: FLS 2133 or equivalent). Three hours lecture. Oral-aural practice; reading of intermediate texts. Honors section available through invitation.

**FLS 3111. Advanced Spanish Laboratory. (1)** (Prerequisite: FLS 2143 or FLS 2125). Three hours laboratory. A laboratory course to accompany FLS 3313 or to be taken separately. Required of all majors.

**FLS 3113. Advanced Spanish Composition. (3)** (Prerequisite: FLS 2143 or FLS 2125). Three hours lecture. Required of all majors. Instruction in written composition through study of advanced grammar and writing techniques.

FLS 3121. Advanced Spanish Conversation Practicum. (1) (Prerequisite: FLS 2143 or consent of department). One hour practicum. A practicum course to complement FLS 3233. Required of all majors.

FLS 3143. Hispanic Civilization. (3) (Prerequisite: FLS 2143 or FLS 2125). Three hours lecture. Illustrated survey of Hispanic cultural heritage.

**FLS 3233.** Advanced Spanish Conversation. (3) (Prerequisite: FLS 3113 or consent of instructor). Three hours lecture. Required of all majors. Advanced instruction in Spanish with emphasis on oral communication skills.

**FLS 3313. Economies of the Spanish-Speaking World. (3)** (Prerequisite: FLS 2143 or equivalent). Three hours lecture. Study of the economic structures and business cultures of Spanish-speaking countries, with emphasis on economic terminology.

**FLS 3323. Enterprises in the Spanish-Speaking World. (3)** (Prerequisite: FLS 2143 or equivalent). Three hours lecture. Designed to provide a functional command of conversational and written Spanish for business interactions in the modern world.

**FLS 3513. Survey of Spanish Literature. (3)** (Prerequisite: FLS 2143 or FLS 2125). Three hours lecture. Required of all B.A. majors. A survey of Spanish literature from its origin to the 18th century.

**FLS 3613. Spanish Literature: Middle Ages-Golden Age. (3)**. (Prerequisite: FLS 2143 or equivalent). Three hours lecture. A survey of Spanish Literature from Middle Ages to the Golden Age (c. 1000-1640).

**FLS 4213/6213. Modern Spanish Women Writers. (3)**. (Prerequisite: FLS 3113, 3233 or the equivalent, or consent of instructor). Three hours lecture. An introduction to modern Spanish women writers.

**FLS 4223/6223. Spanish Novel of the Golden Age. (3)** (Prerequisite: FLS 3513). Three hours lecture. A study of the picaresque novel and the short novel of the Golden Age.

**FLS 4243/6243. Modern Spanish Essay. (3)**. (Prerequisite: FLS 3113, 3233 or the equivalent, or consent of instructor). Three hours lecture. An introduction to modern Spanish essay.

**FLS 4273/6273. Modern Spanish Drama. (3)**. (Prerequisite: FLS 3113, 3233 or the equivalent, or consent of instructor). Three hours lecture. An introduction to modern Spanish drama.

FLS 4283/6283. The Contemporary Spanish-American Novel and Short Story. (3) (Prerequisite: FLS 3523 or consent of instructor). Three hours lecture. A study of major contemporary Spanish-American novels and short stories.

**FLS 4293/6293. Cinema in the Context of Spanish Culture. (3).** (Prerequisite: FLS 3113, 3233 or the equivalent, or consent of instructor). Three hours lecture. An introduction to Spanish cinema.

**FLS 4323/6323. Spanish Drama of the Golden Age. (3)** (Prerequisite: FLS 3513). Three hours lecture. A study of dramatic works of Lope de Vega, Tirso de Molina, Calderon, and minor dramatic writers of the 17th century.

**FLS 4423. Survey of Spanish Lyric Poetry. (3)** (Prerequisite: FLS 3513). Three hours lecture. Reading and interpretation of masterpieces of Spanish lyric poetry and poetic theory from the Middle Ages to the present.

**FLS 4523. The Renaissance. (3)** (Prerequisite: FLS 3513). Three hours lecture. Spanish literature and thought of the Renaissance.

**FLS 4543. Survey of Modern Spanish-American Literature. (3).** (Prerequisite: FLS 3233 or equivalent). Three hours lecture. A survey of Spanish-American literature from Modernism to the present.

**FLS 4573. Contemporary Spanish-American Drama. (3).** (Prerequisite: FLS 3233 or equivalent). Three hours lecture. An analysis of representative works of twenty-century Spanish-American dramatic literature.

**FLS 4613. Spanish-American Cinema. (3)**. (Prerequisite: FLS 3513). Three hours lecture. An overview of the cultural and historic trends in Spanish-American cinema.

**FLS 4633/6633. Introduction to Spanish Linguistics. (3)** (Prerequisites: FLS 3233 or consent of instructor). Three hours lecture. Introduction to linguistic analyses and their application to the syntactic, morphological, semantic, phonological, historical, and sociolinguistic aspects of the Spanish language.

**FLS 4643/6643. Spanish Phonology. (3)** (Prerequisite: FLS 3233 or consent of instructor). Three hours lecture. Introduction to the articulatory classification of Spanish sounds. Discussion of the mental organization of these sounds, and the processes which transform them during speech.

**FLS 4653/6653. History of the Spanish Language. (3)** (Prerequisite: FLS 3513). Three hours lecture. The history of the development of the Spanish language from its origins to the present.

**FLS 4853. Survey of Spanish-American Poetry. (3)**. (Prerequisite: FLS 3513 or equivalent). Three hours lecture. A panoramic study of the Spanish-American poetry from early to present times.

FLS 8223. Seminar in the Picaresque Novel. (3) (Prerequisite: Graduate standing).

FLS 8253. Seminar in the Novel of the 19th Century. (3) (Prerequisite: Graduate standing).

FLS 8263. Seminar in the Novel of the 20th Century. (3) (Prerequisite: Graduate standing).

FLS 8283. The Contemporary Spanish-American Novel and Short Story. (3) (Prerequisite: Graduate standing). Three hours lecture. A study of major contemporary Spanish-American novels and short stories.

FLS 8333. Seminar in the Drama of the 19th Century. (3) (Prerequisite: Graduate standing).

FLS 8343. Seminar in the Drama of the 20th Century. (3) (Prerequisite: Graduate standing).

**FLS 8513. Spanish Literature of the Middle Ages. (3)** (Prerequisite: FLS 8663). Three hours lecture. A study of Spanish literary masterpieces and movements from Poema del Cid to the 16th Century.

**FLS 8663. Old Spanish. (3)** (Prerequisite: Graduate standing). Three hours lecture. A philological study of the development of Old Spanish from Vulgar Latin. Reading of texts.

# Department of FOOD SCIENCE, NUTRITION and HEALTH PROMOTION

#### Office: 107 Herzer Building

Professors Mikel (Head), Clary, Haque, Hood, Hunt, and Silva; Associate Professors: Byrd, Schilling, and Tidwell; Assistant Professors Behrends, Briley, Fountain, Kim Martin, Nannapaneni, and Williams

**FNH 1001. First Year Seminar. (1)** One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members.

**FNH 1103. Introduction to Food Science, Nutrition and Health Promotion. (3)** Three hours lecture. An introductory course that relates the importance of food science, nutrition and health promotion to the community to consideration of current trends in these fields.

**FNH 2112. Food Products Evaluation. (2)** One hour lecture. Two hours laboratory. Sensory examination of food products: common defects, causes, and remedies. Basic methods of evaluation of different types of foods.

**FNH 2203. Science of Food Preparation.** (3) One hour lecture. Four hours laboratory. A study of foods and the principles underlying handling and preparation of food products to maintain the highest standard of quality. (Same as HS 2203).

**FNH 2233. Meal Management.** (3) One hour lecture. Four hours laboratory. Planning, preparing, and serving meals; emphasis on management of time, energy, and money in relation to feeding a family. (Same as HS 2233).

FNH 2283. Child Health and Nutrition. (3) Three hours lecture. Nutrition requirements during pregnancy and lactation, and of infants and young children; birth defects from metabolic errors; related health of young children. (Same as HS 2283).

**FNH 2293. Individual and Family Nutrition. (3)** Three hours lecture. Fundamental principles of human nutrition and the practical application of this knowledge in the selection of adequate diets. (Same as HS 2293).

**FNH 3003. Nutrition Field Experience. (3)** (Prerequisite: Consent of Instructor). Supervised work experience for nutrition students in an approved situation.

**FNH 3111. Food Science, Nutrition and Health Promotion Seminar.** (1) One hour lecture. Preparation and presentation on specially assigned current topics in Food Science, Nutrition and Health Promotion.

**FNH 3113.** Wine Appreciation. (3) Three hours lecture. Principles of wine identification, evaluation and service with emphasis on the wines of Europe and the United States.

**FNH 3142.** Meats Judging I. (2) Spring semester. Four hours laboratory. Grading and judging meat carcasses and cuts, study of packing house operations. (Same as ADS 3142).

**FNH 3163. Basic Principles of Health Promotion. (3)** Three hours lecture. Basic concepts of health promotion. Role of health/fitness professionals in developing wellness/prevention oriented interventions to promote healthy lifestyles.

**FNH 3263. Research Methods in Food and Nutrition. (3)** (Prerequisites: ST 2113, FNH 2293). Two hours lecture. Two hours laboratory. Introduction to food and nutrition research methods, application of computer and related technologies in nutrition research through design and development of a research project.

**FNH 3274. Quantity Food Production and Service. (4)** (Prerequisite: FNH 2233 or consent of instructor). One hour lecture. Eight hours laboratory. Principles and methods of preparation and service of food in quantity.

FNH 3283. The Food Service System. (3) Three hours lecture. Introduction to the food service system concept, functional subsystems, and management of financial and human resources.

**FNH 3314. Introduction to Meat Science. (4)** (Prerequisite: ADS 1114 or FNH 1103) Three hours lecture. Two hours laboratory. Introductory survey of the muscle food industry including history, production of meat including harvesting, inspection, ecluation and fabrication, storage and value added manufacturing of meat. (Same as ADS 3314).

**FNH 3701. Nutrition Professional Development. (1)** (Prerequisite: Junior standing and consent of instructor). Preparation for nutrition field experience, dietetic internship, and careers.

FNH 4114/6114. Analysis of Food Products. (4) (Prerequisite: CH 2503). Three hours lecture. Three hours laboratory. Chemistry and technology of food products processing and physical and chemical methods of analyzing foods and biological products.

FNH 4143/6143. Dairy Foods Processing. (3) Two hours lecture. Two hours laboratory. Basic concepts of processing, freezing, and concentrating milk and milk products. Emphasis on fluid milk products, frozen dairy desserts, and dried products.

FNH 4153/6153. Food Plant Management. (3) (Prerequisite: Senior standing or consent of instructor). Two hours lecture. One hour laboratory. A study of problems associated with the general management of food processing plants.

**FNH 4164/6164. Quality Assurance of Food Products. (4)** (Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Principles, methods, and techniques involved in evaluating essential parameters for commercial, state, and federal control of food products.

**FNH 4173/6173. Food Packaging. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Objectives and requirements of packaging; composition, characteristics, chemical and physical properties, selection and adaptation of packaging materials and packages.

**FNH 4193/6193. Social-Cultural Aspects of Food. (3)** Three hours lecture. A study of international, regional, and religious history, customs, beliefs and other impacts upon food preparation and consumption.

**FNH 4213. Nutrition Public Policy and Promotion. (3)** (Prerequisite: FNH 2293). Three hours lecture. Addresses the role of the public and private sectors in identifying and addressing the nutritional needs of various population groups.

**FNH 4223/6223. Sports Nutrition. (3)** (Prerequisite: FNH 2293 or consent of instructor). Three hours lecture. Integration of nutrition and exercise physiology illustrating links between training, increased demand for nutrients, appropriate intake of foods, beverages and supplements and performance.

**FNH 4233/6233. Medical Nutrition Therapy. (3)** (Prerequisite: FNH 4263/6263 or consent of instructor). Three hours lecture. The study and application of the principles of medical nutrition therapy in stress, trauma, and specific disease conditions.

**FNH 4241/6241. Applied Food Chemistry.** (1) (Prerequisite: BCH 3613 and prior credit for/or current enrollment in FNH 4243/6243). Two hour lab. Basic laboratory experiments to provide understanding of the function and interactions of chemical components in food.

**FNH 4243/6243.** Composition and Chemical Reactions of Foods. (3) Spring semester. (Prerequisites: CH 1053 and CH 2503 or equivalent). Three hours lecture. Nature and chemical behavior of food constituents including proteins, lipids, carbohydrates, minerals, water, enzymes, and pigments; properties of food systems as related to commercial preparation. (Same as ADS 4243/6243).

**FNH 4253/6253. Nutritional Biochemistry of Foods. (3)** (Prerequisite: CH 2503 or equivalent with consent of instructor). Three hours lecture. In depth study of the chemistry and functionality of macronutrients in food systems and their biochemical impact on the human body. (Same as BCH 4253/6253)

**FNH 4263/6263. Nutrition and Chronic Disease. (3)** (Prerequisites: FNH 2293, FNH 4253, or consent of instructor). Three hours lecture. The study of principles of nutrition and pathophysiology of chronic diseases and medical and nutrition management/treatment of chronic diseases and impact on nutritional status.

FNH 4273/6273. Nutritional Assessment. (3) (Prerequisites: FNH 4223 and FNH 4253 or equivalent). Two hours lecture. Two hours laboratory. Selection, utilization, interpretation, and evaluation of anthropometric, laboratory, clinical and dietary methods available for the assessment of nutritional status.

**FNH 4274/6274. Advanced Food Service Management. (4)** (Prerequisites: FNH 3274, FNH 4283). One hour lecture. Eight hours laboratory. Practical experience in the management of quantity food production for specialty dinners and catering, including purchasing and cost accounting.

FNH 4283/6283. Purchasing Food and Equipment for Food Service Systems. (3) Three hours lecture. Procuring food and equipment for foodservice systems. Product specifications, cost-effectiveness, value analysis, and quality standards.

**FNH 4293/6293. Vitamins, Minerals and Supplements. (3)** (Prerequisite: CH 2503 or equivalent with consent of instructor). Three hours lecture. Advanced human nutrition and metabolism of regulatory micronutrients.

**FNH 4313/6313. Advanced Science of Muscle Foods. (3)** Exploration of the ultra-structure of muscle (pre and post harvest), and the microbiology, inspection and safety, nutritional prosperities, and sensory characteristics of muscle. (Same as ADS 4313/6313)

**FNH 4333/6333. Food Law. (3)** (Prerequisite: consent of instructor). Two hours lecture. Two hours laboratory. Role of law, mandatory and optional food regulations exercised by state, federal, and international agencies on food quality, safety, wholesomeness, nutrition, and security.

**FNH 4353/6353. Nutrition Throughout the Life Cycle. (3)** (Prerequisite: BIO 4253/6253 or consent of instructor). Three hours lecture. Study of interrelationships of physiological, biochemical and sociological factors and nutrient needs of individuals and groups during the life cycle; infancy through the later years. (HS 4353/6353).

**FNH 4373/6373 Career Success Skills in FNH. (3)** Three hours lecture. Refinement of skills utilized in the delivery of food science, nutrition and health promotion careers. Emphasizes use of technology in development of activities for diverse settings.

**FNH 4393/6393.** Prevention and Control of Disease. (3) Three hours lecture. An examination of how food science, nutrition and health promotion relate to chronic diseases. Prevention, control, and detection are examined.

**FNH 4414/6414. Microbiology of Foods.** (4) (Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Isolation and classification of the microorganisms associated with spoilage of commercial and domestic preserved foods. (Same as BIO 4414/6414).

FNH 4513/6513. Poultry Processing. (3) Two hours lecture. Two hours laboratory. Operation and study of modern processing equipment: basic and fur-

ther processing including regulation and marketing of products. (Same as PO 4513/6513).

FNH 4553. Current Issues in Food Science. (3) Three hours lecture. Discussion of selected topics in the area of food science. Emphasis on topics published by the IFT's Expert Panel on Food Safety and Nutrition and the IFT Office of Scientific and Public Affairs. (This course is designed for certification programs and not for students enrolled in degree programs at MSU.)

FNH 4563. Food Products Evaluation. (3) Basic principles and applications in food product measurements, including physical (viscosity, texture), chemical (pH, acidity), microbiological (bacteria, yeast), and sensory methods will be discussed. (This course is designed for certification programs and not for students enrolled in degree programs at MSU).

**FNH 4573/6573. Food Engineering Fundamentals. (3)** (Prerequisites: MA 1713, PH 1123, or consent of instructor.) Three hours lecture. Fundamentals of engineering as applied to food and agricultural products. Emphasis on units and dimensions, thermodynamics, mass and energy balances, fluid flow and heat transfer.

FNH 4583/6583. Food Preservation Technology. (3) Two hours lecture. Two hours laboratory. Basics and unit operations on thermal processing, refrigeration/freezing, concentration/dehydration, fermentation, preservatives, baking, low thermal processes, modified atmospheres, wastewater, and shelf-life will be discussed. (Same as PSS 4583/6583).

FNH 4593/6593. New Food Product Development. (3) (Prerequisite: Senior Level Standing). Two hours lecture. Two hours laboratory. New product development, original idea through preliminary appraisal, economic and technological feasibility studies, laboratory developments, organoleptical and consumer testing, and revisions to final decision making.

**FNH 4613/6613. Seafood Processing. (3)** Two hours lecture. Two hours laboratory. A study of basic food science and technology principles directed toward seafood and aquaculture food harvesting, processing, marketing, and regulation.

**FNH 4773/6773. Introduction to Environmental Health. (3)** Three hours lecture. Examines the relationship of people to their environment, how the environment can influence physical well-being, and importance of environmental protection to overall community health.

**FNH 4783/6783. School and Community Drug Use Prevention. (3)** Three hours lecture. Evidence-based prevention program for alcohol, tobacco, and other drugs in schools and communities. Focus on prevention through the Coordinated School Health Programs.

FNH 8111-8141. Food Science, Nutrition and Health Promotion Seminar. (1) One hour lecture. Preparation and presentation of reports on specially assigned current topics in Food Science, Nutrition and Health Promotion.

**FNH 8113.** Advanced Food Microbiology. (3) (Prerequisite: FNH/BIO 4414/6614). Three hours lecture. Advanced concepts in food microbiology emphasizing food quality and safety.

**FNH 8143. Advanced Food Chemistry. (3)** (Prerequisite: FNH 4243/6243). Three hours lecture. Designed for students to recognize and appreciate the various colloidal phenomena encountered in foods, and to develop a knowledge of techniques employed in their investigation.

**FNH 8153. Wellness and Aging. (3)** (Prerequisites: PE 3303 or PSY 4403/6403 or consent of Department). Three hours lecture. A study designed to prepare practitioners to initiate, develop, and conduct programs in wellness and movement activities for the enrichment of life in older populations.

FNH 8163. Flavor and Food Acceptance. (3) (Prerequisite: CH 2503). Three hours lecture. Sensory responses with emphasis on smell, taste, tact, and appearance as related to foods. Techniques of panel and physiochemical methods of testing.

**FNH 8193.** Problems in Health Education. (3) Three hours lecture. Includes current information relating to various health problems in our society. Stresses methods of prevention and wellness at different levels of curriculum organization.

**FNH 8233. Maternal, Infant, and Child Nutrition. (3)** Three hours lecture. Nutritional needs during reproduction and growth; problems in nourishing women during the reproductive period, infants, and children; indices of growth and development.

FNH 8243. Community Nutrition. (3) (Prerequisite: FNH 3213 or consent of instructor). Three hours lecture. Nutrition services and problems in the community. Supervised experience in methods for determining and implementing action programs in nutrition education.

FNH 8253. Nutrition and Food Science Research Techniques. (3) Spring semester. One hour lecture. Six hours laboratory. Application of various instruments and techniques for assay of food and biological material.

**FNH 8273.** Advanced Clinical Nutrition. (3) (Prerequisite: Senior-level Medical Nutrition Therapy course). Three hours lecture. Study of advanced knowledge of principles of nutrition, pathophysiology and medical management of specific disease states and impact on nutritional status including current research.

**FNH 8286. Supervised Practice Experience.** (6) Prerequisite: Admission into the Dietetic Internship/Graduate Studies Program). Supervised practice experiences in clinical, community, and food service systems settings. May be repeated for credit.

FNH 8333. Food Safety and Security in Public Health. (3) (Prerequisite: Enrolled in graduate school, MPH program, or consent of instructor). Three hours lecture. Epidemiology and risk factors for illness from microbial food contaminates. Pre- and post-harvest interventions will be addressed. (Same as CVM 8333).

**FNH 8423. Meat Science. (3)** Summer semester. (Prerequisites: CH 4513/6513 or equivalent and BIO 3304 or equivalent). Three hours lecture. Basic study of the value of meat and how this information is applied to the evaluation, processing and preservation of meat, meat products and meat by-products. (Same as ADS 8423)

**FNH 8513. Theory and Practice of Health Education. (3)** Three hours lecture. Historical perspectives and current status of health education/promotion. Fundamental constructs of the discipline in school, community, and work site settings.

**FNH 8523. Health Promotion Techniques. (3)** Three hours lecture. Examination of techniques utilized in delivery of health promotion interventions. Emphasizes use of technology in development of activities suitable for diverse audiences and settings.

**FNH 8543. Health Education for Diverse Populations. (3)** Three hours lecture. This course is designed to help students identify and develop programs to overcome the health disparities that exist in diverse populations.

**FNH 8553. Behavioral Epidemiology. (3)** Three hours lecture. Behavioral and social environmental issues related to premature morbidity and mortality patterns. Current research literature and application of epidemiological principles to health education/promotion.

**FNH 8563. Principles of Epidemiology and Health Science Research. (3)** Three hours lecture. Development of skills to interpret epidemiological research. Evaluation of various study design commonly used in the field of epidemiology related to health sciences.

FNH 8572. Advanced Food Technology. (2) (Prerequisites: FNH 6583 and/ or consent of instructor). Two hours lecture. Introduction and discussion of recent developments in Food Science and Technology including aseptic processing, microwave technology, food irradiation, separation techniques, and modified atmosphere packaging.

FNH 8613. Design and Administration of Health Promotion Programs. (3) Three hours lecture. Principles of health promotion planning models applicable to school, community, and work site programs. Investigation of existing programs and current literature.

**FNH 8623. Current Issues in School Health. (3)** Three hours lecture. Examination of the role of the health educator in the Coordinated School Health Program. Review of current curricular approaches and issues in school health.

**FNH 8653. Implementation and Evaluation of Health Promotion Programs. (3)** Three hours lecture. Development and application of evaluation protocols for health promotion programs. Process, impact, and outcome measures are examined.

**FNH 8983. Ingredient Technology. (3)** Three hours lecture. A specialized study of the major food ingredients including functionality, applications, formulations, and legal considerations for formulated products.

## Department of FORESTRY

#### Office: 105 Thompson Hall

Professors Dicke, Evans, Ezell (Head), Grace, Grado, Grebner, Hughes, Londo, Matney, Munn, Roberts, Schultz, and Stuart; Associate Professors Grala, Rousseau, and Sun; Assistant Professors Fan, Frey, Gordon, Hatten Henderson, Kushla, and Yuceer

FO 1101. Forest Resources Survey. (1) One hour lecture. Survey of the professional resource manager's role and career opportunities in providing forestbased goods and services. Not open to Forest Resources majors with senior standing.

**FO 2113. Dendrology. (3)** (Prerequisite: BIO 1144 or BIO 2113 or equivalent). Two hours lecture. Four hours laboratory. Introduction to the identification and systematic classification of trees and other woody plants. Field exercises to promote the recognition and identification of trees and other woody plants.

FO 2213. Forest Measurements. (3) (Prerequisite: ST 2113 or equivalent). Three hours lecture. Principles of measurement for standing and felled trees. Inventory and sampling theory for forested lands.

FO 2443. Essentials of Biotechnology. (3). Three hours lecture. An introduction to principles and applications of biotechnology. (Same as CVM 2443)

**FO 3012.** Introduction to Forest Communities. (2) (Prerequisites: PSS 3303, FO 2113). Field exercises to gain practical knowledge of soil-geology-ecology interrelationships through trips to physiographic regions.

FO 3015. Forest Description and Analysis. (5) (Prerequisites: ST 2113, FO 2213). Field and laboratory exercises to gain practical experience with forest and

land measurement techniques and equipment. Mapping inventory, and analysis of forested tracts.

**FO 3101. Computer Application for Forest Resources Laboratory.** (1) (Co-requisite: FO 3102). Two hours laboratory. Practice and demonstration of general and professional software packages used in upper level courses and professional settings in Forest Resources.

FO 3102. Computer Applications for Forest Resources. (2) (Prerequisite: Three hours of courses in the College of Forest Resources or consent of instructor. Co-requisite: FO 3101). Two hours lecture. Application of microcomputer concepts in forest resources with emphasis in Forestry, and general and professional software packages in professional settings.

FO 3113. Forest Recreation Management. (3) Three hours lecture. Studies of the management of forest resources for outdoor recreation.

FO 3202. Forest Fire. (2) (Co-requisite: FO 3201). Two hours lecture. Forest fire control and use. Aspects of fire effects, prevention, detection, suppression and the use of prescribed burning in forest management.

FO 4113/6113. Forest Resource Economics. (3) (Prerequisites: AEC 2713 or equivalent). Three hours lecture. Basic principles of forest resource valuation; economics applied to production, conversion, marketing and consumption of forest products and benefits.

FO 4123/6123. Forest Ecology. (3) (Prerequisite: FO 3012). Three hours lecture. Four hours laboratory. Natural principles governing establishment, development, and functioning of forest ecosystems. Includes ecology, genetics, physiology, tree growth, reproduction, site, stand dynamics, energetics, hydrology, nutrition, and succession.

FO 4213/6213. Forest Biometrics. (3) (Prerequisite: FO 3102, FO 3101, and FO 3015). Three hours lecture. Applications of mensurational and statistical principles and techniques in determination of forest growth and yield. Advanced topics of forest resource inventory.

**FO 4221/6221. Practice of Silviculture Laboratory. (1)** (Prerequisite: FO 4123/6123 or WFA 4223; Co-requisite: FO 4223/6223). Four hours laboratory. Application of silviculture practices and operations under given forest land management objectives.

**FO 4223/6223. Practice of Silviculture. (3)** (Prerequisites: FO 4123/6123, FO 4121/6121 or WFA 3133 and WFA 4223; Co-requisite: FO 4221/6221) Three hours lecture. Manipulation to obtain desired reproduction and to attain optimum development under given forest land management objectives.

FO 4231/6231. Introduction to Wood Supply Systems. (1) (Co-requisite: FO 3015 or consent of instructor). Investigative field and laboratory exercises used to gain practical knowledge into the structure and performance of wood supply systems.

**FO 4233/6233. Forest Operations and Harvesting. (3)** (Prerequisites: FO 3015, FO 4231/6231). Three hours lecture. Study of practical, managerial, and logistic considerations associated with harvesting and other forest operations, as well as their social, environmental, and legal influences.

FO 4253/6253. Timber Procurement. (3) (Prerequisites: FO 4231/6231, FO 4233/6233). Lectures and field exercises dealing with the problems of timber procurement to include planning for harvest, methods of handling and transport, legal, and safety considerations.

FO 4313/6313. Spatial Technologies in Natural Resources Management. (3) (Prerequisite: FO 3015 or GR 2313 or consent of instructor). Three hours lecture. Three hours laboratory. Fundamentals of scale, area, height, and stand volume determinations from aerial imagery: planimetric and topographic mapping; image interpretation; GPS and GIS; applications to natural resources.

FO 4323/6323. Forest Resource Management. (3) (Prerequisites: FO 4213/6213, FO 4113/6113, FO 4233/6233, FO 4231/6231, FO 4223/6223). Three hours lecture. Three hours laboratory. Application of quantitative decision-making techniques to stand-level and forest-wide management problems. Topics include land classification, forest production, optimal rotation analysis, and harvest scheduling.

FO 4343/6343. Forest Administration and Organization. (3) Three hours lecture. Hierarchy and land structuring of forest organizations. Legal aspects of administering forest land holdings.

FO 4353/6353. Natural Resource Law. (3) (Prerequisite: Junior standing or consent of instructor). Three hours lecture. A comprehensive study of the laws relating to natural resources and forestry with emphasis on tort law, real property law, environmental law, taxation law, and contract law.

FO 4411/6411. Remote Sensing Seminar. (1) (Prerequisite: Junior Standing). One hour Lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on next-generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, ECE 4411/6411, GR 4411/6411).

FO 4413/6413. Natural Resources Policy. (3) (Prerequisite: Senior standing). Three hours lecture. Current topics relating to natural resources policy which affect management decisions and practices in the public and private sectors of natural resources use.

**FO 4423/6423. Professional Practice. (3)** (Prerequisite: FO 4323/6323). Three hours lecture. Four hours laboratory. Forest resources data collection and analysis. Development of forest resource alternatives and recommendations for a specific forest property.

FO 4443/6443. International Forest Resources and Trade. (3) (Prerequi-

site: Consent of Instructor). Three hours lecture. A study of the world's wood consumption, marketing arrangements, community forestry, and forestry in economic development.

FO 4451/6451. Remote Sensing Applications Laboratory. (1) (Co-requisite: FO 4452/6452. Prerequisites: A basic image interpretation or remote sensing course or consent of instructor). Three hours laboratory. Practical approaches to interpretation of remote sensing data. Emphasis is on computer applications for image analysis.

FO 4452/6452. Remote Sensing Applications. (2) (Co-requisite FO 4451/6451; Prerequisite: A basic image interpretation or remote sensing course or consent of instructor). Two hours lecture. An introduction to remote sensing with emphasis on analysis and applications of digital image data in inventory, monitoring, and management of renewable natural resources.

**FO 4463/6463. Forest Hydrology and Watershed Management. (3)** (Prerequisites: PSS 3303, FO 3012, FO 4123/6123, FO 4121/6121 or consent of instructor). Synthesis of fundamental properties and processes of forest soils, hydrology, and water quality with emphasis on watershed and ecosystem management factors.

FO 4471/6471. GIS for Natural Resource Management. (1) (Co-requisite: FO 4472/6472. Prerequisite: Junior standing). Three hours laboratory. Computer laboratory exercises that stress development, management and use of digital geographic data for management of natural resources.

FO 4472/6472. GIS for Natural Resource Management. (2) (Co-requisite: FO 4471/6471. Prerequisite: Junior standing). Two hours lecture. Introduction to geographic information systems (GIS) with emphasis on collection, encoding, storage, retrieval, and analysis of spatial data for use in management of natural resources.

FO 4483/6483. Forest Soils. (3) (Prerequisites: PSS 3303, FO 3012, FO 4123/6123, FO 4121/6121, or consent of instructor). Three hours lecture. Synthesize current information on fundamental properties and processes of forest soils with emphasis on applications to silviculture, soil conservation, and sustainable management of forested ecosystems.

FO 8111. Graduate Seminar. (1) Review of and discussion of current forestry issues. Presentation of student reports.

FO 8143. Advanced Forest Economics. (3) Three hours lecture. Application of current theory and techniques of economics to forestry. Emphasis is on the use of quantitative tools to improve decision-making in forest resource management.

FO 8153. Quantitative Forest Ecology. (3) (Prerequisites: MA 1723 and ST 8114 or consent of instructor). Three hours lecture. Analytical models, fitting model coefficients to data, life tables, spatial patterns, interspecific competition, and species diversity.

FO 8163. Nonmarket Forest Values. (3) Three hours lecture. (Prerequisite: FO 4113 or equivalent or consent of Instructor). The course will deal with the valuation of nonmarket, non-timber outputs or amenities derived from the forest.

FO 8173. Advanced Spatial Management. (3) (Prerequisite: an introductory course in remote sensing and/or geographical information systems or consent of instructor. Three hours lecture. Group discussion and application of integrated remote sending, image analysis and GIS software tools for assessment of natural resources.

FO 8211. Graduate Seminar. (1) Review of and discussion of current forestry issues. Presentation of student research.

FO 8213. Advanced Silviculture. (3) (Prerequisite: FO 4223 or consent of instructor). Three hours of lecture and/or field trips once per week. Silvicultural practices in context of the total ecological principles in decision making process. Emphasis on silviculture of bottomland hardwoods.

FO 8233. Advanced Forest Inventory. (3) Three hours lecture. Design and analysis of forest resource inventories. Growth functions, yield tables, measures of site quality and stocking, and advanced sampling topics.

FO 8243. Advanced Forest Resource Management and Planning. (3) (Prerequisite: FO 8143). Three hours lecture. Emphasis is on the assessment of multiple-use alternatives. Data needs, resource trade-offs, and economic and policy implications are discussed.

FO 8293. Professional Paper. (3) (For Master of Science non-thesis option students only). Demonstration of ability to compile, synthesize, and evaluate information, and to effectively communicate analyses and conclusions.

FO 8313. Spatial Statistics for Natural Resources. (3) (Prerequisites: ST 4313/6313 and introductory GIS course, or consent of instructor). Three hours lecture. Concepts and methods of spatial statistics as applied to natural resource monitoring and management.

FO 8961. Nobel Topics in Physiology/Medicine and Chemistry. (1) (Prerequisite: Graduate standing and consent of instructor). One hour seminar. Course provides historic and current understanding of topics awarded with a Nobel Prize. May be repeated three times for credit. (Same as CVM 8961 and GNS 8961)

FO 8973. Scientific Writing. (3). (Prerequisite: Graduate standing and consent of instructor). Three hours lecture. The course provides advanced training in research proposal, grant proposal, and manuscript writing. (Same as ADS 8973 and CVM 8973).

FO 8983. Advanced Biotechnology. (3). (Prerequisites: BCH 6603, BCH 6613, BCH 6713 or consent of instructor). Three hours lecture. Advanced biotechnology course with an emphasis on environmental, biopharmaceutical, industrial, and medical technologies. (Same as CVM 8983).

## Department of FOREST PRODUCTS

Office: Forest Products Department

Professors Barnes, Borazjani, Diehl, Kim, Nicholas, Schultz, Seale, Shmulsky (Head), Steele, and Zhang; Assistant Professors Hassan, Kitchens, Prewitt, and Shi; Assistant Extension Professor Jones

**FP 1103. Wood Technology and Products. (3)** Three hours lecture. A survey of wood structures, properties and products, including reconstituted wood products, chemicals from wood and wood preservation.

**FP 3012. Introduction to Forest Industries. (2)** 40 hours per weeks for two weeks of laboratory (industry tours). Guided introduction to forest products industries and processes.

FP 4013/6013. Wood Anatomy. (3) (Prerequisite: FP 1103 or consent of instructor). Two hours lecture. Three hours laboratory. Anatomy of commercial timber species; elements of botanical microtechnique, fundamentals of microscopy, and fundamental properties: gross and minute structural characteristics of wood leading to identification.

**FP 4023/6023. Wood Chemistry. (3)** (Prerequisite: CH 1053 or CH 1223). Three hours lecture. Introduction to the distribution, chemical structure, reactions and uses of the chemical components of wood including cellulose, hemicellulose, lignin, and extractives.

**FP 4113/6113.** Adhesives and Finishes for Wood. (3) (Prerequisite: CH 1053, FP 1103, or consent of instructor). Two hours lecture. Three hours laboratory. Theory and technology of adhesion; adhesive types, application equipment; fundamentals of coating technology; wood finishes; finishing systems; evaluation of glued, finished products; market volumes.

FP 4123/6123. Lumber Manufacturing. (3) (Prerequisite: Consent of instructor). Two hours lecture. Three hours laboratory. Raw materials, production methods and product specifications for sawn wood products. Machinery and plant layout. Operation, control, and analysis of lumber manufacturing systems; markets.

**FP 4143/6143. Composite Wood Products. (3)** (Prerequisite: FP 4113 or consent of instructor). Two hours lecture. Three hours laboratory. Study of physical and chemical parameters affecting reconstituted wood products; laboratory investigation of processing methods; industrial standards and quality control; markets.

**FP 4213/6213. Wood Deterioration and Preservation. (3)** (Prerequisite: Consent of instructor). Two hours lecture. Three hours laboratory. Thermal, biological, and mechanical agents of wood products deterioration; biological control; design considerations; wood preservatives, preservation systems; treatability; preservative effectiveness; standards, pollution control.

FP 4223/6223. Furniture Production I. (3) (Prerequisite: FP 1103 or consent of instructor). Two hours lecture. Three hours laboratory. The theory of furniture production; materials for furniture; manufacturing machines and their functions; wood machining and sanding; finishing; industrial processes; marketing.

**FP 4233/6233. Furniture Production II. (3)** (Prerequisite: FP 1103 or consent of instructor). Two hours lecture. Three hours laboratory. General principles of upholstered furniture design; frame construction and analysis; material selection; fasteners; joint construction; and testing standards.

**FP 4253/6253. Quantitative Methods in Forest Products and Furniture.** (3) (Prerequisite: MA 1613 or MA 1713, BIS 1012 or concurrent). Three hours lecture. Application of economic principles to the production and marketing of forest products; production theory of single and multiproduct firms; computer applications.

**FP 4313/6313. Environmental Principles. (3)** (Prerequisites: FP 3012 or consent of instructor). Three hours lecture. Environmental regulations pertaining to Forest Products industries. Handling and transport of hazardous compounds. Sources of environmental problems, fate in the environmental, and common control technologies.

**FP 4323/6323.** Physical Properties of Wood. (3) (Prerequisite: FP 1103, MA 1613, PH 1113, or consent of instructor). Two hours lecture. Three hours laboratory. Equation derivation; dimensional behavior; psychometry; thermal properties; electricity; moisture movement; case studies/problems.

FP 4353/6353. Forest Products Marketing. (3) (Prerequisites: FP 3012 and junior standing). Marketing and practices used by forest products and furniture producing companies as related to differentiated vs non-differentiated products by consumers.

**FP 4413. Professional Practice. (3)** (Prerequisite: Senior standing). Three hours independent study. Seniors will be exposed to all FP faculty members and required to prepare both written and oral reports on a variety of FP topics.

FP 4423/6423. Mechanical Properties of Wood. (3) (Prerequisite: FP 1103, MA 1613, PH 1113, or consent of instructor). Two hours lecture. Three hours laboratory. Strength and elasticity of wood and wood composites; variation in properties as function of structure, moisture, temperature and time; derivation of working stresses; structural design.

**FP 8111. Research Seminar. (1)** Review of current research work in wood science and technology; the scientific method; philosophy of research.

FP 8121. Research Seminar II. (1) One hour seminar. Review of current

research work in wood science and technology; the scientific method; philosophy of research. This course focuses on oral communication skills.

**FP 8123.** Advanced Lignocellulosic Biomass Chemistry. (3) (Prerequisite: Consent of instructor). Three hours lecture. Carbohydrate chemistry; chemistry of cellulose and cellulosics, hemicellulose, lignins, extractives, and bark; pulping and bleaching chemistry; analysis of lignocellulosic materials; biodegradation of lignocellulosics; biomass products.

**FP 8133. Environmental Issues in Forest Products. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Environmental impact, regulations, management of wood treatment by-products and chemical wastes; biodegradation microorganisms; bioremediation; biomass residues; soil, sediment, water, air contaminations; current clean-up technologies.

**FP 8213. Advanced Wood Mechanics. (3)** (Prerequisite: Consent of instructor). Two hours lecture. Three hours laboratory. Study of elastic and viscoelastic behavior of wood composites; fracture in wood; stress analysis; current topics in wood mechanics.

## **GENERAL AGRICULTURE**

**GA 1111. Survey of Agriculture. (1)** One hour lecture. A study of the overall function, historical beginnings, organization and operation of the agricultural industry in the United States and the world.

## **GENERAL ENGINEERING**

Office: 250 McCain Engineering Building

Professors: L. Bruce, Rajala, and Bowden

Instructors: Barton, Brocato, Dechert, Green, Nelson and Verdell

GE 1011. Introduction to Engineering for Pre-engineers. (1) One hour lecture. Introduction to engineering disciplines. Overview of techniques for success in engineering including time management, study skills, technical communication, and career planning. Required for pre-engineering majors.

**GE 1021. Engineering Success.** (1) One hour lecture. This course is designed to facilitate: professional, academic, and personal development. Also, it provides an orientation to Mississippi State University.

GE 2713. Introduction to Engineering and Public Policy. (3) (Prerequisite: EN 1113 or equivalent). Three hours lecture. A multidisciplinary analysis of public policy issues involving engineering and technology and the use of policy science to explore complex policy issues. (Same as PS 2713)

**GE 3011. Engineering Entrepreneurship Seminar.** (1) Two hours seminar. Current topics in engineering entrepreneurship to enable students to better understand the role of the entrepreneur in creating start-up companies and leading young existing companies.

GE 3513. Technical Writing. (3) (Prerequisites: Completion of English composition requirements; junior standing). Three hours lecture. Instruction and practice in technical writing for scientific and engineering fields, emphasizing analysis and development of correspondence, progress and research reports, instruction, and proposals.

## **GENETICS**

## (For the interdisciplinary graduate programs in Genetics, consult the Graduate Bulletin.)

**GNS 3103.** Genetics I. (3) (Prerequisites: MA 1313 and BIO 1134 or BIO 2113). A comprehensive course covering a broad range of topics including transmission, populational, and molecular genetics. Prokaryotic and eukaryotic cell types and plant and animal examples are used. (Same as PO 3103 and BIO 3103).

**GNS 4133/6133. Human Genetics. (3)** (Prerequisite: BIO 1504 or consent of instructor). Three hours lecture. Principles of Mendelian and molecular genetics as applied to humans. Description and causes of human genetic diseases and other anomalies. (Same as BIO 4133/6133).

**GNS 4804/6804.** Molecular Biology Methods. (4) (Prerequisite: Co-registration in BCH 4613/6613). Two hours lecture. Four hours laboratory. A comprehensive course to teach the student the modern methods of biochemistry including molecular biology. (Same as BCH 4804/6804).

**GNS 6123. Animal Breeding. (3)** Fall semester. (Prerequisite: PO 3103). Three hours lecture. The basis for genetic improvement of livestock, including the study of variation, heritable characteristics, mating systems and methods of estimating breeding values. (Same as ADS 4123/6123.)

**GNS 6713.** Molecular Biology. (3) (Prerequisite: Co-registration in BCH 4613/6613). Three hours lecture. A study of basic molecular process such as syn-

thesis of DNA, RNA, and protein in both prokaryotic and eukaryotic cells. Offered fall semester. (Same as BCH 4713/6713).

**GNS 8643. Molecular Genetics. (3)** (Prerequisites: PO 3103 or BIO 3103 and Co-registration in BCH 4613/6613). Three hours lecture. Study of the gene and its expression with emphasis on structure and function in higher organisms. (Same as BCH 8643 and PHY 8643).

**GNS 8961.** Nobel Topics in Physiology/Medicine and Chemistry. (1) (Prerequisite: Graduate standing and consent of instructor). One hour seminar. Course provides historic and current understanding of topics awarded with a Nobel Prize. May be repeated three times for credit. (Same as CVM 8961 and FO 8961)

## Department of GEOSCIENCES

#### Office: 108 Hilbun Hall

Professors Mylroie, Schmitz, and Wax; Associate Professors Brown, Cooke, Dewey, and Rodgers; Assistant Professors Ambinakudige, Clary, Dixon, Dyer, Grimes, Kirkland, McNeal, Mercer, Mishra, and Sherman-Morris; Instructors Gillham, Haney, Keeney, Miller, Moe-Hoffman, J. Mylroie, Ruffin, Owen, Vandewege, and Wallace

#### GEOLOGY

**GG 1111. Earth Sciences I Laboratory. (1)** Two hours laboratory. Laboratory for GG 1113, but may be scheduled without GG 1113. Includes study of earth materials, maps, and aerial photographs. Planned primarily as a science elective for the non-geology major.

GG 1113. Survey of Earth Sciences I. (3) Three hours lecture. Study of the Earth in space, the materials of which the Earth is composed, and the processes affecting change on the Earth. Planned primarily as a science elective for the non-geology major.

**GG 1121. Earth Sciences II Laboratory.** (1) Two hours laboratory. Laboratory for GG 1123, but may be scheduled without GG 1123. Includes the study of fossils, geologic maps, and geologic cross sections. Planned primarily as a science elective for the non-geology major.

**GG 1123.** Survey of Earth Sciences II. (3) (Prerequisite: GG 1113, or equivalent). Three hours lecture. Origin and development of the Earth through geologic time. Planned primarily as a science elective for the non-geology major.

GG 1133. Planetary Geology. (3) Three hours lecture. Process oriented examination of the planets and their satellites with emphasis on the "Earth-like" planets and moons.

**GG 3133. Introduction to Environmental Geology. (3)** (Prerequisite: GG 1113). Three hours lecture. Consideration of those aspects of earth science concerned with problems arising from intensive use of earth by modern society.

**GG 3603. Introduction to Oceanography. (3)** (Prerequisite: GG 1113). Three hours lecture. A survey of the basic principles and applications of science to the study of the marine environment.

**GG 3613. Water Resources. (3)** (Prerequisite: GG 1113 or equivalent or consent of instructor.) Three hours lecture. Introduction to the location, use, recovery and environmental problems of surface and subsurface waters.

**GG 4033/6033. Resources and the Environment. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Formation and development of natural resources involving the basic evolution, planning, and design of a typical lignite coal mine, including environmental monitoring and reclamation.

GG 4063/6063. Development of Fossil Fuel Resources. (3) (Prerequisite: Consent of instructor). Three hours lecture. Formation, deposition, and extraction of fossil fuel resources. Petroleum and coal will be the main fossil fuels examined.

**GG 4113/6113. Micropaleontology. (3)** (Prerequisite: GG 1123 or equivalent). Three hours lecture. A study of microscopic fossils. May be taken with GG 4201.

**GG 4114/6114. Mineralogy. (4)** (Prerequisites: GG 1113 and CH 1223, or consent of instructor). Three hours lecture. Three hours laboratory. The physical and chemical properties of minerals; crystallography, origin, distribution, association, uses, and identification of minerals.

**GG 4123/6123. Petrology. (3)** (Prerequisite: GG 4114 or equivalent). Two hours lecture. Three hours laboratory. The origin, occurrence, and classification of the major rock types.

**GG 4133/6133. Principles of Paleoecology. (3)** (Prerequisite: GG 1123 or equivalent or consent of instructor). Three hours lecture. A study of paleoecology with special emphasis on marine paleoecology. May be taken with GG 4201.

GG 4153/6153. Engineering Geology. (3) (Prerequisite: GG 1113 or equivalent). Two hours lecture. Two hours laboratory. Application of geologic principles to location and construction of engineering structures; engineering properties of geologic materials; engineering application of equipment used by geologists.

**GG 4201/6201. Practicum in Paleontology.** (1) (Prerequisites: GG 1123 or equivalent). One hour lecture. Two hours laboratory. Laboratory for GG 4203, but may instead be taken with GG 4113 or GG 4133. A practicum in morphology of fossils, biostratigraphy, and paleoecology.

**GG 4203/6203. Principles of Paleobiology. (3)** (Prerequisites: GG 1123 or equivalent). Three hours lecture. Three hours laboratory. An introductory study of topics in paleobiology. May be taken with GG 4201.

**GG 4233/6233. Applied Geophysics. (3)** (Prerequisite: Consent of instructor). Three hours lecture. A survey of the basic principles and applications of geophysics with major emphasis on petroleum exploration.

GG 4304/6304. Principles of Sedimentary Deposits I. (4) (Prerequisite: GG 4114/6114 or consent of instructor). Three hours lecture. Three hours laboratory. Treatment of sediment and sedimentary rock. Emphasis on texture, fluid processes, deposition, structure, and diagenesis; stratigraphic analysis; and application to sub-surface flow systems.

GG 4333/6333. Geowriting. (3) Three hours lecture. Weekly library research on controversial topics in geology presented in class as written professional papers.

GG 4403/6403. Gulf Coast Stratigraphy. (3) (Prerequisite: GG 4304/6304 or consent of instructor). Three hours lecture or field trips. Systematic study of the stratigraphy of the Gulf Coast; actual field experience substituted for class work, when conditions permit.

GG 4413/6413. Structural Geology. (3) (Prerequisites: GG 4123 or consent of instructor). Two hours lecture. Two hours laboratory. Application of the principles of mechanics to the forces deforming the rocks of the Earth's crust; emphasis on structures in sedimentary rocks.

GG 4433/6433. Subsurface Methods. (3) (Prerequisite: GG 4443 and GG 4413, or equivalent). One hour lecture. Four hours laboratory. The study of subsurface geologic methods including contouring, sampling study, various types of logging, and the interpretation of subsurface data.

GG 4443/6443. Principles of Sedimentary Deposits II. (3) (Prerequisite: GG 4304). Three hours lecture. Application of principles from GG 4304. Introduces facies associations produced in depositional environments, systems, and systems tracts, tectonics and sedimentation, basin classification, and sequence analysis.

**GG 4503/6503. Geomorphology. (3)** (Prerequisite: Consent of instructor). Three hours lecture. The origin and characteristics of land forms based on a consideration of geologic processes, stages of development, and geological structure.

GG 4523/6523. Coastal Environments. (3) (Prerequisite: GG 1113 or consent of instructor). Three hours lecture. An introduction to world coastal environments, with emphasis upon major shoreline-shaping processes, geographical variation in coastal landforms, human impacts, and environmental concerns.

GG 4613/6613. Physical Hydrogeology. (3) (Prerequisite: GG 3613 or consent of instructor). Three hours lecture. Advanced study of the interrelationship of ground water and its geologic environment with emphasis on occurrence, distribution, and movement.

**GG 4623/6623.** Chemical Hydrogeology. (3) (Prerequisite: CE 3523, CE 8563, or GG 4613/6613 or consent of instructor). Three hours lecture. Advanced study of groundwater and its environment with emphasis on the chemical interaction of water with porous solids and the transport of chemical constituents.

GG 6103. Geology I: Processes and Products. (3) (Prerequisite: Consent of instructor). Three hours lecture (video and online). Principles of physical geology with emphasis on earth materials and processes, rock and mineral identification, and landscape development. Primarily for K-12 science teachers.

GG 8123. Geology II: Earth, Time and Life. (3) (Prerequisite: GG 6103 or consent of instructor.) Three hours lecture, video and online. Principles of historical geology with emphasis on geological time, earth history, fossils, evolution, and extinction. Primarily for K-12 science teachers.

GG 8203. Ocean Science. (3) (Prerequisite: GG 6103 or consent of instructor). Three hours lecture, video and online. Comprehensive examination of the ocean world, focusing on the topography, physics, chemistry, and circulation of the oceans. Primarily for K-12 science teachers.

**GG 8223.** Advanced Paleontology. (3) (Prerequisite: GG 4203 or equivalent). Two hours lecture. Two hours laboratory and field trips. Deals with topics in advanced paleontology.

**GG 8233.** Environmental Geoscience. (3) (Prerequisite: GG 6103 or consent of instructor). Three hours lecture video and online. Study of current environmental problems associated with the earth science realms: atmosphere, biosphere, hydrosphere, and lithosphere. Primarily for K-12 science teachers.

GG 8333. Planetary Science. (3) (Prerequisite: GG 6103 or consent of instructor). Three hours lecture, video and online. Examination of mineral matter and geological processes of the moon, the planets, asteroids, comets and meteorites. Primarily for K-12 science teachers.

**GG 8443.** Advanced Structural Geology. (3) (Prerequisite: Major in geology including GG 4413 or equivalent). Three hours lecture. A study of major tectonic units and the forces involved in their formation.

GG 8561. Geoscience Seminar. (1) (Prerequisite: Graduate standing). Review of current geoscience literature; preparation and presentation of formal papers.

GG 8572. Geologic Literature. (2) (Prerequisite: Major in geology). A reading course with emphasis on library research.

**GG 8613. Hydrology. (3)** (Prerequisite: GG 6103 or consent of instructor). Three hours lecture, video and online. Investigation of the occurrence, distribution, movement, and chemistry of earth's waters. Emphasis on geological controls of surface and groundwater. Primarily for K-12 science teachers.

**GG 8713. Regional Geology of Eastern North America. (3)** (Prerequisite: Major in geology). Three hours lecture. A study of physiography, structure, and stratigraphy of eastern North America.

GG 8913. Research, Readings, and Techniques in Geosciences. (3) (Prerequisite: consent of instructor). Three hours seminar. Writing and discussion of topics related to the conduct of research in the Geosciences with a focus on faculty research areas.

## **GENERAL LIBERAL ARTS**

**GLA 4001. Senior Project.** (1) (Restricted to GLA majors or permission of the instructor). One hour lecture. Cohesive capstone course that draws together the diverse threads of the liberal arts. This course encourages analysis and criticism of social, ethical, and related issues that challenge the modern world.

## GEOGRAPHY

(For departmental information, see GEOSCIENCES, GG.)

**GR 1114. Elements of Physical Geography.** (4) Three hours lecture. Two hours laboratory. Systematic study of the elements of the environmental process that form and characterize the earth's natural landscapes. May be taken as a science elective.

**GR 1123.** Introduction to World Geography. (3) Three hours lecture. A survey of the world's regions, with emphasis upon locational aspects, physical and cultural diversity, and environmental issues.

**GR 1603. Introduction to Meteorology. (3)** (Prerequisite: GR 1114, GG 1113, or equivalent). Three hours lecture. Descriptive study of weather with the objective of gaining appreciation of the variety of atmospheric phenomena. Explanation of daily weather events, their causes and impacts.

**GR 2013. Cultural Geography. (3)** Three hours lecture. Study of human occupance of the Earth, treating geographic aspects of population, settlement, origin and diffusion of cultural traits, resource utilizing systems, and political factors.

**GR 2313. Maps and Remote Sensing. (3)** Two hours lecture. Two hours laboratory. Fundamental principles of cartography and remote sensing, including types and applications. Attention is given to interpretation of surface features, environmental problem solving, and environmental planning.

**GR 3113.** Conservation of Natural Resources. (3) Three hours lecture. Consideration of the current problems associated with the conservation of soils, forests, waters, minerals, and wild life in the United States and the world.

**GR 3303.** Survey of Geospatial Technologies. (3) (Prerequisite: GR 2313 or consent of instructor.) Three hours lecture. Geographic Information Systems, Remote Sensing and Global Positioning Systems applied to earth systems and science. Includes field excursions for hands-on experience with current technologies.

**GR 3311.** Geospatial Applications. (1) (Prerequisite: GR 2313 or consent of instructor). One hour lecture. Extensive investigation of the primary geospatial computer packages. Course will focus on the utilization and application of these computer packages related to current geospatial technologies.

**GR 4123/6123. Urban Geography. (3)** Three hours lecture. Historic trends in distribution and growth of urban settlements, urban location theory; economic bases, functions, and structure of cities and metropolitan areas; urban problems; planning.

**GR 4203/6203. Geography of North America.** (3) Three hours lecture. A regional survey of the United States and Canada with emphasis upon place names, physical landscapes, historical settlement patterns, cultural regions, and environmental issues.

**GR 4213/6213. Geography of Latin America. (3)** Three hours lecture. A regional survey of Latin America with emphasis upon placenames, physical environments, cultural landscapes and their evolution, and environmental issues.

**GR 4223/6223. Geography of Europe. (3)** Three hours lecture. A regional survey of Europe with emphasis upon placements, physical environments, cultural landscapes, geopolitical evolution, end environment issues.

**GR 4233/6233. Geography of Asia. (3)** Three hours lecture. A regional survey of Asia with emphasis upon placenames, physical geography, cultural diversity and cultural landscapes, geopolitical conflicts, and environmental issues.

**GR 4243/6243. Geography of Russia and the Former Soviet Republics.** (3) Three hours lecture. A regional survey of the former Soviet Union republics with emphasis upon placenames, physical environments, ethic diversity, geopolitical evolution, and environmental issues.

**GR 4253/6253. Geography of Africa. (3)** Three hours lecture. A regional survey of the African continent with emphasis upon placenames, physical geography, cultural diversity and cultural landscapes, geopolitical changes, and environmental issues.

**GR 4263/6263. Geography of the South. (3)** Three hours lecture. A regional survey of the South with emphasis upon physical and cultural landscapes, settlement patterns, ethnic diversity, tourism development, and environmental issues.

**GR 4283/6283. Geography of Islamic World. (3)** A regional survey of Islamic countries of the world with emphasis upon physical landscapes, cultural landscapes and their evolution, geopolitical conflicts and environmental issues.

**GR 4303/6303.** Principles of GIS. (3) (Prerequisite: Junior or graduate standing, or consent of instructor). Two hours lecture. Two hours laboratory. Spatial analysis and topological relationships of geographic data using Geographic Information Systems, with emphasis on GIS theory.

**GR 4313/6313. Advanced GIS. (3)** (Prerequisite: GR 4303/6303 or consent of instructor). Two hours lecture. Two hours laboratory. Vector-based file structure and GIS queries using spatial and geodatabase attributes. Descriptive and prescriptive modeling in the raster domain including regression and linear weighted modeling.

**GR 4323/6323. Cartographic Sciences. (3)** (Prerequisite: Junior or graduate standing or consent of instructor). Tow hours lecture. Two hours laboratory. Principles of cartographic theory and map design. Types of maps, map projections, proportional symbols, use of color, mapping and statistics, interactive maps, and map animation.

**GR 4333/6333. Remote Sensing of the Physical Environment. (3)** (Prerequisite: GR 3303, GR 3311 or consent of instructor.) Two hours lecture. Two hours laboratory. Examines remote sensing methods applicable to large area analyses of watershed-level drainage systems, urban landscape, landscape vegetation metrics, physical landscape structural components, and atmospheric features.

**GR 4343/6343.** Advanced Remote Sensing in Geosciences. (3) (Prerequisite: Either GR 4333/6333, ECE 4423/6423, or FO 4452/6452, or consent of instructor.) Two hours lecture. Two hours laboratory. Geospatial image analysis; theoretical basis of radiative transfer in atmosphere and water column; quantitative remote sensing techniques and geospatial product development.

**GR 4353/6353. Geodatabase Design. (3)** (Prerequisite: GR 4303/6303 or consent of instructor.) Three hours lecture. Examination of geodatabase structures. Integration of relational databases with Geographic Information Systems. Management of spatial data using geodatabases. Implementation of Geodatabase processes through spatial programming.

**GR 4363/6363.** Geographic Information Stems Programming. (3) (Prerequisite: GR 4303/6303 or consent of instructor). Two hours lecture. Two hours laboratory. Design and implementation of geoprocessing scripts. Incorporation of modeling languages within geographic information systems (GIS) analysis. Seamless integration of other software programs with GIS software.

**GR 4402/6402. Weather Analysis I. (2)** (Prerequisite: GR 1603 or equivalent). One hour lecture. Two hours laboratory. Introduction to real-time weather information such as Difax charts, satellite and radar imagery, and text data. Emphasis placed on Nowcasting.

GR 4411/6411. Remote Sensing Seminar. (1) (Prerequisite: Junior Standing) One hours Lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on next-generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, ECE 4411/6411, FO 4411/6411)

**GR 4412/6412. Weather Analysis II. (2)** (Prerequisite: GR 4402/6402). One hour lecture. Two hours laboratory. Continuation of Weather Analysis I. Advanced analysis of current weather data in Nowcasting.

**GR 4422/6422. Weather Forecasting I. (2)** (Prerequisite: GR 4412/6412). One hour lecture. Two hours laboratory. Introduction to the process of creating and disseminating weather forecasts. Use of current weather data in creating daily forecasts for the local area.

**GR 4432/6432. Weather Forecasting II. (2)** (Prerequisite: GR 4422/6422). One hour lecture. Two hours laboratory. Continuation of Weather Forecasting I. Emphasis placed on disseminating both oral and written forecasts for the local area.

**GR 4443. Weather Prediction I. (3)** (Prerequisite: GR 1603 of consent of instructor). Three hours video and online. Examination of the complexity of weather forecasting. Emphasis on numerical weather prediction, computer models, and mesoscale analysis.

**GR 4453. Weather Prediction II. (3)** (Prerequisite: GR 4443 or consent of instructor). Three hours video and online. Continuation of GR 4443. Case studies of weather events are used to develop independent weather forecasts. Emphasis on special weather events.

**GR 4473/6473. Numerical Weather Prediction. (3)** (Prerequisite: Consent of instructor). This course provides students with an overview of the theory, processes, developments and applications of existing numerical weather prediction platforms.

**GR 4502/6502. Practicum in Broadcast Meteorology I. (2)** (Prerequisite: GR 1603 or equivalent). One hour lecture. Two hours laboratory. Introduction to developing a weather story with emphasis on producing weather graphics for television, chroma key mechanics, and weathercast communication.

**GR 4512/6512. Practicum in Broadcast Meteorology II. (2)** (Prerequisite: GR 4502/6502). One hour lecture. Two hours laboratory. Continuation of Practicum in Broadcast Meteorology I with emphasis on weather graphics production, weathercast performance, image and communication. Supported by lab practice.

**GR 4522/6522.** Practicum in Broadcast Meteorology III. (2) (Prerequisite: GR 4512/6512). One hour lecture. Two hours laboratory. Emphasis placed on advanced weathercasting, including field reporting, severe weather, and building graphics. Students are assigned actual television weather shows, with performance emphasis in the lab.

**GR 4532/6532.** Practicum in Broadcast Meteorology IV. (2) (Prerequisite: GR 4522/6522). One hour lecture. Two hours laboratory. Emphasis on the weathercasting job market in television. Students create actual television weather shows, and focus on producing a resume tape during the semester.

**GR 4603/6603. Climatology. (3)** (Prerequisite: GR 1114 or GR 1123, or equivalent). Three hours lecture. Study of the elements and controls of weather and climate, distribution and characteristics of climatic regions.

**GR 4613/6613. Applied Climatology. (3)** (Prerequisites: GR 1603 or equivalent). Two hours lecture. Two hours laboratory. Problem solving in today's world in topics such as bioclimatology, agricultural climatology and land use climatology.

**GR 4623/6623. Physical Meteorology. (3)** (Prerequisite: GR 1603). An investigation of cloud physics/precipitation processes and solar/terrestrial radiation, including atmospheric dynamics, atmospheric electricity, optics, and instrumentation.

**GR 4633/6633. Statistical Climatology. (3)** (Prerequisites: GR 1603 or GG 1113 or equivalent and MA 1313 or MA 1713). Two hours lecture. Two hours laboratory. A survey of the types of statistical weather data available. Manipulation of the data on various temporal and spatial scales.

**GR 4640/6640.** Meteorological Internship. (1-6) (Prerequisite: Consent of instructor). Hours and credits to be arranged. Internship with television station, private company or government agency under supervision of instructor.

**GR 4713/6713. Synoptic Meteorology I. (3)** (Prerequisites: GR 1603 or equivalent.) Two hours lecture. Two hours laboratory. Fundamental principles behind weather forecasting. Physical processes in the atmosphere, atmospheric circulation systems, air mass analysis, frontogenesis and frontolysis.

**GR 4733/6733. Synoptic Meteorology. (3)** (Prerequisite: GR 1603 and MA 1713). Three hours lecture. Principles and derivation of meteorological theory. Emphasis on energy exchanges, atmospheric moisture, physical processes of atmospheric motion, air masses and fronts, and cyclogenesis.

**GR 4753/6753. Satellite and Radar Meteorology. (3)** (Prerequisite: GR 1603). Three hours lecture. Study of the history, the operations, and the applications of satellites and radar in weather analysis. Theory of meteorological measurements in determinations of atmospheric structure.

**GR 4813/6813. Natural Hazards and Processes. (3)** (Prerequisites: GR 1114 or equivalent.) Three hours lecture. A survey of natural phenomena in geology, oceanography and astronomy as applied to meteorology. Detailed study of earthquakes, volcanoes, ocean movements, and solar activity.

**GR 4823/6823. Dynamic Meteorology I. (3)** (Prerequisite: GR 4733/6733). Three hours lecture. In-depth examination of the theoretical methods for determining atmospheric stability and the tools necessary to interrogate the vertical profile of the atmosphere.

**GR 4841/6841.** Observations of Severe Local Storms. (1) (Prerequisite: Consent of instructor). One hour field experience. Real-world practice in forecasting, now casting, observation, and reporting of severe storms in U.S. Great Plains.

**GR 4842/6842. Forecasting Severe Local Storms. (2)** (Prerequisite: consent of instructor) One hour lecture. Two hours laboratory. This course provides a theoretical overview and practical application of the severe local storms forecasting process.

**GR 4843/6843. Field Methods for Severe Local Storms. (3)** (Perquisite: consent of instructor). Two hours lecture. Two hours field experience. Application of the latest synoptic and mesoscale severe weather forecasting methods concluding with field operations in the U.S. Great Plains.

**GR 4913/6913. Thermodynamic Meteorology. (3)** (Prerequisite: GR 4723/6723 or equivalent). Three hours lecture. Examination of the meteorological stability within the earth's atmosphere. Focus on analysis of the various stability indices related to predicting severe weather.

**GR 4923/6923. Severe Weather. (3)** (Prerequisites: GR 4913/6913 or equivalent.) Three hours lecture. Descriptive study of severe and unusual weather across the earth. Explanation of variations in severe weather in both spatial and temporal scales.

**GR 4933/6933. Dynamic Meteorology II. (3)** (Prerequisites: GR 4823/6823 and MA 2733). Three hours lecture. Quantitative analysis and consideration of atmospheric circulation including jet streams, mid-latitude cyclones, vorticity and atmospheric kinetics.

**GR 4943/6943. Tropical Meteorology. (3)** (Prerequisite: consent of instructor) Three hours lecture. Topics include the dynamics and circulation of the tropical atmosphere, characteristics of tropical cyclones, and forecasting methodologies for tropical weather.

**GR 4963/6963. Mesoscale Meteorology. (3)** (Prerequisite: GR 4913/6913). Three hours lecture. Descriptive and physical understanding of Mesoscale processes and their relevance to the synoptic environment. A strong focus will be placed upon Severe Local Storms.

**GR 6113.** Meteorology I: Observations. (3) (Prerequisite: Consent of instructor). Three hours lecture, video and online. Principles of meteorology with emphasis on elements, controls, and forecasting of atmospheric phenomena. Concentration on daily weather observations and the movement of weather systems. Primarily for K-12 science teachers.

GR 8123. Meteorology II: Forecasting and Storms. (3) (Prerequisite GR 6113 or consent of instructor). Three hours lecture, video and online. Continua-

tion of Meteorology I. Emphasis on the forecasting of daily weather events and on severe weather. Primarily for K-12 science teachers.

**GR 8133. Foundations in Forecasting. (3)** (Prerequisite: GR 8123 or consent of instructor). Three hours lecture (online). Emphasis on daily weather forecasting at the synoptic and meso scales and introduction and investigation of advanced methods.

**GR 8303.** Advanced Geodatabase Systems. (3) (Prerequisite: GR 4353/6353 or consent of instructor). Two hours lecture. Two hours laboratory. Examination of database structures utilized in geospatial information systems. Design and use of geospatial databases through spatial programming in development and implementation of spatial models.

**GR 8313.** Advanced Cultural Geography. (3) (Prerequisite: Consent of instructor). Three hours lecture. Study and analysis of population distribution, densities, and movements; rural and urban settlement patterns and features; principles of cultural geography.

**GR 8333. Field Techniques in Remote Sensing. (3)** (Prerequisite: Either GR 4333/6333, ECE 4423/6423 or FO 4452/6452 or consent of instructor) Three hours lecture. Field spectroscopy or proximal sensing; experiment design and data collection using in situ sensor; data analysis, model calibration, and validation to quantify biophysical parameters.

**GR 8400. Field Methods in Geosciences. (1-3)** (Prerequisite: Consent of Instructor). Hours and credits to be arranged. May be taken twice. Provides field experience in the geosciences through planned and supervised outdoor projects and field trips.

**GR 8542.** Geographic Literature. (2) (Prerequisite: Major or minor in geography). A reading course with emphasis on library research.

**GR 8553. Research Methods in Geoscience. (3)** (Prerequisite: Consent of instructor). Three hours seminar and forum. Defining research problems, formulating hypotheses, collecting data, using analytical techniques, substantiating conclusions for geoscience topics; written and oral presentations of research projects required.

**GR 8563. GIS Research Applications. (3)** (Prerequisites: GR 6333, GR 6313, ST 8114 or equivalent, or consent of instructor) Two hours lecture. Two hours laboratory. This course examines the research cycle from proposal to peerreviewed publication via case studies in GIS with applications for medical epidemiology, wildfire, and emergency management.

**GR 8573. Research in Applied Meteorology. (3)** (Prerequisite: Consent of instructor) Seminar. Discussion and application of current research in applied meteorology. Individual or small group projects with research presentations.

**GR 8613. Hydrometeorology. (3)** (Prerequisite: Consent of instructor) Three hours lecture - video and online. Hydrometeorological principles with an emphasis on flood forecasting.

**GR 8633. Climate Change.** (3) (Prerequisite: Consent of Instructor) Three hours lecture. In-depth examination of changes in earth's climate through time. Focus is placed on causes, measurement, implications and complexity of climate change.

**GR 8813.** Advanced Hazards and Disasters. (3) (Prerequisite: Consent of Instructor) Three hours lecture. Advanced study of the processes, distribution, and impacts of hazards and disasters.

**GR 8833. Weather and Society. (3)** (Prerequisite: Consent of instructor) Three hours lecture. Study of the role of weather in and on society through readings, discussion and research.

**GR 8913.** Philosophy and Ethics in Geosciences. (3) (Prerequisite: consent of instructor). Three hours seminar. Writing and discussion of topics related to the history and philosophy of science, professional and academic ethics, and epistemological issues related to the Geosciences.

## **GENDER STUDIES**

#### Office: 224 Allen Hall

**GS 1173. Introduction to Gender Studies. (3)** Three hours lecture. An introduction to theoretical concepts in Gender Studies. This course will examine the influence of the women's movement on the academic development of Gender Studies (Same as AN 1173 and SO 1173).

**GS 3033. Gender Politics. (3)** Three hours lecture. Examines gender difference in law, the courts, voting, political involvement, and approaches to political power, and violence. (Same as PS 3033)

**GS 3513. Women and Literature: Selected Topics. (3)** (Prerequisite: completion of EN 1103. Three hours lecture. A study of literary works by or about women. Texts are selected according to theme, genre, and/or historical period. (Same as EN 3513).

**GS 4403/6403. Gender and Sport. (3)** Three hours lecture. An exploration of how ideologies and inequalities related to gender may be constructed, perpetuated, and/or challenged in and through sport. (Same as SS 4403/6403)

**GS 8963. Exploring Issues in Gender. (3)** (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An intensive introduction to theories of gender structures social, economic and

cultural inequalities. Designed for online Diversity Certificate program students. (Same as SO 8963)

**GS 8973. Gender and Work. (3)** (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An intensive examination of how gender impacts experiences of work from the home to the corporation. Designed for online Diversity Certificate program students. (Same as SO 8973)

## HEALTH CARE ADMINISTRATION

HCA 3313. Healthcare Systems. (3) (Prerequisite: BIS 3233). Three hours lecture. Analysis of hospital information systems using an integration approach of patient records and billing through third parties. Review of system design and reporting objectives. (Meridian campus only).

HCA 3813. Healthcare Regulations. (3) (Prerequisite: BL 2413). Three hours lecture. A review of corporate systems approach to meet state and national regulatory agency mandates for the healthcare industry utilizing best practices methodologies. (Meridian campus only).

HCA 4013. Ethical Issues in Healthcare. (3) Three hours lecture. Managerial approaches into the ethical basis of patient care exploring the legal, theistic, cost-benefit, and humanist perspectives used to set corporate policy. (Meridian campus only).

HCA 4243. Managed Care. (3) (Prerequisite: MGT 3114). Three hours lecture. An examination of healthcare as a progressive system of primary care to long term care. Emphasis on managing costs-best choice service for patient. (Meridian campus only).

HCA 4443. Healthcare Internship. (3). (Prerequisite: HCA 3313, and HCA 3813). Internship. A supervised work experience with a health care provider. Student will provide a written report to the assigned faculty member at completion of internship. (Meridian campus only).

HCA 4803. Healthcare Policy. (3) (Prerequisite: HCA 3813). Three hours lecture. A detailed study of the health care industry using an analysis of the internal resources and external environmental policies utilized by health care providers. (Meridian campus only).

## HIGHER EDUCATION

(For departmental information, see COUNSELOR EDUCATION.)

HED 8113. Administration of Student Personnel Services in Higher Education. (3) Three hours lecture. One hour laboratory. A study of the organization and administration of student personnel services with emphasis on health services, placement, financial aid and student housing.

**HED 8123. University and Community College Governance. (3)** Three hours lecture. A comprehensive survey of the field of administration of the community college and the university.

HED 8133. University and Community College Instruction. (3) Three hours lecture. A study of teaching methods and techniques, development of course content and instructional aids, and evaluation of student performance in the university and community college.

HED 8710. Practicum in University and Community College. (1-3) Observation and supervised teaching activities in a university or community college.

HED 8723. Internship in University and Community College Education. (3) Directed off-campus experiences designed to relate ideas and concepts to problems encountered in managing higher education programs.

## Department of HISTORY

#### Office: 214 Allen Hall

Professors Marcus (Head), Middleton, Snyder, and Uziogwe; Associate Professors Barbier, Damms, Hay, Messer Phillips,

Ridner, and Wu; Assistant Professors Brain, Giesen, Greene, Hersey, Hui, Lavine, Marshall, Martucci, Osman, Ward, and Williams;

HI 1063. Early U.S. History. (3) Three hours lecture. A survey of U.S. history through Reconstruction.

HI 1073. Modern U.S. History. (3) Three hours lecture. A continuation of HI 1063, covering the period from Reconstruction to the present.

HI 1163. World History Before 1500. (3) Three hours lecture. A survey of world history since prehistory until about 1500.

HI 1173. World History Since 1500. (3) Three hours lecture. A survey of world history since about 1500 until the present.

HI 1213. Early Western World. (3) Three hours lecture. A survey of western world history from ancient times to about 1600.

HI 1223. Modern Western World. (3) Three hours lecture. A continuation of HI 1213, covering the period from the 17th century to the present.

HI 1313. East Asian Civilizations to 1300. (3) Three hours lecture. A survey of China and Japan and their peoples through a multi-disciplinary approach from pre-history until the thirteenth century.

**HI 1323. East Asian Civilizations Since 1300.** (3) Three hours lecture. A survey of China and Japan and their peoples through a multi-disciplinary approach from 1300 to the present.

**HI 3013.** African American History to 1865. (3). Three hours lecture A historical examination of the life and culture of African Americans in the United States from European colonization to the end of the Civil War. (Same as AAS 3013).

HI 3023. African American History since 1865. (3). Three hours lecture. A historical examination of the life and culture of African Americans in the United States from the beginning of Reconstruction to the present. (Same as AAS 3023).

HI 3133. History of U.S. Popular Culture. (3) Three hours lecture. An historical analysis of the development of popular culture, related industries and their impact on American society.

HI 3183. World Environmental History. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A historical analysis of the interaction of humans and the natural world from the Neolithic period to the present.

**HI 3333. Mississippi History. (3)** (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A survey of Mississippi history examining economic, social, political, geographical, and cultural aspects of the state's past.

**HI 3363. History of U.S. Transportation. (3)** Three hours lecture. Course examines the history of transportation in the United States from the colonial period to the present and its role in constructing an American identity.

**HI 3613. History of Life Sciences. (3)** Three hours seminar. A survey of the historical development of the life sciences in Western culture since 1800, with respect to their social, intellectual, and political contexts.

HI 3703. The Western Church: Beginning to Reformation. (3) (Prerequisites: Completion of any 1000-level course in history or philosophy and religion.) Three hours lecture. An examination of the institutions, doctrines, and spirituality of the Western Church and their impact on Western European politics, society, and culture. (Same as REL 3703).

HI 3743. History of England. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A survey of English history from its origins to the present.

HI 3763. Hitler and Nazi Germany. (3) (Prerequisite: Completion of any 1000-level history course. Three hours lecture. A study of Adolf Hitler's personality and rise to power; and examination of the theory and practice of National Socialism.

HI 3773. (3) History of the Holocaust. (3) (Prerequisite: Completion of any 1000-level history course or consent of the instructor). Three hours lecture. An examination of the role of perpetrators, victims, and bystanders during the Holocaust.

HI 3783. Modern European Imperialism. (3) (Prerequisites: Completion of any 1000-level history course or consent of the instructor). Three hours lecture. The course surveys European imperialism from 1815 to the post-colonial world.

**HI 3813. Modern Latin America. (3)** (Prerequisite: Completion of any 1000-level history course). Three hours lecture. An introduction to the modern history of the major Latin American nations and their importance to the United States.

HI 3853. The United States and Latin America. (3) (Prerequisite: Completion of any 1000-level history course.) Three hours lecture. History of foreign policies and diplomatic relations in the nineteenth and twentieth centuries with an emphasis on strategic and security issues.

**HI 3893. 20th Century World History. (3)** (Prerequisite: completion of any 1000 level history course). Three hours lecture. Study of the world since 1900 concentrating of the themes of imperialism, nationalism, war and industrialization.

HI 3903. Historiography and Historical Method. (3) (Prerequisites: Junior or senior standing). Three hours lecture. The writings and interpretations of leading European and American historians, bibliographical aids, methods of research, preparation of bibliographies, practice in writing a research paper.

HI 4103/6103. Colonial America. (3) (Prerequisite: Completion of any 1000level history course). Three hours lecture. Study of the earliest English settlements to 1740. Emphasis on Puritanism, interaction with other people, expansion and forming of societal and political institutions.

HI 4113/6113. U.S. History 1783-1825. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. An advanced course in the history of the United States, 1783-1825, with emphasis on economic, social, political, and constitutional developments.

HI 4123/6123. Jacksonian America 1825-1850. (3) (Prerequisites: Completion of any 1000-level history course). Three hours lecture. America from the beginnings of the Jacksonian movement, its political, economic and social battles, through trans-continental expansion and the Mexican War. HI 4133/6133. Civil War and Reconstruction 1850-1877. (3) (Prerequisites: Completion of any 1000-level history course). Three hours lecture. Origins of the secessionist movement and the Civil War, the political and military battles of the War, and the struggle to reunify the nation.

HI 4143/6143. Revolutionary America. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. American provinces from 1740 until 1783. Emphasis on maturation. pluralism, role in British empire, religion, Enlightenment, and causes, ideology, and conduct of the Revolution.

HI 4153/6153. U.S. History 1877-1917. (3) (Prerequisites: Completion of any 1000-level history course). Three hours lecture. A survey of political, economic, social, and constitutional developments.

HI 4163/6163. U.S. 1917-1945. (3) (Prerequisites: Completion of any 1000-level history course). Three hours lecture. A study of all major aspects of American government and life through World War II.

HI 4173/6173. U.S. History Since 1945. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of all major aspects of American government and life since the end of World War II.

HI 4183/6183. U.S. Economic History. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. An intensive study of economic change in the United States and its impact on political and social development. (Same as EC 4183/6183).

HI 4193/6193. U.S. Environmental History. (3) (Prerequisite: Completion of any 1000-level history course). A survey of the impact of the environment in shaping the American culture, literature, politics, and economy from European colonization to the present.

HI 4203/6203. Diplomatic History of the U.S. (3) (Prerequisites: Completion of any 1000-level history course). Three hours lecture. A study of American foreign policy from the founding of the Republic to the present time.

HI 4213/6213. History of Grand Strategy & International Security. (3) (Prerequisite: Completion of any 1000-level history course). Three hours seminar. A discussion of the historic literature of grand strategy and key events in the history of international relations.

HI 4223/6223. Intelligence Gathering in the 20th Century. (3) (Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hour lecture. A discussion of myth/reality of intelligence gathering and its use as a military or diplomatic tool.

HI 4233/6233. American Military History. (3) (Prerequisites: Completion of any 1000-level history course). Three hours lecture. A survey of the military history of the United States from colonial times to the present.

HI 4243/6243. American Life and Thought. (3) Three hours lecture. A survey of the changing lives and ideas of Americans from colonial to modern times. Family life, religion, recreation, dress, communities, social theories, medicine.

HI 4253/6253. Religion in America. (3) (Prerequisite: Completion of any 1000 level history course). Three hours lecture. Surveys history of religion in America, emphasizing interaction with social and political developments. (Same as REL 4253/6253).

HI 4263/6263. America's Viet Nam War. (3) (Prerequisite: Completion of any 1000 level history course). Three hours lecture. Analysis of the U.S. conduct of Viet Nam War including topics such as: Cold War context, presidential decision-making, military doctrine, domestic opposition, and legacy.

HI 4273/6273. Women in American History. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the economic, political, and social activities of women in American history. Emphasis on Southern women.

HI 4283/6283 History of Southern Women. (3) Three hours lecture. The lives and images of women in the South from colonial times to the present. Native-, African-, and European-American women to be studied.

HI 4293/6293. History of Gender and Science. (3) Three hours seminar. Historical survey of scientific research on sex, the role of gender in the culture of science, and the contributions of women to scientific practice.

HI 4303/6303. The Old South. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. Development of the Old South from colonization through the slavery controversy and the Civil War.

HI 4313/6313. The New South. (3) (Prerequisites: Completion of any 1000-level history course). Three hours lecture. Southern life from Reconstruction times to the present.

HI 4323/6323. The American West. (3) (Prerequisites: Completion of any 1000-level history course). Three hours lecture. A survey of the western frontier in American history from colonial times to 1900.

HI 4333/6333. Native American History to 1830. (3) (Prerequisite: completion of any 1000-level history course). Three hour lecture. Native American history to 1830, concentrating on the theme of survival and adaptation to changes wrought by contact with Europeans.

HI 4363/6363. African-American History and Culture. (3) (Prerequisite: Completion of any 1000 level history course). African-Americans from their African origins to the present, emphasizing black-white relations in the making of America. (Same as AAS 4363.)

HI 4373/6373. History of Modern Civil Rights Movement. (3) (Prerequisite: Completion of any 1000 level history course). Three hours lecture. A history of the Black struggle for equality in the United States between 1930 and 1970. (Same as AAS 4373.) HI 4383/6383. Native American History Since 1830. (3) (Prerequisite: completion of any 1000-level history course). Three hours lecture. Study of American Indian history to the present with emphasis on the loss of Indian autonomy and the struggles to regain it.

HI 4393/6393. Rural America. (3) Examines the transformation and cultural significance of rural America from the colonial era to the early 21st century.

HI 4403/6403. The Ancient Near East. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the origins and development of civilizations in Mesopotamia, Egypt, and Syria-Palestine from prehistoric times to the end of the Persian period. (Same as MEC 4403/6403 and REL 4403/6403).

HI 4413/6413. Ancient Greece and Rome. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A survey of the civilization of ancient Greece and Rome.

HI 4493/6493. Terrorism in America. (3) Three hours lecture. Survey of the impact of domestic and international terrorism on American politics, society, and foreign policy since the Civil War.

HI 4553/6553. Science & Technology to Newton. (3) Three hours lecture. An examination of the history of science and technology from pre-history to Newton.

HI 4583/6583. China Since 1800. (3) (Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. China's tumultuous centuries of imperial decline, foreign assault, and nationalist and communist revolutions. Cultural and social transformations and the quest for institutional and economic modernization.

HI 4593.6593. Japan Since 1600. (3) (Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. Examines the major political, cultural, economic, military and diplomatic events that have brought Japan from sheltered feudalism to international preeminence.

HI 4603/6603. Medieval Civilization. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. An intensive study of medieval institutions and culture.

HI 4613/6613. History of the Soviet Union. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. The political, social, cultural, and economic development of the Soviet Union from its pre-Revolutionary origins to its collapse in 1991.

HI 4643/6643. Renaissance and Reformation. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. The Renaissance and its relation to religion, politics, and social life; origins of the Reformation movement and its effect on Europe in early modern times.

HI 4653/6653. The History of Science and Technology. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. Science and technology from Newton to the present, emphasizing the relationship between scientific innovation and technological application.

HI 4673/6673. Europe, 1789-1914. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the political, economic, and intellectual foundations of nineteenth century society.

HI 4683/6683. Europe: The First World War to Hitler. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. European development from the beginning of the First World War to the beginning of the Second World War.

HI 4693/6693. Europe: The Second World War to the Common Market. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. European development from the beginning of the Second World War to the present time.

HI 4713/6713. Tudor and Stuart England. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. The development of English institutions during the Tudor and Stuart periods.

HI 4723/6723. History of Britain Since 1688. (3) Three hours seminar. Historical survey of Britain since 1688 with particular emphasis on political, economic and cultural change and relations between the component nationalities with the United Kingdom.

HI 4743/6743. Evolution of International Politics. (3) Three hours seminar. Historical survey of international politics since the 18th century within its economic, cultural and military context.

HI 4753/6753. History of Russia. (3) (Prerequisite: Completion of any 1000-level history course.) Three hours lecture. The political, social, cultural, and economic development of Russia from Kievan to Soviet times.

**HI 4763/6763. History of Modern Germany. (3)** (Prerequisite: Completion of any 1000-level history course). Three hours lecture. The history of German institutions in modern times.

HI 4773/6773. History of Modern France. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. The history of French institutions in modern times.

HI 4783/6783. African Civilization to 1880. (3) (Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This is a survey course which traces the major developments in Africa to 1880. (Same as AAS 4783).

HI 4793/6793. Modern Africa. (3) (Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This course traces Africa's history from 1880 to the present. It discusses how Africa lost and regained its sovereignty and the dilemma of independence. (Same as AAS 4793.) HI 4833/6833. Colonial Latin America. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A survey of Latin America in the colonial era: geographical setting, native cultures, conquest and colonization, Portuguese and Spanish colonial administration, cultural development.

HI 4843/6843. Latin-American Republics. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. Modern Latin-American republics from the wars of independence to the present day, with special attention to Inter-American relations.

HI 4853/6853. Modern Mexico. (3) (Prerequisite: Completion of any 1000level history course). Three hours lecture. The political, economic, and social development of the Mexican nation from Independence through the age of dictators to the Great Revolution and its aftermath.

HI 4883/6883. U.S. History of Medicine. (3) Survey of the development of the medical profession and public health in the United States. Medical education and practice, scientific research, epidemics and illness emphasized.

HI 4903/6903. The Far East. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the impact of western civilization on China, Japan, and India in the nineteenth and twentieth centuries.

HI 4983. African Americans and the Law. (3). Three hours lecture. Analysis of the legal and constitutional history of African Americans from the codification of slavery and discrimination in the North to the rise of segregation. (Same as AAS 4983).

## General

HI 8603. Racism and the Color Line. (3) (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An analysis of race relations and racial inequality in the United States. Designed for online Diversity Certificate program students. (Same as AAS 8603)

HI 8773. Issues in Women's History. (3) (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An analysis of major issues in American women's history. Designed for online Diversity Certificate program students.

HI 8783. Issues in African American History. (3) (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An analysis of major issues in African American history. Designed for online Diversity Certificate program students.

HI 8793. Race and Cultural Diversity in the Workplace. (3) (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An analysis of concepts, issues, and laws relating to race and cultural diversity in public and private organizations. Designed for online Diversity Certificate program students. (Same as AAS 8793)

HI 8803. Graduate Colloquium. (3) (Prerequisite: Graduate standing). Three hours lecture. Topical focus to be determined by the faculty member conducting the colloquium. (May be taken for credit more than once).

**HI 8923. Historiography and Historical Method.** (3) (Prerequisite: Graduate standing). Three hours lecture. The writings and interpretations of leading European and American historians; bibliographical aids in history; methods of research; preparation of bibliographies; practice in writing a research paper.

HI 8973. Colloquium in U.S. Environmental and Agricultural History. (3) Three hours lecture. A review of the major themes in the agricultural history and historiography of the United States.

#### Directed Readings

HI 8103. Readings in Colonial American History. (3) HI 8113. Readings in U.S. History, 1783-1825. (3) HI 8153. Readings in U.S. History, 1877-1917. (3) HI 8163. Readings in Contemporary United States. (3) HI 8203. Readings in American Diplomatic History. (3) HI 8233. Readings in American Military History. (3) HI 8263. Readings in American Economic Developments. (3) HI 8273. Readings in Women in American History. (3) HI 8283. Readings in Women in Southern History. (3) HI 8303. Readings in the Old South. (3) HI 8313. Readings in the New South. (3) HI 8323. Readings in the American West. (3) HI 8353. Readings in African-American History & Culture. (3) HI 8443. Readings in Renaissance and Reformation. (3) HI 8503. Readings in European History, 1600-1789. (3) HI 8523. Readings in European History. 1789-1914. (3) HI 8533. Readings in European History, 1914-Present. (3) HI 8613. Readings in English History, 1485-1714. (3) HI 8623. Readings in English History Since 1714. (3) HI 8753. Readings in Russian History. (3) HI 8763. Readings in the Far East. (3)

## Seminars

HI 8813. Seminar in U.S. History Before 1877. (3)

HI 8823. Seminar in U.S. History Since 1877. (3)

HI 8833. Seminar in Southern History. (3)

HI 8853. Seminar in European History Before 1789. (3)

HI 8863. Seminar in European History Since 1789. (3)

HI 8873. Seminar in History of Science and Technology. (3)

HI 8883. US Agricultural History, 1500-2000. (3) Three hours seminar. An intensive study of agricultural and rural development in the United States and its impact on social, economic, and political changes.

HI 8893. Seminar in History of International Security and Internal Safety. (3)

**HI 8933.** Colloquium in Colonial and Revolutionary America. (3) A review of the major themes in the history and historiography of North America for the colonial period through the independence of the United States.

**HI 8943. Colloquium in U.S. History from 1787-1877. (3)** A review of the major themes in the history and historiography of the United States from the ratification of the Constitution to the end of Reconstruction.

HI 8953. Colloquium in U.S. History from 1877-1945. (3) A review of the major themes in the history and historiography of the United States from the end of Reconstruction to the end of the World War II.

HI 8963. Colloquium in U.S. History from 1945-present. (3) A review of the major themes in the history and historiography of the United States from the end of World War II until the present.

# SHACKOULS HONORS COLLEGE

#### Office: 210C Griffis Hall

Specialized Honors courses are offered under HON numbers; departmental Honors courses are listed under departmental abbreviations and numbers. The titles of departmental Honors courses clarify their equivalency to regular courses in relation to transfer credits and Core Curriculum and degree requirements. The sections available for honors credit are identified in the MSU Master Schedule each semester.

HON 1081-2091. Honors Forum. (1) One hour lecture. Weekly meeting of honors students. Discussion led by faculty and/or students on various topics.

HON 1163. The Quest Begins. (3). Seminar, chronological survey of "core texts" from the Western tradition, from Classical Antiquity to the Enlightenment. Texts (including art, music, and film) represent the great ideas from art, science, religion, politics, and culture.

HON 1173. The West and the Wider World. (3). Seminar, chronological survey of "core texts" from the Western tradition, from the eighteenth century to the present. Key non-Western texts will also be taught in order to establish the foundation of thought in the modern world.

HON 2003. Oxbridge Tutorial. (3). (Prerequisite: sophomore standing or above, completion of Composition I and II requirements, instructor's and dean's permission). Tutorial with a faculty member in the tradition of undergraduate education at Oxford and Cambridge. Readings, papers, and/or problem-sets according to a plan devised by the student and their tutor.

The following course, HON 3183, may be taken only by students who have the consent of the instructor. Since the content of the course will vary from year to year, the student should check with the instructor for more information.

**HON 3183. Honors Seminar in the Humanities. (3)** (Prerequisite: Sophomore standing or above, completion of EN 1103 and EN 1113) Three hour seminar. An investigation of interdisciplinary problems or themes in the human experience. Readings and discussions, supplemented by lectures and presentations.

HON 3193, 3198. Internship. (3,8) (Prerequisites: Junior standing or consent of instructor). Individual work experience in a governmental or public agency, under the guidance of an MSU faculty member.

HON 4003. Oxbridge Tutorial. (3). (Prerequisite: sophomore standing or above, completion of Composition I and II requirements, instructor's and dean's permission). Tutorial with a faculty member in the tradition of undergraduate education at Oxford and Cambridge. Readings, papers, and/or problem-sets according to a plan devised by the student and their tutor.

**HON 4093. Honors Thesis. (3).** (Prerequisites: junior standing and completion of English Composition requirements). Honors students may elect to conduct advanced research on an approved topic and write an Honors Thesis under the direction of a faculty member in the appropriate discipline. The student will normally register for Thesis credit over 1-2 semesters.

ADVANCED PLACEMENT CREDIT. (See Index) may be utilized to earn Phase I or II in the Honors College. Honors students may petition to use AP credit for a given subject to meet Honors requirements after successfully completing an MSU honors course in the same subject core area - humanities/fine arts, social sciences, natural sciences, or mathematics. For example: a student with AP credit for Calculus I may petition for six hours of HON credit after completing Honors Calculus II, or a student with AP credit for history may petition for six hours after completing an honors economics, history, psychology, sociology or political science course.

DEPARTMENTAL HONORS COURSES. Honors sections of departmental courses are identified by the letter "H" before the section number and/or with the word "Honors" in the title of the course. The course numbers are consistent with those listed in the Core Curriculum Requirements (see Index) and in degree program requirements. Honors sections are identified in both the departmental schedule and in the master schedule of the Shackouls Honors College, listed in alphabetical order in the printed schedule and on the university Web site.

HONORS CREDIT. In a conventional course for which there is not an honors counterpart, usually an upper division course, students may seek the opportunity to do a special project for honors credit. Such initiative yields an agreement between the student and the professor and, ultimately, notation of the successful completion of the project on the student's transcript.

# School of HUMAN SCIENCES

Office: 120 Lloyd-Ricks-Watson; Director: Michael E. Newman

Professors Cheek, Miller and Worthy; Assistant Professors Phillips and Wilmoth; Instructors Freeman and Fason

HS 1711. Professional Protocol. (1) One hour lecture. The essentials of professional protocol and accepted standards of social usage.

**HS 1523. Visual Design in Dress.** (3) Three hours lecture. Application of basic art principles to selection and design of clothing; physical, cultural, social, aesthetic, and psychological aspects of dress.

**HS 1533. Apparel Design I. (3)** One hour lecture. Four hours laboratory. Principles of clothing construction; problems involving fabric selection, use of commercial patterns, basic fitting.

**HS 1701. Survey of Human Sciences.** (1) One hour lecture. Introduction to the field of human sciences through a study of its history and the variety of professional careers available.

HS 1802. Professional Seminar I. (2) Two hours lecture. Overview of individual development and the family life cycle with emphasis on professional opportunities in the field.

HS 1813. Individual and Family Development through the Lifespan. (3) Three hours lecture. Introduction to individual and family development through the lifespan, conception to death, focusing on social and emotional development, contextual influences on development, and application.

HS 2203. Science of Food Preparation. (3) One hour lecture. Four hours laboratory. A study of foods and the principles underlying handling and preparation of food products to maintain the highest standard of quality. (Same as FNH 2203).

HS 2283. Child Health and Nutrition. (3) Three hours lecture. Nutrition requirements during pregnancy and lactation, and of infants and young children; birth defects from metabolic errors; related health of young children. (Same as FNH 2283).

**HS 2293. Individual and Family Nutrition. (3)** Three hours lecture. Fundamental principles of human nutrition and the practical application of this knowledge in the selection of adequate diets. (Same as FNH 2293).

**HS 2524. Textiles for Apparel. (4)** (Prerequisite: CH 1043). Three hours lecture. Two hours laboratory. Basic and intermediate study of fibers, yarns, fabric structure, dye, color application, and finishes. Factors influencing selection, appearance, care and serviceability. Testing textiles for apparel.

HS 2553. Fashion Merchandising. (3) Three hours lecture. A survey of the entire fashion industry as it relates to fashion merchandising.

HS 2573. Microcomputer Applications for Human Sciences. (3) Two hours lecture. Two hours laboratory. Application of microcomputer technology for human sciences.

HS 2593. Apparel/Sewn Product Analysis and Evaluation. (3) Two hours lecture. Two hours laboratory. Analysis of design and construction entities that affect cost, consumer perception, consumer satisfaction, marketability and profits of various items of apparel/sewn products.

**HS 2603. Interior Design Fundamentals. (3)** Three hours lecture. Introduce a practical approach to the application of interior design in the built environment. (For non-interior design students) (Same as ID 2603).

HS 2664. Textiles for Interiors. (4) (Prerequisite: CH 1043). Three hours lecture. Two hours laboratory. Testing and evaluation of interior textiles, including upholstery; window, wall, and soft floor coverings; bedding; and bath and tabletop products.

HS 2803. Pre-natal and Infant Development. (3) Two hours lecture. Two hours laboratory. Biological and environmental influences; behavioral and developmental patterns, from the onset of pregnancy to toddlerhood.

HS 2813. Child Development. (3) (Prerequisite: HS 1813). Two hours lecture. Two hours laboratory. Developmental characteristics of children with emphasis on the early years; implications for care and guidance.

**HS 3303.** Consumer Economics. (3) (Prerequisite: MA 1313). Three hours lecture. Economic principles as applied to consumer situations, and the consumer's relation to the American and world economy.

HS 3553. Fashion Retailing. (3) (Prerequisites: HS 2553 and either ST 2113 or BQA 2113, or consent of instructor). Two hours lecture. Two hours laboratory. Specific problems, procedures and practices in fashion retailing.

HS 3563. Visual Merchandising. (3) (Prerequisite: HS 2553 or consent of instructor). Two hours lecture. Two hours laboratory. Principles of window and interior display, individual and group participation in designing and executing displays for commercial and educational purposes.

**HS 3573. Historic Costume. (3)** (Prerequisite: Junior Standing). Two hours lecture. Two hours laboratory. Survey of costume from prehistoric to modern times with emphasis on social, cultural, political, and technological changes impacting fashion, preservation, documentation, and exhibition of artifacts.

HS 3593. Merchandising and Promotion Strategies. (3) (Prerequisite: HS 2553 and junior standing, or consent of instructor). Three hours lecture. A study of fashion presentation techniques and production requirements in the primary, secondary and retail settings.

HS 3673. Environments for Special Needs. (3) (Prerequisite: HS 2613 or consent of instructor). Three hours lecture. Laws, attitudes, conditions, specifications, and environmental issues affecting private and public spaces. (Same as ID 3673).

HS 3803. Child Care Procedures. (3) (Prerequisites: HS 2813). Two hours lecture. Two hours laboratory. Selection of appropriate equipment and supplies; program planning for nursery school and day care centers.

**HS 3813. Lifespan Theory. (3)** (Prerequisites: HS 1813 or HS 2813). Three hours lecture. An intensified exploration of human development theory, research and methodology used in the study of individuals across the lifespan.

HS 3823. Designing Child Care Programs. (3) (Prerequisites: HS 2813 and junior standing). Two hours lecture. Two hours laboratory. Designing programs for nursery-age children with emphasis on children's developmental characteristics as related to appropriate learning experiences.

HS 3833. Human Development in the Context of Leisure and recreation. (3) Three hours lecture. Introduces historical, theoretical, and empirical content focused on leisure and recreation as a context for human development across the lifespan.

HS 4193/6193. Social and Cultural Aspects of Food. (3) Three hours lecture. A study of international, regional and religious history, customs, beliefs and other impacts upon food preparation and consumption.

HS 4313/6313. Family Resource Management. (3) (Prerequisite: Junior/senior writing or consent of instructor). Three hours lecture. Decision-making in the family and operation of the household as affected by family values, philosophies, resources, and socio-economic conditions.

HS 4323/6323. Consumer Issues and Policy. (3) (Prerequisite: HS 3303 or consent of instructor). Three hours lecture. An assessment of policies and programs relating to information, product safety, and channels of appeal for the individual.

HS 4333/6333. Families, Legislation and Public Policy. (3) (Prerequisite: Junior/senior writing or consent of instructor). Three hours lecture. An examination of the impact of legislation and public policy on the well being of the family with emphasis on policy and family change.

HS 4343/6343. Apparel Design II. (3) (Prerequisite: HS 1533 or consent of instructor). One hour lecture. Four hours laboratory. Advanced problems and techniques for clothing construction; creative expression through application of techniques of flat pattern design.

HS 4403/6403. Introduction to Gerontology. (3) (Prerequisites: HS 1813 and junior/senior writing, or consent of instructor.) Three hours lecture. An introduction to the dynamics of the aging process and strategies for maximizing life satisfaction during aging.

HS 4424/6424. Teaching Methods in Agriculture and Human Sciences. (4) (Prerequisite: Junior standing in CALS major). Three hours lecture. Two hours laboratory. Planning instruction; selecting teaching teaching teaching agricultural/human science topics; using instructional technologies; evaluating learner progress. (Same as AIS 4424).

HS 4440/6440. Workshop in Human Sciences. (1-3). This course addresses current issues in human sciences.

HS 4450/6450. Work Experience in Human Sciences Related Occupations. (3-6) Work experience in two phases of occupational human sciences, development of a program of work, and incorporating the work experience into curricula.

HS 4513/6513. Social-Psychological Aspects of Clothing. (3) (Prerequisite: Three hours course in Sociology or Psychology and junior standing). Three hours lecture. Exploration of the sociological and psychological aspects of wearing apparel; human's response to and use of clothing as an aspect of behavior at different life stages.

HS 4533. Merchandise Planning and Buying. (3) (Prerequisites: HS 3553 and HS 3573). Three hours lecture. Capstone course in planning, buying and managing inventory in a fashion retail environment.

**HS 4563. Intermediate Textiles. (3)** (Prerequisite: HS 2523). Two hours lecture. Two hours laboratory. A basic study of dyes, color applications, finishes and physical testing used in manufacturing textiles.

HS 4583/6583. Entrepreneurship for Human Sciences. (3) Three hours lecture. Exploration of services/products that have potential for home-based businesses with emphasis on business, marketing, and management skills necessary for operation of these businesses.

HS 4593/6593. Creative Design Techniques. (1). (Prerequisites: HS 1533 or consent of instructor). Two hours lecture. Two hours laboratory. Application of techniques- dyeing, knitting, crochet, embroidery, beading, etc.- for creation and

embellishment of garments and accessories. Also utilization of multicultural and historic design inspirations.

HS 4683/6683. Current Housing Problems of Families. (3) (Prerequisite: Junior standing). Three hours lecture. Analysis of current housing problems confronting families, their historical development, government policies and remedial measures.

HS 4701. Internship Placement Seminar. (1) (Prerequisite: Junior standing and consent of instructor). One hour lecture. Preparation for an internship in a chosen specialization.

HS 4702. Human Sciences Senior Seminar. (2) (Prerequisite: Senior standing in Human Sciences). Two hours lecture. Examination of current societal issues and trends using an integrative approach. Emphasis on professional development and effectiveness in Human Sciences.

HS 4710/6710. Study Tour. (1-3) Experiential learning through travel in the United States or abroad focusing on specialized areas of study in human sciences.

HS 4733/6733. Computer-Aided Design for Human Sciences. (3) Two hours lecture. Two hours laboratory. Applications of computer-aided design for interior design, fashion merchandising, child development, human sciences education, consumer economics, foods and nutrition.

HS 4750. Internship. (5-8) (Prerequisite: Minimum of senior standing in major and consent of instructor). Individual work experience in an approved setting under supervision of Mississippi State University faculty.

HS 4763. Apparel, Textiles and Merchandising Internship. (3) (Senior standing, 2.0 GPA and consent of instructor). Individual work experience in an approved apparel, textiles or merchandising related setting under supervision of Mississippi State University faculty.

HS 4803/6803. Parenting. (3) ((Prerequisite: HS 1813 and junior/senior writing, or consent of instructor).). Three hours lecture. Study of the child as a part of the family in a dynamic transactional system. Emphasis on economics, stress, practical problems and child services.

HS 4813/6813. Adult Development: The Middle Years. (3) (Prerequisite: HS 1813 or consent of instructor). Three hours lecture. Theory and perspectives on adulthood in contemporary society, adjustment to internal and environmental changes, role structures, supportive networks and public policy issues.

HS 4823/6823. Development and Administration of Child Service Programs. (3) (Prerequisite: HS 3813 or concurrent enrollment). Three hours lecture. Planning, administering, and evaluating the organizational structure of a variety of child service programs.

HS 4834. The Hospitalized Child. (4) (Prerequisites: HS 3813 or concurrent enrollment, junior standing and permission of the instructor). Three hours lecture. Two hours laboratory. A pre-practicum development approach to the special needs of the hospitalized infant, child, and adolescent.

HS 4843/6843. Family Interaction. (3) (Prerequisites: HS 4853 or consent of instructor). Three hours lecture. Interaction within functional families; focus on the family as a system, on diversity and roles, and on effective interactions.

HS 4853/6853. The Family: A Human Ecological Perspective. (3) (Prerequisite: HS 1813 and junior/senior writing, or consent of instructor). Three hours lecture. The impact of internal and external factors on the development of individual and family relationships throughout the life cycle.

HS 4863/6863. Consumer Aspects of Aging. (3) (Prerequisite: HS 3303 or consent of instructor). Three hours lecture. Analysis of the decisions, issues and research related to the consumer aspects of aging from a global and national perspective.

HS 4873/6873. Positive Youth Development. (3) (Prerequisite: HS 1813 and junior/senior writing class, or consent of instructor.) Three hours lecture. Examines theoretical and empirical foundations of the growing field of Positive Youth Development; examines school and community-based programs that foster PYD.

HS 4883/6883. Risk, Resilience and Preventive Interventions. (3) (Prerequisite: HS 1813 and junior/senior writing class, or consent of instructor.) Three hours lecture. Theory and research relevant to understanding risk and resilience in human development and family studies application of risk/resilience framework to individual and family preventive interventions.

HS 4886, 4896. Teaching Internship in Human Sciences. (6,6) (Prerequisite: Admission to Teacher Education, minimum GPA of 2.5 overall and in major, and completion of all professional education courses with a C or better). Professional full-day public school teaching experience in two consecutive placements or one 16-week placement in diverse settings under direction of supervising teachers and university supervisor.

HS 8113. Trends in Infant and Child Development. (3). Three hours lecture. Overview of current research in infant and child development; implications for program development and advocacy.

HS 8313. Contemporary Youth Issues. (3). Three hours lecture. Current topics in the areas of youth studies and adolescent development.

HS 8413. Issues in Family Studies. (3). Three hours lecture. Exploration of current scholarship in relevant topics of interest in the study of families.

HS 8423. Development in Intimate Relationships. (3). A multidisciplinary investigation of how intimate relationships in contemporary U.S. society form, develop, maintain, and dissolve.

HS 8813. Seminar in Human Development and Family Studies. (3). Three hours lecture. An introduction to the graduate program, faculty research, and policies and procedures. Skills in writing a literature review, grant writing, and giving professional presentations will be learned.

HS 8823. Advanced Theories of Human Development & Family Relations. (3). Three hours lecture. Advanced study of theories of human development and family relations across the lifespan.

HS 8833. Foundations of Human Development and Family Studies. (3). Three hours lecture. Examination of the philosophical and theoretical foundations of Human Development and Family Studies.

HS 8853. Current Issues in Human Development and Family Studies. (3). Three hours lecture. An in-depth examination of particular HDFS topics of current interest to faculty and students. Critical evaluation of current research.

# INTERNATIONAL BUSINESS

## Office: 308 McCool Hall

**IB 1001. Introduction to International Business. (1)** (Prerequisite: International Business major). Introduction to International Business prepares the entering class academically and professionally for successful performance.

**IB 3900. Internship Work. (1-6)** (Prerequisite: approval of the International Business Director). Business topics examined by student during work semester. Evaluations are assigned on satisfactory/unsatisfactory basis.

**IB 3913.** Principles of International Business. (3) (Prerequisites: Senior standing in business or consent of instructor.) An overview of the major forms of international business: Exports and imports, overseas investments, production and marketing operations, licensing, financing and other international business services.

**IB 4903.** Internship Academic Report. (3) (Prerequisite: Satisfactory performance in IB 3900). Individual work experience under faculty guidance in business. Scholarly paper on approved topic required.

## **INTERIOR DESIGN**

Office: 125 Etheredge Director and Associate Professor Miller; Assistant Professors Crumpton and L. Miller; Instructor Carroll

**ID 1683. Interior Design Graphics. (3)** One hour lecture. Four hours laboratory. Introduction to basic manual drafting and tools/techniques used by interior designers in executing and reading graphic language in two dimensional form.

**ID 1694. Interior Design Studio I. (4)** (Prerequisite: ID 1683). Two hours lecture. Four hours laboratory. Introduction to the basic principles and element of design using practical and abstract applications in creative problem solving analyzing spatial form and function.

**ID 2103. CAD for Interior Design. (3)** (Prerequisite: ID 1683 or consent of instructor). Two hours lecture. Two hours laboratory. Introduction to computer-based design technology as applied in the interior design field.

**ID 2203. Rendering. (3)** (Prerequisite: Sophomore Standing). Six hours studio. A course dealing with the concepts, techniques, and media used in executing interior and exterior renderings.

**ID 2603. Interior Design Fundamentals. (3)** Three hours lecture. Introduce a practical approach to the application of interior design in the built environment. (For non-interior design students) (Same as HS 2603).

**ID 2615. Interior Design Studio II. (5)** (Prerequisite: ART 1123 and ID 1694). Three hours lecture. Four hours laboratory. Introduction to design theory and its application in the development of criteria for interior environments.

**ID 2633. Interior Materials, Treatments and Resources. (3)** (Prerequisite: HS 2664 or concurrent enrollment). Three hours lecture. Materials, equipment, services and resources available to the interior designer for meeting clients' needs.

**ID 3363.** 3/D CAD/Modeling. (3) (Prerequisite: ID 2103 or BCS 1116 or consent of instructor). Two hours lecture. Two hours laboratory. Advanced computer graphic communication for the development of technical and perspective drawings created in presentation formats using 3D imaging.

**ID 3603. Digital Design for Interiors. (3)** Three hours lecture. Introduce innovative software application programs for interior design students to create graphic presentations, portfolios and digital illustrations of interior elements.

**ID 3611. Portfolio Presentation: Methods and Media. (1)** (Prerequisites: ID 2615, ART 1213, ART 1133, ID 1683). One hour lecture. Portfolio presentation techniques for the professional practice of interior design.

**ID 3614. Interior Design Studio III. (4)** (Prerequisite: ID 2615). Two hours lecture. Four hours laboratory. Integration of the total living environment, through the application of the design elements and technical aspects of the field.

**ID 3624. Interior Design Studio IV. (4)** (Prerequisite: ID 3614). Two hours lecture. Four hours laboratory. Actual practice in the commercial design field through the execution of commercial design problems.

**ID 3633. Interior Design Detailing and Construction Documents. (3)** (Prerequisite: ID 2103 and ID 3614). Two hours lecture. Two hours laboratory. Systematic integration of building systems, construction, technology, and materials on interior systems. Detailing of these systems is an extension of the design process.

**ID 3643. History of Interiors I. (3)** Three hours lecture. A survey of furniture styles, ornament, designers, and accessories associated with period interiors from the early Egyptian period through 1850.

**ID 3653. History of Interiors II. (3)** (Prerequisite: ID 3643 or consent of instructor). Three hours lecture. Defining advancement/evolution of design philosophies in furniture and interiors of the late 19th and 20th centuries; addressing presentation skills and techniques for interior design professionals.

**ID 3663.** Color and Lighting for Interiors. (3) (Prerequisite: ID 2615). One hour lecture. Four hours laboratory. Concentrated study of color and light relationships as they apply to the visual, technical and functional aspects of interior spaces.

**ID 3673. Environments for Special Needs. (3)** (Prerequisite: ID 2615 or consent of instructor). Three hours lecture. Laws, attitudes, conditions, specifications, and environmental issues affecting private and public spaces. (Same as HS 3673).

**ID 3813. Study Abroad Seminar I. (3)** (Prerequisite: ART 1213 or consent of instructor). Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor. (Same as ARC 3813 and ART 3813).

**ID 3823. Study Abroad Seminar II. (3)** (Prerequisite: ART 1213 or consent of instructor). Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor. (Same as ARC 3823 and ART 3823).

**ID 4644. Interior Design Studio V. (4)** (Prerequisite: ID 3624). Two hours lecture. Four hours laboratory. Integration of the total living environment, through the application of the design elements and technical aspects of the interior design field.

**ID 4651. Internship Placement. (1)** (Prerequisite: Senior Standing in Interior Design and ID 4663). One hour lecture. Professional opportunities as they relate to internships for interior design students. Preparation of resume and portfolio for procurement of internship.

**ID 4654. Interior Design Studio VI. (4)** (Prerequisite: ID 4644). Two hours lecture. Four hours laboratory. Advanced study of commercial interior design problems through the individual research and the execution of design solutions.

ID 4663. Professional Procedures and Practices for Interior Designers. (3) (Prerequisite: Senior standing in ID). Three hours lecture. Professional opportunities as they relate to individual competencies. Study of studio procedures, ethics, business and legal aspects. Preparation of resume and portfolio presentation.

**ID 4693. Furniture Design. (3)** (Prerequisite: ID 2103, ID 3643, ID 3653 and consent of instructor). Two hours lecture. Two hours laboratory. Exploration of the basic methods and processes of furniture design.

**ID 4753. Interior Design Internship. (3)** (Prerequisite: Senior standing, 2.0 GPA, and consent of instructor). Individual work experience in an approved setting under supervision of Mississippi State University faculty.

## Department of INDUSTRIAL and SYSTEMS ENGINEERING

#### Office: 260 McCain Engineering Building

Professors Bowden, Bullington, Greenwood and Usher (Interim Head); Associate Professors Babski-Reeves and B. Eksioglu;

Assistant Professors S. Eksioglu and Strawderman; Instructors Dalton

**IE 1911. Introduction to Industrial Engineering.** (1) Three hours laboratory. Concepts of industrial engineering, emphasizing the total systems approach. Introduction to analysis and design of general and industrial systems.

IE 3121. Industrial Ergonomics Laboratory. (1) (Prerequisite: Undergraduate co-requisites: IE 4613, and IE 3123; Graduate co-requisite: IE 4613). Three hours laboratory. Application of human factors/ergonomics concepts in structured assignments involving data collection, analysis, and report generation. Hands-on experience with sophisticated testing equipment.

**IE 3123. Industrial Ergonomics. (3)** (Undergraduate Co-requisite: IE 4613, IE 3121; Graduate Co-requisite: IE 4613). Three hours lecture. Analysis of work tasks; ergonomic design principles for manual work design, workplace design, and work environment design; work measurements; and design of wage payment plans.

IE 3323. Manufacturing Processes. (3) (Prerequisites: Grade of C or better in IE 3913, Co-requisite: CHE 3413). Two hours lecture. Three hours laboratory. Manufacturing processes and materials; interrelationship of product design, material properties, and processing methods; robotics and CAM systems; economic factors in material, process, and equipment selection.

**IE 3913. Engineering Economy I. (3)** (Prerequisite: MA 1713). Three hours lecture. Principles of evaluating alternative engineering proposals. Economic measures of effectiveness, costs and cost estimates, basic comparative models, break even and replacement analysis.

**IE 4113/6113. Human Factors Engineering. (3)** (Prerequisite: Junior standing in engineering). Two hours lecture. Three hours laboratory. Human capabilities and limitations affecting communications and responses in man-machine systems. Emphasis on physiological and psychological fundamentals.

**IE 4123/6123. Psychology of Human-Computer Interaction. (3)** (Prerequisite: PSY 3713 or CSE 4663/6663 or IE 4113/6113 or consent of the instructor). Two hours lecture. Two hours laboratory. Exploration of psychological factors that interact with computer interface usability. Interface design techniques and usability evaluation methods are emphasized. (Same as CSE 4673/6673 and PSY 4743/6743).

**IE 4173/6173. Occupational Safety Engineering. (3)** (Prerequisite: Junior standing). Three hours lecture. Causes and prevention of industrial accidents. Analysis of hazardous processes and materials. Design of occupational safety systems and programs.

**IE 4193/6193. Automotive Engineering. (3)** Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical systems, and industrial and systems engineering aspects. (Same as CHE 4193/6193, ECE 4193/6193 and ME 4193/6193).

**IE 4333/6333. Production Control Systems I. (3)** (Prerequisite: Grade of C or better in IE 4613). Three hours lecture. Principles, analysis, and design of production and inventory planning and control. Demand forecasting, aggregated planning, inventory management, production scheduling, and control systems.

IE 4353/6353. Materials Handling. (3) (Prerequisite: Junior or senior standing). Three hours lecture. Analysis and design of materials handling systems and components. Introduction to facilities design.

IE 4373/6373. Automation. (3) Two hours lecture. Three hours laboratory. Introduction to the various technologies used in both design and manufacturing automation.

IE 4513/6513. Engineering Administration. (3) (Prerequisite: Junior or graduate standing in engineering). Three hours lecture. Study of problems confronting the engineering manager. Includes: Organization and communication theory, internal and external relationships and responsibilities, and designing and implementing managerial systems.

**IE 4533/6533. Project Management. (3)** (Prerequisites: Grade of C or better in IE 4613). Three hours lecture. Use of CPM, PERT, and GERT for planning, managing and controlling projects. Computer procedures for complex networks.

**IE 4543/6543. Logistics Engineering. (3)** (Prerequisite: IE 4613 and senior or graduate standing. Co-requisite: IE 4733 or MA 4733). Three hours lecture. Analysis of complex logistics networks. Integration or supply, production, inventory, transportation, and distribution. Strategies for reducing logistics costs and lead times. Customer-supplier partnerships.

IE 4553/6553. Engineering Law and Ethics. (3) (Prerequisite: Senior standing in engineering). Three hours lecture. The engineer and his relations to the law, to the public, and the ethics of his profession. Includes contracts, patents, copyrights, sales agreements, engineering specifications.

**IE 4573/6573. Process Improvement Engineering. (3)** Three hours lecture. Introduction to quality and productivity improvement methodologies and tools. The design and implementation of continuous improvement systems in organizations.

IE 4613/6613. Engineering Statistics I. (3) (Prerequisite: MA 1723). Three hours lecture. Introduction to statistical analysis. Topics include: probability, probability distribution, data analysis, parameter estimation, statistical intervals and statistical inferences.

**IE 4623/6623. Engineering Statistics II. (4)** (Prerequisite: Grade of C or better in IE 4613). Three hours lecture. Continuation of IE 4613/6613. Introduction to engineering applications of regression, experimental design and analysis, and nonparametric methods.

**IE 4653/6653. Industrial Quality Control I.** (3) (Prerequisite: IE 4613). Three hours lecture. The theory and application of statistical quality control: statistical process control and statistical acceptance sampling.

**IE 4673/6673. Reliability Engineering. (3)** (Prerequisites: IE 4613). Three hours lecture. Probability functions and statistical methods for component life testing and system reliability prediction. System availability and maintainability. Redundancy in time-dependent and time-independent situations.

IE 4713/6713. Operations Research I. (3) (Prerequisites: IE 4613). Mathematical techniques of decision making, queuing, networks, simulation and dynamic programming.

**IE 4733/6733. Linear Programming. (3)** (Prerequisites: MA 3113). Three hours lecture. Theory and application of linear programming; simplex algorithm, revised simplex algorithm, duality and sensitivity analysis, transportation and assignment problem algorithms, integer and goal programming. (Same as MA 4733/6733).

IE 4743/6743. Engineering Design Optimization. (3). (Prerequisite: Consent of instructor). Three hours lecture. Introduction to optimality criteria and optimization techniques for solving constrained or unconstrained optimization problems. Sensitivity analysis and approximation. Computer application in optimization. Introduction in MDO. (Same as ASE 4553/6553 and EM 4143/6143).

**IE 4753/6753. Systems Engineering and Analysis. (3)** (Prerequisite: Grade of C or better in IE 3913 and in IE 4613). Three hours lecture. Systems concepts, methodologies, models, and tools for analyzing, designing, and improving new and existing human-made systems.

**IE 4773/6773. Systems Simulation I. (3)** (Prerequisites: Grade of C or better in IE 4613 and in IE 4934 or equivalent programming course). Three hours lecture. The principles of simulating stochastic systems with an emphasis on the statistics of simulation and the use of discreet-event simulation languages.

**IE 4915. Design of Industrial Systems. (5)** (Prerequisites: Grade of C or better in the following courses : IE 3123, IE 3323, and IE 4333). Two hours lecture. Eight hours laboratory. The fundamental procedures and techniques in design of operational systems. Emphasis on both sub-systems and total systems.

**IE 4923/6923. Six Sigma Methods and Project. (3).** (Prerequisites: IE 4623/6623 and IE 4653/6653). One hour lecture. Four hours laboratory. Introduction of six sigma and problem solving methodologies. Application of learned methodologies in selecting, performing and completing a process involvement project.

**IE 4934/6934. Information Systems for Industrial Engineering. (4)** (Prerequisite: Grade of C or better in IE 1911 or consent of instructor). Three hours lecture. Three hours laboratory. An introduction to the design and development of information systems for use in industrial engineering applications.

IE 8143. Applied Ergonomics Methods. (3). Three hours lecture. Provide practical usage and theoretical background of select tools for ergonomic evaluation of workers and work places, tasks, and environments using real world scenarios.

IE 8153. Cognitive Engineering. (3) Three hours lecture. Implications of human perceptual, cognitive, and psycho-motor capabilities on the design of systems for effective, efficient and safe human-machine performance.

**IE 8163. Macroergonomics. (3).** Three hours lecture. Provides a foundational review of Macroergonomics, examining the personnel, technological, and environmental factors influencing organizations. Addresses the relationship between macro-and micro- ergonomics.

IE 8333. Production Control Systems II. (3) (Prerequisite: IE 4333). Three hours lecture. Inventory systems, static and dynamic production planning, operations scheduling and forecasting systems.

**IE 8353. Manufacturing Systems Modeling. (3)** (Prerequisites: IE 4733 and IE 4773). Three hours lecture. A study of models used to describe and analyze manufacturing systems. Development of models using queuing networks, mathematical programming, simulation, and other techniques.

**IE 8583.** Enterprise Systems Engineering. (3) (Prerequisite: Consent of Instructor). Three hours lecture. Focuses on the design and improvement of an enterprise through the use of engineering tools and methods, based on the systems perspective of industrial engineering.

**IE 8713. Mechanics and Control of Manufacturing Systems. (3)** Three hours lecture. Design and operation of computer controlled machine tools. Kinematics and control of robot manipulators. Industrial applications of robots. (Same as ME 8713).

**IE 8723. Operations Research II. (3)** (Prerequisite: IE 4713). Problem formulation, general inventory theory, restricted inventory models. Markovian and queuing processes, sequencing and coordination, game theory, search problems.

**IE 8733. Decision Theory. (3)** (Prerequisite: IE 4613). Three hours lecture. A quantitative development of the decision making process. Criteria for decision making. Treatment of risk under uncertainty and in conflict situations.

**IE 8743.** Nonlinear Programming I. (3) (Prerequisite: IE 4733 or MA 4733). Three hours lecture. Optimization of nonlinear functions; quadratic programming, gradient methods, integer programming; Lagrange multipliers and Kuhn-Tucker theory.

IE 8753. Network Flows and Dynamic Programming. (3) (Prerequisites: MA 2733 and IE 4613). Three hours lecture. Application of network optimization problems and network simplex algorithm; and dynamic programming to industrial/ management problems. Study of serial and nonserial multistage systems—both deterministic and stochastic. Principles of optimality.

**IE 8773. Systems Simulation II. (3)** (Prerequisite: IE 4773/6773). Three hours lecture. Continuation of IE 4773/6773. Includes: Advanced theory and practice of simulation, the statistics of simulation, simulation languages, and continuous simulations.

**IE 8793. Heuristics in Optimization. (3)** (Prerequisite: IE 4733/6733 or IE 4713/6713). Three hours lecture. A study of heuristic methods and their applications to optimization problems.

**IE 8913. Engineering Economy II. (3)** (Prerequisites: IE 3913 and IE 4613). Three hours lecture. Advanced principles and methods for engineering analysis of industrial problems. Topics include criteria for decisions, project investment and analysis, and elements of risk and uncertainty.

# INSURANCE, RISK MANAGEMENT, and FINANCIAL PLANNING

#### Office: 312 McCool Hall

(For departmental information, see FINANCE and ECONOMICS.)

INS 2003. Personal Money Management. (3) Three hours lecture. The individual's acquisition and management of an optimal personal income and expenditure pattern over a lifetime to best meet his/her financial objectives. (Same as FIN 2003. Not open to finance majors or as part of BUAD Finance concentration).

**INS 3103.** Principles of Insurance. (3) (Prerequisite: Junior standing). Three hours lecture. A study of the principles and concepts of insurance plus a survey of personal coverages such as Homeowners, Automobile, Life and Health insurance.

**INS 3203. Property and Casualty Insurance.** (3) Three hours lecture. A study of the major issues in property and casualty insurance including property and liability coverages, company operations, rate making, and international concepts.

**INS 3303. Life and Health Insurance. (3)** Three hours lecture. The nature and function of life insurance; policy forms and provisions; reserves; company organization; legal aspects; taxation and practical application.

**INS 3403. Financial Planning. (3)** (Prerequisites: FIN 3123). Three hours lecture. A study dealing with the problems of the individual in the creating, conserving, and disposing of an estate through the use of property, securities, and insurance.

INS 3503. Employee Benefits. (3) Three hours lecture. A comprehensive study of employee benefit plans available to employers, including the principles and concepts necessary to design and implement successful employee benefit programs.

**INS 4503/6503. Enterprise Risk Management. (3)** (Prerequisites: INS 3103). Three hours lecture. A study of the principles, concepts and techniques to manage pure risk exposures which organizations face while pursuing their objectives.

**INS 8113. Insurance Education. (3).** (Prerequisite: Consent of Instructor). Three hours lecture. Examination of insurance principles for high school teachers. Coverage will include a broad array of related topics to help prepare teachers for the classroom.

## INTERNATIONAL STUDENT EXCHANGE

#### Office: 608 Allen Hall

**ISE 1103. Introduction to Global Studies. (3)** (Prerequisite: Admission into the International Studies Certificate Program) Three hours lecture. This course provides an overview of global studies to broaden students' cultural perspectives so that they are more prepared to develop a well-rounded world view.

**ISE 4100-4200. International Student Exchange.** (Prerequisite: Acceptance into the International Student Exchange Program). Grades from the host institution will be transferred and recorded at MSU after each semester the student participates in the program.

**ISE 4103. Cross-Cultural Leadership. (3)** (Prerequisite: ISE 1103 and completion of an approved study abroad) Three hours lecture. Students will examine cross-cultural leadership styles while culminating their international experiences, demonstrating how these experiences are pertinent to their futures and overall global awareness.

**ISE 6100-6200. International Student Exchange**. (Prerequisite: Acceptance into the International Student Exchange Program). Grades from the host institution will be transferred and recorded at MSU after each semester the student participates in the program.

## Department of KINESIOLOGY

#### Office: 216 McCarthy Gymnasium

Department Head Brown; Professor Abadie; Associate Professors Gilliland and Lamberth; Assistant Professors: Agiovlasitis, Hale, Kavazis, Knight, Love, Morse, Vickers, Wax and Webb; Instructors Drye, Grant, Funderburk, Joe, Wiley, and Young.

**KI 1803. Health Trends and Topics. (3)** Three hours lecture. Introductory survey of the multiple dimensions of health. Focuses upon healthy behaviors across the lifespan, environmental and social influences, trends pertinent to healthy lifestyle choices.

**KI 2023. Foundations of Health Education. (3)** (Prerequisite: KI 1803) Three hours lecture. Introduction to the discipline of health education. Examination of fundamental concepts and required competencies of the health educator in a variety of settings.

KI 2213. Emergency Health Care. (3) Three hours lecture. Provides students with knowledge and practical experience necessary to prevent, recognize, and provide basic care for injuries and sudden illnesses until advanced medical care arrives.

**KI 2603. Medical Terminology. (3)** Three hours lecture. A working knowledge of terminology related to the human body through descriptive definitions, practical applications, and medical abbreviations will be developed.

KI 3273. Athletic Training. (3) (Prerequisites: BIO 1004 or 3004). Two hours lecture. Two hours laboratory. Prevention and treatment of injuries prevalent

in athletics, physical education and adult fitness programs.

**KI 3633. Rehabilitation Techniques in Sport. (3)** (Prerequisites: KI 3273). Two hours lecture. Two hours laboratory. Investigate aspects of physiotherapy utilized in treatment of injuries. Course will be supported with assistance of Oktibbeha County Hospital.

**KI 8303. Research in Kinesiology**. (3) Three hours lecture. Study of the methods and techniques used in kinesiological research. During the course of the semester students prepare a research proposal.

**KI 8313. Interpretation of Data in Kinesiology. (3)** Three hours lecture. Statistical interpretation of qualitative and quantitative data in the various disciplines of kinesiology.

**KI 8710.** Internship. (3-6) Opportunity for practical experience in the sport industry, fitness/wellness programs, or clinical rehabilitation settings.

# Department of LANDSCAPE ARCHITECTURE

#### Office: Landscape Architecture Facility

Professors Artunc (Head) and Melby; Associate Professors Brzuszek, Walker, and Wilkerson; Assistant Professors Fulford, Gallo, Li, Schauwecker, and Seymour; Adjunct Faculty Dumas

LA 1153. Introduction to Landscape Architecture. (3) Six hours studio/ lab. Acquaints students with the profession's design vocabulary, application, types of work, and initial experiences dealing with the creation of and evaluation of three dimensional space.

LA 1223. Use of Computers in Landscape Architecture. (3) One hour lecture. Four hours studio/lab. A review of computer technology and its application to the practice of Landscape Architecture.

LA 1333. Landscape Systems and Plant Communities. (3) One hour lecture. Four hours laboratory. The nature, scope and relevancy of landscape systems and their respective plant communities as they relate to land planning and landscape architectural design.

LA 1423. History of Landscape Architecture. (3) Three hours lecture. Historic developments of Landscape Architecture Profession.

LA 1433. Landscape Architecture Creativity. (3) One hour lecture. Four hours studio/lab. An exploration of the creative process and methods of expanding conceptual thinking in designed and built projects.

LA 1533. Presentation Methods and Media. (3) Six hours studio. A review of various types of architectural drawings used in landscape architecture. Emphasis on basic hand graphic tools and drawing techniques and their use in design.

LA 1701. Introduction to Landscape Contracting. (1) Two hours laboratory. A survey of the construction industry with emphasis on landscape contracting and the roles of principals involved. Opportunities in the landscape industry.

LA 1711. Landscape Contracting Internship I. (1) (Prerequisites: LA 1701; completion of 12 hours; 2.0 GPA). Internship of planned, progressive and supervised experiential learning with a landscape contracting firm.

LA 1803. Landscape Architecture Appreciation. (3) Three hours lecture. A survey of landscape architecture encompassing design, construction, management, maintenance and practice. Emphasis on development and improvement of home, neighborhood and community environment. (For non-majors.)

LA 2334. Plant Specifications For Small Properties. (4) (Prerequisite: PSS 3473). One hour lecture. Six hours studio. Plant selection, design and specifications for small properties in response to environmental conditions and user needs.

LA 2453. Site Inventory and Analysis. (3) One hour lecture. Four hours studio/lab. The collection, presentation, and use of pertinent site related data. Conventional non-technical methods of presentation of data and computer generated formats are considered and analyzed.

LA 2544. Landscape Architecture Construction I: Materials. (4) (Prerequisites: LA 1223 and LA 1533). Two hours lecture. Four hours studio. The nature of materials and their physical attributes. Calculations, drawings, and specifications for construction design and details.

LA 2554. Landscape Architecture Design Studio I. (4) (Prerequisites: LA 1153, LA 1223, LA 1333, & LA 1533). Eight hours studio/lab. A landscape architectural design process applied to sustainable site planning. Emphasis on green infrastructure and application of design principles to site design elements.

LA 2644. Construction II: Grading (4). (Prerequisites: LA 2544). Two hours lecture. Four hours studio. Land surveying, landscape architecture grading, roadway design and alignment, basic staking and layout, and earth volume estimation.

LA 2652. Landscape Architecture Precedent Studies.(2) (Prerequisite: LA 2654) On-site travel study to experience and document notable landscape architecture projects, methods of construction, and professional office visits.

LA 2654. Landscape Architecture Design II: Neighborhood Context. (4) (Prerequisite: LA 2554). Eight hours studio. Emphasis on design at the neighborhood scale, including block and street network design.

LA 2701. Landscaped Contracting Seminar I. (1) (Prerequisite: LA 1711). One hour lecture. Weekly seminar to investigate topics related to modern landscape practices experienced in LA 1711 LC Internship I. Formal presentations of internship case studies.

LA 2711. Landscape Contracting Internship II. (1) (Prerequisites: LA 1711, LA 2701, and 2.00 GPA). Internship of planned, progressive and supervised experiential learning with a landscape contracting firm.

LA 3534. Landscape Architecture Construction III - Hydrology. (4) (Prerequisite: LA 2644). Two hours lecture. Four hours studio/lab. Calculations for storm-water management, best management practices, surface and subsurface drainage systems, basic hydrology and erosion and sediment control design and practices.

LA 3554. Landscape Architecture Design III – Small Town/Rural Context. (4). (Prerequisites: LA 2644 and LA 2654). Eight hours studio. Emphasis on design at the Community/Town scale, including place theory and aesthetics.

LA 3603. Design of the Golf Environment. (3) (Prerequisite: LA 1803). Three hours lecture. Defining site development concerns of a golf complex, addressing areas of history, design, construction and maintenance.

LA 3623. Urban Planning Theory. (3) Three hours lecture. Open to majors and non-majors. Survey of principles and practice of urban planning. Emphasis on the planning process and use of a city's police power to regulate use of land.

LA 3652. Case Studies of Executed Works in Landscape Architecture. (2) (Prerequisite: LA 3654). Special five to ten day on-site observation visit for the study of notable LA projects and construction methods with lectures.

LA 3653. Planting Design Fundamentals in Landscape Architecture. (3) One hour lecture. Four hours studio. Using plants as landscape architectural functional elements in a holistic design context. Applying the design elements and principles to design with emphasis on planting design.

LA 3654. Landscape Architecture Design IV: Urban Design. (4) (Prerequisite: LA 3554) Eight hours studio/lab. Emphasis on urban planning and design, including consideration of urban fabric, building typologies, transit, streetscapes, pedestrian circulation, open space, hydrology, and natural systems.

LA 3701. Landscape Contracting Seminar II. (1) (Prerequisite: LA 2711). One hour lecture. Weekly seminar to investigate topics related to modern landscape practices experienced in LA 2711 LC Internship II. Formal presentations of internship case studies.

LA 3711. Landscaping Contracting Internship III. (1) (Prerequisites: LA 2711, LA 3701, and 2.50 GPA). Internship of planned, progressive and supervised experiential learning with a landscape contracting firm.

LA 3713. Landscape Contracting I. (3) (Prerequisites: ABE 1073 and EG 1513). Two hours lecture. Two hours laboratory. Study of the nature, scope, and application of the varied construction materials used in landscape projects; and, the construction processes related to landscape development.

LA 3721. Landscape Contracting Field Trip I. (1) (Prerequisite: LA 1701). Five to ten day trip to visit landscape contracting firms and observe completed works.

LA 3742. Landscape Architecture Internship. (2) (Prerequisite: Satisfactory completion of semester six of B.L.A. program with an overall G.P.A. of 3.0 in the Junior Year). Supervised experiential learning with a professional office or public agency.

LA 4344. Landscape Architecture Construction IV. (4) (Prerequisites: LA 3274 or consent of instructor). Two hours lecture. Four hours laboratory. Preparation of landscape architectural construction plans, details, and specifications for outdoor lighting, for irrigation, and for septic systems.

LA 4443/6443. Exterior Design-Build Studio. (3) (Prerequisite: consent of instructor) Six hours studio/lab. An interdisciplinary exploration of an exterior project focused on sustainable site practices from design concept to implementation.

LA 4523/6523. Applications for GIS for Landscape Architects. (3) (Prerequisite: LA 1223 or consent of instructor). One hour lecture. Four hours studio/lab. Applying geographical information systems technology to the practice of Landscape Architecture.

LA 4701. Landscape Contracting Seminar III. (1) (Prerequisite: LA 3712). One hour lecture. Weekly seminar to investigate topics related to modern landscape practices experienced in LA 3712 LC Internship III. Formal presentations of internship case studies.

LA 4721. Landscape Contracting Field Trip II. (1) (Prerequisite: LA 3721). Five to ten day trip to visit with landscape contracting firms and observe completed works.

LA 4723. Professional Practice of Landscape Architecture. (3) Three hours lecture. Office management, contracting, budgeting, design proposals, supervision of construction contracts, professional liability, and professional ethics.

LA 4724. Landscape Contracting II. (3) (Prerequisites: LA 3713 or LA 4334). Two hours lecture. Four hours laboratory. Analysis of legal, financial, and management aspects of landscape contracts; and quantity surveying, cost estimation, and critical path management of landscape construction projects.

LA 4733. Landscape Contracting III. (3) (Prerequisites: LA 4724, ACC 2013, and MGT 3114). Two hours lecture. Two hours laboratory. Theory and practice of managing a Landscape construction firm. Case studies of contemporary issues.

LA 4744. Landscape Contracting IV. (4) (Prerequisite: LA 4724 and PSS 4414). Two hours lecture. Two hours laboratory. Application levels studies of

post-construction management practices of landscape projects.

LA 4753/6753. Sustainable Landscape Management. (3) An examination of methods for sustainable land management. Ecological systems, services, and processes providing the foundation for decision-making in land management.

LA 4754. Design V - Regional. (4) (Prerequisite: LA 3654) Eight hours studio. Application of spatial analytical techniques, Geographic Information Systems (GIS), and Low Impact Development (LID) strategies to landscape architecture at the regional scale.

LA 4844/6844. Sustainable Communities. (4) Three hours lecture. Two hours studio/lab. Theory and practices that minimize resource use and pollutant production in the human landscape (Same as ABE 4844/6844)

LA 4854. Landscape Architecture Capstone Studio. (4) (Prerequisites: LA 3544, LA 4723 and LA 4754). Eight hours studio. Emphasis on development of an approved terminal project used to demonstrate competency in proposal development, design process, site planning, detail design and construction detailing.

LA 8512. Landscape Architecture Graduate Studio I. (2) (Prerequisite: admission to the Master of Landscape Architecture). Four hours studio. Emphasis on holistic approaches to sustainable watershed planning and management. Course deals specifically with prevention of destruction of habitat, biological stress, and hydrologic changes.

LA 8522. Landscape Architecture Graduate Studio II. (2) (Prerequisite: admission to the Master of Landscape Architecture). Four hours studio. Application of spatial analytical techniques and Geographic Information Systems to the execution of landscape planning problems in the Mississippi region.

LA 8532. Landscape Architecture Graduate Studio III. (2) (Prerequisite: second year standing in the Master of Landscape Architecture). Four hours studio. Emphasis on community based planning and design, including consideration of natural resource planning, main street revitalization, open space planning, community design, and small town planning.

LA 8613. Research Methods in Landscape Architecture. (3) Three hours lecture. Application of research methods specific to problems in Landscape Architecture.

LA 8711. Seminar in Watershed Planning and Management. (1) (Prerequisite: admission to the Master of Landscape Architecture program or consent of the instructor). One hour seminar. Examination of major elements of watershed planning and management pertinent to landscape architecture, with particular emphasis on emerging trends in the field.

LA 8721. Seminar in Landscape Management. (1) (Prerequisite: admission to the Master of Landscape Architecture program or consent of the instructor). One hour seminar. Examination of major elements of landscape management pertinent to landscape architecture, with particular emphasis on emerging trends in the field.

LA 8731. Seminar in Community Based Planning. (1) (Prerequisite: second year standing in the Master of Landscape Architecture program or consent of the instructor). One hour seminar. Examination of major elements of community based planning pertinent to landscape architecture, with particular emphasis on emerging trends in the field.

LA 8741. Seminar in Landscape Architecture Thesis. (1) (Prerequisite: second year standing in the Master of Landscape Architecture program or consent of the instructor). One hour seminar. Preparation of a detailed proposal, selection of the students's thesis committee, and submission of the proposal to the Graduate Studies Committee for review and approval.

# THE LEARNING CENTER

#### Office: 267 Allen Hall

LSK 0003. Developmental Reading. (3) Three hours lecture. Emphasizes and develops basic reading skills. Offered to students required to enroll in development studies. Credit received for this course will not be applicable toward any degree.

LSK 0023. Developmental Studies Laboratory. (3) Six hours laboratory. Computer tutorials and study skills for intermediate algebra, basic English and effective reading. Designed especially for students who have attended the Summer Developmental Program.

LSK 0103. Intermediate Reading. (3) (Prerequisite: Score of 15 to 19 on the reading section of the ACT.) Three hours lecture. Emphasizes and develops intermediate reading skills, including comprehension, vocabulary development, and reading rate. Credit received for this course will not be applicable toward any degree.

LSK 1001. Freshman Seminar. (1) One hour seminar. Multi-disciplined, campus-wide approach to orientation to the university, and strategies for employing personal and university resources.

LSK 1011. Study Skills for College. (1) Development of study principles and skills needed for college.

LSK 1013. Effective Reading. (3) (Designed to prepare a student to comprehend college level reading materials.) Three hours lecture. Comprehension and vocabulary improvement through the use of computer-aided-instruction and directed group activities. LSK 1023. College Reading and Study Skills. (3) Three hours lecture. Development of reading and study skills needed for college.

LSK 1033. Fundamentals of Achievement. (3) (Restrictions: Specifically for students on academic suspension or students failing to maintain satisfactory academic progress) Three hours lecture. Fundamentals focus is on student behaviors and attitudes that are most consistently identified with achieving success in college including time management, testing, memory, and communication.

LSK 1041. College Success I. (1) (Restrictions: Specifically designed for MSU Promise Students after their first semester at MSU). Three hours lecture. College Success I focuses on study skills that enable one to better learn, understand, and retain what is being taught in the new college environment.

LSK 1131. Fundamentals of Success. (1) (Prerequisite: LSK 1033) One hour lecture. The student behaviors and attitudes that were developed in Fundamentals of Achievement are built upon to strengthen the positive academic and life habits created.

LSK 1141. College Success II. (1) (Restrictions: Specifically designed for MSU Promise Students after their first semester at MSU). (Prerequisite: LSK 1041) Three hours lecture. College Success II focuses on the study skills and student habits presented in College Success I and builds on their foundation for continual college success.

LSK 2010. Praxis: Academic Core Enrichment—PACE. (1-3). (Restrictions: Education Majors). One to three variable credit hours lecture. PACE is designed to provide education majors with a thorough review of the basic skills necessary to pass the PRAXIS I Pre-Professional Skills Test in reading, writing, and mathematics.

LSK 2013. Speed Reading. (3) Three hours lecture per week. Development of techniques for increasing rate of comprehension for all types of reading material.

## Department of MATHEMATICS and STATISTICS

#### Office: 410 Allen Hall

Professors Dang, Dobson, Ebanks, L. Miller, V. Miller, Neumann, Oppenheimer, Qian, Razzaghi (Head), and Xu; Associate Professors DuBien, Fabel, Johnson, Kim, Lim, Smith and Zhang; Assistant Professors Scarborough, Sepehrifar, Shows, Woody, Yang, Yaramadian, and Zhao; Instructors Banik, Crittenden, Hughes, King, Nation, Shaw and Walters; Adjunct Associate Professor: Harvill

Students who have credit for one or more upper division mathematics courses will not receive repeat credit for a mathematics course numbered below MA 2000. Students who have credit for MA 1713 are not permitted to enroll in any mathematics course numbered below MA 1713 without departmental approval.

MA 0003. Developmental Mathematics. (3) (MA 0003 is a developmental course designed to prepare a student for university mathematics courses at the level of MA 1313 College Algebra: credit received for this course will not be applicable toward a degree). Three hours lecture. Real numbers fractions, decimal fractions, percent, algebraic expressions, factoring, algebraic fractions, linear equations/inequalities, integral exponents, quadratic equations.

MA 0103. Intermediate Algebra. (3) (MA 0103 is designed to prepare a student for MA 1313 College Algebra) Two hours lecture. Two hours laboratory. Real numbers, algebraic expressions, factoring, algebraic fractions, linear equations/ inequalities, quadratic equations, Pythagorean Theorem. Does not count toward any degree.

MA 1313. College Algebra. (3) (Students with credit in MA 1713 will not receive credit for this course. Prerequisite: ACT Math subscore 20, or grade of C or better in MA 0103). Two hours lecture. Two hours laboratory. Review of fundamentals; linear and quadratic equations; inequalities; functions; simultaneous equations, topics in the theory of equations.

**MA 1323. Trigonometry. (3)** (Students with credit in MA 1713 will not receive credit for this course. Prerequisite: ACT Math subscore 24, or grade of C or better in MA 1313). Three hours lecture. The trigonometric functions: identities; trigonometric equations: applications.

MA 1413. Structure of the Real Number System. (3) (Prerequisite: a C or better in MA 1313 or an ACT Math sub-score of 24). Three hours lecture. The nature of mathematics; introductory logic; structure and development of the real number system. (Course is meant primarily for Elementary and Special Education majors).

MA 1423. Problem Solving with Real Numbers. (3) (Prerequisite: a C or better in MA 1413). Three hours lecture. Proportions, percent problems, probability, counting principles, statistics. (Course is meant primarily for Elementary or Special Education majors).

MA 1433. Informal Geometry and Measurement. (3) (Prerequisites: a C or better in both MA 1413 and MA 1423). Three hours lecture. Measurements and informal geometry. (Course is meant primarily for Elementary and Special Education majors).

MA 1453. Precalculus with Graphing Calculators. (3) (Prerequisites: Math ACT 24 or C or better in MA 1323 or score of at least 70 on the Precalculus Qualifying Exam). Three hours lecture. Properties, applications, and graphs of linear, quadratic, polynomial, exponential, logarithmic, and trigonometric functions; trigonometric identities, equations and inverses; inequalities. (Degree credit will not be granted for MA 1453 and either MA 1313 or MA 1323. This course is intended to prepare students to take MA 1713 Calculus I).

MA 1463. Finite Mathematics and Introduction to Calculus. (3) (Prerequisite: ACT Math subscore 24, or grade of C or better in MA 1313). Three hours lecture. Matrices and systems of linear equations; introduction to calculus.

MA 1613. Calculus for Business and Life Sciences I. (3) (Prerequisite: ACT Math subscore 24, or grade of C or better in MA 1313). Three hours lecture. Algebraic and some transcendental functions, solutions of systems of linear equations, limits, continuity, derivatives, applications.

MA 1623. Calculus for Business and Life Sciences II. (3) (Prerequisite: MA 1613). Three hours lecture. Anti-derivatives, the definite integral, applications of the definite integral, functions of two or more variables, partial derivatives, maxima and minima, applications.

MA 1713. Calculus I. (3) (Prerequisite: ACT Math subscore 26, or grade of C or better in MA 1323 or MA 1453). Three hours lecture. Analytic geometry; functions; limits; continuity; derivatives of algebraic functions. Application of the derivative. Honors section available through invitation.

**MA 1723. Calculus II. (3)** (Prerequisite: Grade of C or better in MA 1713). Three hours lecture. Antidifferentiation; the definite integral; applications of the definite integral; differentiation and integration of transcendental functions. Honors section available through invitation.

MA 2113. Introduction to Statistics. (3) (Prerequisite: ACT Math subscore 24, or a grade of C or better in MA 1313). Two hours lecture. Two hours laboratory. Introduction to statistical techniques: descriptive statistics, random variables, probability distributions, estimation, confidence intervals, hypothesis testing, and measurement of association. Computer instruction for statistical analysis. (Same as ST 2113).

MA 2733. Calculus III. (3) (Prerequisite: Grade of C or better in MA 1723). Three hours lecture. Further methods of integration; polar coordinates; vectors; infinite series. Honors section available through invitation.

**MA 2743. Calculus IV (3)** (Prerequisite: Grade of C or better in MA 2733). Three hours lecture. Differential calculus of functions of several variables; multiple integration; vector calculus. Honors section available through invitation.

MA 3053. Foundations of Mathematics. (3) (Prerequisite: MA 1723). Three hours lecture. The logical structure of mathematics; the nature of a mathematical proof; applications to the basic principles of algebra and calculus.

MA 3113. Introduction to Linear Algebra. (3) (Prerequisite: MA 1723). Three hours lecture. Vector spaces; matrices; linear transformations; systems of linear equations; characteristic values and characteristic vectors.

MA 3123. Introduction to Statistical Inference. (3) (Prerequisite: ACT Math subscore 24, or grade of C or better in MA 1313). Two hours lecture. Two hours laboratory. Basic concepts and methods of statistics, including descriptive statistics, probability, random variables, sampling distribution, estimation, hypothesis testing, introduction to analysis of variance, simple linear regression. (Same as ST 3123).

MA 3163. Introduction to Modern Algebra. (3) (Prerequisite: MA 3113 and MA 3053). Three hours lecture. Rings, integral domains, and fields with special emphasis on the integers, rational numbers, real numbers and complex numbers; theory of polynomials.

MA 3253. Differential Equations I. (3) (Prerequisite: MA 2743 or co-registration in MA 2743). Origin and solution of differential equations; series solutions; Laplace Transform methods; applications.

MA 3353. Differential Equations II. (3) (Prerequisite: MA 3253). Three hours lecture. Systems of differential equations; matrix representations; infinite series solution of ordinary differential equations; selected special functions; bound-ary-value problems; orthogonal functions: Fourier series.

**MA 3463.** Foundations of Geometry. (3) (Prerequisite: MA 1723 and MA 3053). Three hours lecture. The structural nature of geometry; modern methods in geometry: finite geometrics.

MA 3513. History of Mathematics. (3) (Prerequisite: MA 2733 or co-registration in MA 2733). Three hours lecture. A historical development of mathematicians and their most important contributions will be emphasized.

MA 4133/6133. Discrete Mathematics. (3) (Prerequisites: MA 3163 or consent of instructor). Three hours lecture. Sets, relations, functions, combinatorics, review of group and ring theory, Burnside's theorem, Polya's counting theory, group codes, finite fields, cyclic codes, and error-correcting codes.

MA 4143/6143. Graph Theory. (3) (Prerequisites: MA 3113 or consent of instructor). Three hours lecture. Basic concepts, graphs, and matrices, algebraic graph theory, planarity and nonplanarity, Hamiltonian graphs, digraphs, network flows, and applications.

MA 4153/6153. Matrices and Linear Algebra. (3) (Prerequisites: MA 3113 and MA 3253). Three hours lecture. Linear transformations and matrices; eigenvalues and similarity transformations; linear functionals, bilinear and quadratic forms; orthogonal and unitary transformations; normal matrices; applications of linear algebra.

MA 4163/6163. Group Theory. (3) (Prerequisite: MA 3163 or consent of the instructor). Three hours lecture. Elementary properties: normal subgroups; factor groups; homomorphisms and isomorphisms; Abelian groups; Sylow theorems; composition series; solvable groups.

MA 4173/6173. Number Theory. (3) (Prerequisite: MA 3113). Three hours lecture. Divisibility: congruences; quadratic reciprocity; Diophantine equations; continued fractions.

MA 4213. Senior Seminar in Mathematics. (3) (Prerequisites: MA 3163 and MA 3253 and MA 4633). Three hours lecture. Students explore topics in current mathematical research, write expository articles, and give oral presentations. Refinement of specialized writing skills needed for effective mathematical communication.

MA 4243/6243 Data Analysis I. (3) (Prerequisite: MA 2743. Co-requisite: MA 3113). Three hours lecture. Data description and descriptive statistics, probability and probability distributions, parametric one-sample and two-sample inference procedures, simple linear regressions, one-way ANOVA. Use of SAS. (Same as ST 4243/6243.)

MA 4253/6253 Data Analysis II. (3) (Prerequisites: MA 4243/6243 and MA 3113). Three hours lecture. Multiple linear regression; fixed, mixed and random effect models; block designs; two-factor analysis of variance; three-factor analysis of variance; analysis of covariance. Use of SAS. (Same as ST 4253/6253.)

MA 4313/6313. Numerical Analysis I. (3) (Prerequisites: CSE 1213, MA 3113, and MA 2743). Three hours lecture. Matrix operations; error analysis; norms of vectors and matrices; transformations; matrix functions; numerical solutions of systems of linear equations; stability; matrix inversion; eigen value problems; approximations.

MA 4323/6323. Numerical Analysis II. (3) (Prerequisites: CSE 1213 or equivalent. MA 3113 and MA 3253). Three hours lecture. Numerical solution of equations; error analysis; finite difference methods; numerical differentiation and integration; series expansions; difference equations; numerical solution of differential equations.

MA 4373/6373. Introduction to Partial Differential Equations. (3) (Prerequisite: MA 3253). Three hours lecture. Linear operators: linear first order equations; the wave equation; Green's function and Sturm—Liouville problems; Fourier series; the heat equation; Laplace's equation.

MA 4513/6513. Applied Probability and Statistics for Secondary Teachers. (3) (Prerequisite: MA 1723). Three hours lecture. (Credit not available for students with credit in MA-ST 4543/6543). Graphical methods of presenting data; analysis of data; probability, binomial distribution, normal distribution; random sampling; linear regression and correlation.

MA 4523/6523. Introduction to Probability. (3) (Prerequisite: MA 2733). Three hours lecture. Basic concepts of probability, conditional probability, independence, random variables, discrete and continuous probability distributions, moment generating function, moments, special distributions, central limit theorem. (Same as ST 4523/6523).

MA 4533/6533. Introductory Probability and Random Processes. (3) (Prerequisites: MA 3113 and MA 2743). Three hours lecture. Probability, law of large numbers, central limit theorem, sampling distributions, confidence intervals, hypothesis testing, linear regression, random processes, correlation functions, frequency and time domain analysis. (Credit can not be earned for this course and MA/ST 4523/6523.)

MA 4543/6543. Introduction to Mathematical Statistics I. (3) (Prerequisite: MA 2743.) Three hours lecture. Combinatorics; probability, random variables, discrete and continuous distributions, generating functions, moments, special distributions, multivariate distributions, independence, distributions of functions of random variables. (Same as ST 4543/6543.)

MA 4573/6573. Introduction to Mathematical Statistics II. (3) (Prerequisite: MA 4543/6543.) Three hours lecture. Continuation of MA-ST 4543/6543. Transformations, sampling distributions, limiting distributions, point estimation, interval estimation, hypothesis testing, likelihood ratio tests, analysis of variance, regression, chi-square tests. (Same as ST 4573/6573.)

MA 4633/6633. Advanced Calculus I. (3) (Prerequisite: MA 2743 and MA 3053). Three hours lecture. Theoretical investigation of functions; limits; differentiability and related topics in calculus.

MA 4643/6643. Advanced Calculus II. (3) (Prerequisite: MA 4633/6633). Three hours lecture. Rigorous development of the definite integral; sequences and series of functions; convergence criteria; improper integrals.

MA 4733/6733. Linear Programming (3) (Prerequisites: MA 3113). Three hours lecture. Theory and application of linear programming; simplex algorithm, revised simplex algorithm, duality and sensitivity analysis, transportation and assignment problem algorithms, integer and goal programming. (Same as IE 4733/6733).

MA 4753/6753. Applied Complex Variables. (3) (Prerequisite: MA 2743). Three hours lecture. Analytic functions: Taylor and Laurent expansions; Cauchy theorems and integrals; residues; contour integration; introduction to conformal mapping.

MA 4933/6933. Mathematical Analysis I. (3) (Prerequisite: MA 4633/6633 or equivalent). Three hours lecture. Metric and topological spaces; functions of bounded variation and differentiability in normed spaces.

MA 4943/6943. Mathematical Analysis II. (3) (Prerequisite: MA 4933/6933). Three hours lecture. Riemann-Stieltjes integration, sequences and series of functions; implicit function theorem; multiple integration.

MA 4953/6953. Elementary Topology. (3) (Prerequisite: MA 4633/6633). Three hours lecture. Definition of a topological space, metric space, continuity in metric spaces and topological spaces; sequences; accumulation points.

MA 8113. Modern Higher Algebra I. (3) (Prerequisite: MA 4163/6163). Three hours lecture. A study of the basic mathematical systems with emphasis on rings, fields, and vector spaces.

MA 8123. Modern Higher Algebra II. (3) (Prerequisite: MA 8113). Three hours lecture. A continuation of the topics introduced in MA 8113.

MA 8203. Foundations of Applied Mathematics I. (3) (Prerequisites: MA 3113, MA 3253 or consent of instructor.) Three hours lecture. Principles of applied mathematics including topics from perturbation theory, calculus of variations, and partial differential equations. Emphasis of applications from heat transfer, mechanics, fluids.

MA 8213. Foundations of Applied Mathematics II. (3) (Prerequisite: MA 8203). Three hours lecture. A continuation of MA 8203 including topics from wave propagation, stability, and similarity methods

**MA 8253. Operational Mathematics. (3)** (Prerequisite: MA 4753/6753). Three hours lecture. Theory and applications of Laplace, Fourier, and other integral transformations: introduction to the theory of generalized functions.

Courses numbered MA 8273, 8283, 8293 and 8313 have as prerequisites at least one of the courses MA 4633/6633, MA 4153/6153, 4753/6753.

MA 8273. Special Functions. (3) Three hours lecture. Infinite products: asymptotic series; origin and properties of the special functions of mathematical physics.

MA 8283. Calculus of Variations. (3) Three hours lecture. Functionals: weak and strong extrema; necessary conditions for extrema; sufficient conditions for extrema; constrained extrema; direct methods; applications.

**MA 8293.** Integral Equations. (3) Three hours lecture. Equations of Fredholm type: symmetric kernels; Hilbert-Schmidt theory; singular integral equations; applications; selected topics.

MA 8313. Ordinary Differential Equations I. (3) Three hours lecture. Linear systems of differential equations; existence and uniqueness; second order systems; systems with constant coefficients; periodic systems; matrix comparison theorems; applications and selected topics.

**MA 8323.** Ordinary Differential Equations II. (3) (Prerequisite: MA 8313). Three hours lecture. Existence, uniqueness, continuation of solutions of nonlinear systems; properties of solutions of linear and nonlinear equations including boundedness, oscillation, asymptotic behavior, stability, and periodicity; application.

**MA 8333.** Partial Differential Equations I. (3) (Prerequisite: MA 4373/6373 or consent of instructor). Three hours lecture. Solution techniques; existence and uniqueness of solutions to elliptic, parabolic, and hyperbolic equations; Green's functions.

MA 8343. Partial Differential Equations II. (3) (Prerequisite: MA 8333). Three hours lecture. A continuation of the topics introduced in MA 8333.

MA 8363. Numerical Solution of Systems of Nonlinear Equations. (3) (Prerequisites: MA 4313/6313 and MA 4323/6323). Three hours lecture. Basic concepts in the numerical solution of systems of nonlinear equations with applications to unconstrained optimization.

MA 8383. Numerical Solution of Ordinary Differential Equations I. (3) (Prerequisites: MA 4313/6313 and MA 4323/6323). Three hours lecture. General single-step, multistep, multivalue, and extrapolation methods for systems of nonlinear equations; convergence; error bounds; error estimates; stability; methods for stiff systems; current literature.

MA 8443. Numerical Solution of Partial Differential Equations I. (3) (Prerequisites: MA 4313/6313, MA 4323/6323, and MA 4373/6373 or consent of instructor). Three hours lecture. Basic concepts in the finite difference and finite element methods; methods for parabolic, hyperbolic and elliptic equations; analysis of stability and convergence.

MA 8453. Numerical Solution of Partial Differential Equations II. (3) (Prerequisite: MA 8443). Three hours lecture. Methods for elliptic equations; iterative procedures; integral equation methods; methods for hyperbolic equations; stability; dissipation and dispersion.

MA 8463. Numerical Linear Algebra. (3) (Prerequisite: MA 4323/6323). Three hours lecture. Basic concepts of numerical linear algebra.

MA 8633. Real Analysis I. (3) (Prerequisite: MA 4943/6943). Three hours lecture. Lebesgue measure and Lebesgue integrals; convergence theorems, differentiation and L spaces.

MA 8643. Real Analysis II. (3) (Prerequisite: MA 8633). Three hours lecture. General measures; the Radon-Nikodym theorem and other topics.

MA 8663. Functional Analysis I. (3) (Prerequisite: MA 8643). Three hours lecture. Hilbert spaces; Banach spaces; locally convex spaces; Hahn-Banach and closed graph theorems; principle of uniform boundedness; weak topologies.

MA 8673. Functional Analysis II. (3) (Prerequisite: MA 8663). Three hours lecture. Continuation of topics introduced in MA 8663.

MA 8713. Complex Analysis I. (3) (Prerequisite MA 4943/6943 or consent of instructor). Three hours lecture. Complex numbers: functions of a complex variable; continuity; differentiation and integration of complex functions; transformations in the complex plane.

MA 8723. Complex Analysis II. (3) (Prerequisite: MA 8713). Three hours lecture. Series; analytic continuation; Riemann surfaces; theory of residues.

**MA 8913.** Introduction to Topology I. (3) (Prerequisite: MA 4643/6643 or MA 4953/6953). Three hours lecture. Basic general topology; introduction of homotopy and homology groups.

MA 8923. Introduction to Topology II. (3) (Prerequisite: MA 8913). Three hours lecture. Continuation of topics introduced in MA 8913.

MA 8981. Teaching Seminar. (1) One hour lecture. Preparation for service as instructors in mathematics and statistics courses; includes practice lectures and exam preparation. (May be taken for credit more than once.)

MA 9313. Selected Topics in Ordinary Differential Equations. (3) (Prerequisite: MA 8313 and consent of instructor). (May be taken for credit more than once). Three hours lecture. Topics to be chosen from such areas as Bifurcation Theory, Biological Modeling, Control Theory, Dynamical Systems, Functional Differential Equations, Nonlinear Oscillations, and Quantitative Behavior.

MA 9333. Selected Topics in Partial Differential Equations. (3) (Prerequisite: MA 8333 and consent of instructor). (May be taken for credit more than once). Three hours lecture. Topics to be chosen from such areas as Bifurcation Theory, Boundary Integral Methods, Evolution Equations, Maximum and Variational Principles, and Spectral Methods.

MA 9413. Selected Topics in Numerical Analysis. (3) (Prerequisite: Consent of instructor). (May be taken for credit more than once). Three hours lecture. Current topics in Numerical Analysis. The subject matter may vary from year to year.

MA 9633. Selected Topics in Analysis. (3) (Prerequisite: MA 8643 and consent of instructor). (May be taken for credit more than once). Three hours lecture. Topics will be chosen from areas of analysis of current interest.

## Department of MECHANICAL ENGINEERING

#### Office: 210 Carpenter Engineering Building

Professors Daniewicz (Interim head), Adebiyi, Bamman, Berry, Felicelli, Hodge, Horstemeyer, Luck, Marcum, Qatu and Steele; Associate Professors Mago, Schneider, and Walters; Assistant Professors El Kadiri, Fumo, Krishnan, Myers, Patton, Srinivasan and Stone; Instructor Emplaincourt

ME 1111. Introduction to Mechanical Engineering. (1) (Prerequisite: Freshman standing or consent of instructor). One hour lecture. Introduction to the mechanical engineering curriculum, the profession, and career opportunities. Historical perspective; the support role of the department, college, and university; student roles and responsibilities.

ME 3103. Experimental Measurements and Techniques. (3) (Prerequisites: credit or registration in ME 3523 and a technical junior-level writing course) Two hours lecture. Two hours laboratory. Measurements: their accuracy and usefulness; reporting; uncertainty analysis and design of experiments; data acquisition; measurements of length, area, volume, temperature, pressure, flow, strain and force.

**ME 3113. Engineering Analysis. (3)** (Prerequisites: CSE 1233, Grade of C or better in MA 3113, MA 3253, and PH 2213). Three hours lecture. Analysis of engineering problems requiring the use of engineering fundamentals and mathematical techniques of analysis with computer applications.

**ME 2133.** Modeling and Manufacturing. (3) (Prerequisite: Sophomore standing). Two hours lecture. Three hours laboratory. Elementary drafting and design techniques using solid modeling software, introduction to manufacturing options.

**ME 3313. Heat Transfer. (3)** (Prerequisites: Grade of C or better in EM 3313, MA 3253, and ME 3533 or ME 3513). Three hours lecture. A study of the fundamental principles of heat transfer; processes; steady and transient conduction in solids; thermal radiation; and convective processes.

**ME 3403.** Materials for Mechanical Engineering Design. (3) (Prerequisites: Grade of C or better in CH 1223 and EM 2413, Co-requisite EM 3213). Three hours lecture. Behavior, testing and processing of engineering materials. Emphasis is placed on the interrelation of design with processing and material selection.

**ME 3423.** Mechanics of Machinery. (3) (Prerequisites: Grade of C or better in EM 2433 and ME 3113). Three hours lecture. Analysis of mechanisms for motions, velocities, accelerations, and forces.

**ME 3513. Thermodynamics I. (3)** (Prerequisites: Grade of C or better in CH 1223, MA 2733, and PH 2213). Three hours lecture. Definitions; properties of a pure substance; work and heat; First and Second Laws; entropy; ideal gases.

**ME 3523. Thermodynamics II. (3)** (Prerequisite: Grade of C or better in ME 3513). Three hours lecture. Mixtures of ideal gases; irreversibility and availability; vapor power cycles; gas power cycles; refrigeration cycles; flow through nozzles and turbine blades; combustion; chemical equilibrium.

**ME 3533. Thermodynamics. (3)** (Prerequisite: MA 1723). Three hours lecture. Definitions; work and heat; pure substances; fundamental laws; processes; externally reversible cycles; entropy; vapor and gas power cycles; heat transfer.

**ME 3613. System Dynamics. (3)** (Prerequisites: Grade of C or better in EM 2433, ME 3113, EM 3313, and ECE 3183). Three hours lecture. Mathematical description of mechanical, electrical, hydraulic and pneumatic systems. Transient and frequency response of linear systems.

**ME 4111. Professional Development Seminar. (1)** (Prerequisite: Senior Standing or consent of instructor). Two hours laboratory. Preparation toward professional licensure, professional development trends, introduction of forensic engineering, impact of engineering on global societal challenges.

**ME 4113/6113. Material Selection in Design. (3)** (Prerequisite: ME 3403 or equivalent). Three hours lecture. Principles of materials selection related to mechanical design requirements.

**ME 4123/6123. Failure of Engineering Materials. (3)** (Prerequisite: EM 3213). Three hours lecture. The failure of constituent materials using real-world case studies is the focus. Experimental and analytical techniques for failure analysis and prevention are covered. (Same as CE 4323/6323)

**ME 4133/6133. Mechanical Metallurgy. (3)** (Prerequisite: ME 3403 or equivalent). Three hours lecture. The mechanical and metallurgical fundamentals of metals are discussed. Mechanical fundamentals cover the stress and strain relationships and metallurgical fundamentals cover the microstructure.

ME 4193/6193. Automotive Engineering. (3) Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical systems, and industrial and systems engineering aspects. (Same as CHE 4193/6193, ECE 4193/6193 and IE 4193/6193).

ME 4223/6223. Mechanical Systems Analysis. (3) (Prerequisites: EM 3413 or ME 3613 and senior standing). Three hours lecture. Fourier methods, shock spectra, signature analysis, relation to specific phenomena and malfunctions; acoustical aids; field measurement analysis; random functions, correlations; mobility and impedance methods.

**ME 4301. Thermo-fluids Laboratory. (1)** (Prerequisites: ME 3103, EM 3313, ME 3313, ME 3523, a technical junior-level writing course) Two hour laboratory. Selection and use of pressure, temperatures, fluid flow, and heat transfer instrumentation. Experiments with fluid flow, thermodynamic systems and hear transfer. Statistical design of experiments and technical writing proficiency required.

ME 4333/6333. Energy Systems Design. (3) (Prerequisites: ME 3313 and ME 3113). Three hours lecture. Comprehensive design problems requiring engineering decisions, data acquisition, codes/standards compliance. Emphasis upon energy systems components: heat exchangers, piping networks, pumps. Fluid transients, system modeling.

**ME 4343/6343. Intermediate Heat Transfer. (3)** (Prerequisite: ME 3313). Three hours lecture. Condensation and boiling, analytical and numerical techniques for conduction and convection, gray-body and spectral-dependent radiation, transient and steady-state thermal modeling.

**ME 4353/6353. Alternate Energy Sources.** (3) (Prerequisite: ME 3313). Three hours lecture. Analysis and design of systems using energy derived from solar, hydro, geothermal, wind, ocean, waste, and biomass sources.

**ME 4373/6373.** Air Conditioning. (3) (Prerequisites: ME 3523 and ME 3313). Three hours lecture. Psychometrics; comfort conditions; determination of heat losses and gains; determination of sizes of elements; energy usage estimating; residential and commercial systems.

**ME 4383/6383. Heat Exchanger Design. (3)** (Prerequisites: ME 3313 and EM 3313). Three hours lecture. Thermal design and application of various types of heat exchangers including: surface selection, design, sizing, rating, and operational challenges.

ME 4401. Solid Mechanics Laboratory. (1) (Prerequisites: EM 3213, ME 3103, ME 3403, EM 2433, and technical junior-level writing course.) Two hours laboratory. Selection and use of strain gages, dimensional measurements, load cells, and accelerometers. Hands on experiments with quasi-static testing, dynamic impact testing, spring constants, vibrations, and reporting of results.

**ME 4403.** Machine Design. (3) (Co-requisite: ME 3403; Prerequisite: grade of C or better in EM 3213). Three hours lecture. Applied stress analysis and material strength theories for sizing and selecting materials of machine elements. Selection of gears, cams, belts, springs. Design projects.

ME 4413/6413. Casting and Joining. (3) (Prerequisite: ME 3403 or consent of instructor). Three hours lecture. Fundamentals of solidification in casting and joining processes, including design applications.

ME 4423/6423. Machining and Forming. (3) (Prerequisite: ME 3403 or consent of instructor). Three hours lecture. Fundamentals of mechanical processing of metals, including bulk and sheet forming techniques.

**ME 4443/6443. Mechanical Systems Design. (3)** (Prerequisites: ME 3423 and ME 4403). Three hours lecture. Mechanical design projects involving analysis; industrial standards and considerations for safety and manufacturability; the use of computers in design and manufacturing automation (CAD/CAM).

ME 4453/6453. Lubrication. (3) (Prerequisite: Senior standing). Three hours lecture. Friction of solids and fluids. Lubricants. Theory of sliding bearings. Multidimensional bearings with constant forces and velocities. Film, hydrodynamic, and gas lubrication. Design of bearings.

ME 4463/6463. Engineering Design. (3) (Prerequisites: ME 3613 and Senior standing). Three hours lecture. In-depth topics in mechanical design. Design of friction devices, hydrodynamic drives, and shells of revolution. Design for thermal creep, thermal stresses, surface contact, and impact.

**ME 4543/6543.** Combustion Engines. (3) (Prerequisites: ME 3523 and ME 3313). Three hours lecture. Application of thermodynamics, heat transfer, and combustion in the determination of performance characteristics of various engines, e.g., internal combustion, jet, and rocket engines.

**ME 4623/6623. Control Systems. (3)** (Prerequisite: ME 3613 and ECE 3283). Three hours lecture. Principles of closed loop mechanical, electrical, hydraulic, pneumatic, and thermodynamic systems. Design of control systems.

ME 4624/6624. Experimental Methods in Materials Research. (4) (Prerequisites: CHE 3413 or ABE 3813 or ME 3403 or consent of instructor). Three hours lecture. Three hours laboratory. An introduction to research methodologies commonly used in the evaluation of treatments and mechanical testing. (Same as ABE 4624/6624 and CHE 4624/6624).

**ME 4643/6643. Introduction to Vibrations and Controls. (3)** (Prerequisite: ME 3613). Three hours lecture. Review of Laplace Transforms. Introduction to vibrations, Fourier analysis, linearization, system modeling and feedback controls.

ME 4743/6743. Labview. (3) (Prerequisite: ME 3701 or equivalent Labview Experience). Two hours lecture. Three hours laboratory. Labview programming for applications in laboratory data acquisition (DQA). Basic and intermediate graphical programming theory with emphasis on transducer measurements and triggering.

**ME 4823/6823. Compressible Flow and Turbomachinery. (3)** (Prerequisites: EM 3313 and ME 3523). Three hours lecture. Fundamental principles, shock and expansion waves, generalized one-dimensional flows, simple processes, energy transfer in turbomachines, turbomachine efficiencies, multi-dimensional effects.

**ME 4833/6833. Intermediate Fluid Mechanics.** (3) (Prerequisite: EM 3313). Three hours lecture. Differential equations of fluid mechanics, Newtonian and non-Newtonian fluids, boundary-layer theory, laminar and turbulent solutions, compressible flow with applications.

**ME 8011. Graduate Seminar.** (1) Presentation and discussion of research and current mechanical engineering literature by students, faculty, and visiting lecturers. Attendance required for students in Mechanical Engineering Graduate Program.

**ME 8144.** Transmission Electro Microscopy. (4) (Prerequisite: consent of instructor). One hour lecture. Six hours laboratory. Introduction to TEM including life sciences (tissue) and engineering (Crystalline materials) topics. (Same as EPP 8144)

**ME 8213. Engineering Analysis I. (3)** Three hours lecture. The formulation of mathematical methods of advanced engineering problems and the use of mathematical techniques for their solution: equilibrium, eigenvalue, and propagation problems.

**ME 8223. Inelasticity. (3)** (Prerequisite: EM 8113 and EM 8203). Three hours lecture. This course covers plasticity, creep, viscoelasticity, and inelastic behavior in relation to microstructure-property relations, constitutive modeling at different length scales, and computational simulations.

ME 8243. Finite Elements in Mechanical Engineering. (3) (Prerequisites: ME 4403 and EM 3213). Three hours lecture. Concepts and applications of finite element analysis in mechanical engineering problems.

ME 8253. Fatigue in Engineering Design. (3) Three hours lecture. Prediction and prevention of fatigue failure in metallic materials.

**ME 8313.** Conductive Heat Transfer. (3) Three hours lecture. Closed form analytical and approximate numerical solutions to one, two, and three dimensional steady-state and transient problems in conduction heat transfer.

ME 8333. Convective Heat Transfer. (3) Three hours lecture. Analytical and empirical methods of solution of problems in laminar and turbulent, natural and forced convective heat transfer. Stability; thermal boundary layer techniques; multiphase systems.

**ME 8343.** Two-Phase Flow and Heat Transfer. (3) (Prerequisites: ME 3313 and EM 3313). Three hours lecture. Two-phase fluid mechanics and heat transfer processes in engineering systems. Pool boiling, flow boiling, and convective condensation.

ME 8353. Advanced Energy Conversion. (3) (Prerequisite: Graduate standing in Mechanical Engineering or consent of instructor.) Three hours lecture. Physical process in advanced energy conversion technologies, with practical application to devices/ energy cycles. Emphasis on fuel cells, photovoltaics, and related materials engineering issues.

**ME 8363. Computational Heat Transfer. (3)** (Prerequisite: Consent of Instructor). Three hours lecture. Application of numerical techniques to elliptic and parabolic problems in engineering heat transfer and fluid flow. Discretization techniques; linearization; stability analysis. (Same as ASE 8363).

**ME 8513. Classical Thermodynamics. (3)** Three hours lecture. Postulational treatment of the physical laws of equilibrium, thermostatics. Equations of state, processes, equilibrium stability, reactive systems, phase transitions.

**ME 8613. Dynamical Systems. (3)** Three hours lecture. Mathematical description and simulation of systems with mechanical, electrical, pneumatic, and hydraulic components; state variables; bondgraphs; stability; observability and controllability.

**ME 8733. Experimental Procedures. (3)** Three hours lecture. Design of experiments; instrumentation; data acquisition; and correlation and evaluation of results.

**ME 8813. Viscous Flow I. (3)** Three hours lecture. Fundamental laws of motion for a viscous fluid; classical solutions of the Navier-Stokes equations; inviscid flow solutions; laminar boundary layers; stability criteria.

**ME 8823.** Viscous Flow II. (3) (Prerequisite: ME 8813 or equivalent). Three hours lecture. Numerical solution techniques for viscous flow equations. Turbulence and turbulence modeling. Current literature and topics. ME 8843. Unstructured Grid Technology. (3) (Prerequisites: ASE 8413, proficiency in computer programming, and consent of instructor). Three hours lecture. Unstructured grid generation based on Delaunay, Advancing-Front, Iterative Point Placement, and Local-Reconnection techniques. Implementation of unstructured Finite-Element/Volume methods for engineering applications.

## **MIDDLE EASTERN CULTURES**

Professor and Head Jacobs; Associate Professor Hardin Office: 204 Cobb Institute of Archaeology

**MEC 2233. Introduction to Old Testament Archaeology. (3)** Three hours lecture. A survey of the Old Testament in the light of archaeological research. This approach is chronological-historical-archaeological. (Same as REL 2233)

MEC 3473. Islam. (3) A survey of Islamic history, beliefs and practices, law, theology, philosophy, and mysticism. (Same as REL 3473)

MEC 3540. Archaeological Travel and Participation Program. (1-6) Participation in excavations in the Near East and related lecture program. (Same as AN 3540 and REL 3540).

MEC 3553. Near Eastern Archaeology. (3) Three hours lecture. Introduction to the contributions made by archaeological research to ancient Near Eastern history and prehistory, with special emphasis on the Syro-Palestinian area. (Same as AN 3553 and REL 3553).

MEC 4403/6403. The Ancient Near East. (3) (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the origins and development of civilizations in Mesopotamia, Egypt, and Syria-Palestine from prehistoric times to the end of the Persian period. (Same as HI 4403/6403 and REL 4403/6403).

# Department of MANAGEMENT and INFORMATION SYSTEMS

#### Office: 302 McCool Hall

Professors Barnett, Chrisman, Lehman, A. Pearson, R. Pearson (Head), Shim, Spencer, Taylor, and Warkentin; Associate Professor Kellermans, Long, Otondo, and Templeton Assistant Professors Holt, Marett, Marler, Sainsbury and Vardaman

MGT 3114. Principles of Management and Production. (4) (Prerequisites: EC 2113, BQA 2113, and junior standing). Four hours lecture. Management principles for all organizations including planning, organizing, leading, and controlling as well as the purposes, methods, tools, and procedures of production management.

MGT 3213. Organizational Communications. (3) (Prerequisites: EN 1113 and junior standing). Three hours lecture. Application of communication principles through preparation of effective documents and presentations. Includes study and application of team communication, multicultural communication, technology usage, and ethical considerations.

MGT 3323. Entrepreneurship. (3) (Prerequisite: EC 2123 or consent of instructor). An introduction to the processes involved in owning and managing a business. Includes the entrepreneurial activities normally associated with starting and operating a business.

MGT 3333. Field Studies in Entrepreneurship. (3) (Prerequisite: MGT 3323 or consent of instructor). Three hours lecture. Students, working in groups under the direction of their professor, will assess the problems of an embryonic or operating entrepreneurial organization and recommend appropriate solutions.

MGT 3413. Production Management. (3) (Prerequisite: MGT 3114 and BQA 2113). Three hours lecture. Purposes, methods, tools, and procedures of production/operations management: systems used in large and small firms.

MGT 3513. Introduction to Human Resource Management. (3) Three hours lecture. Development of efficient programs for managing human resources. Emphasizes equal employment opportunity, performance evaluation, selection, placement, education, training, safety and health.

MGT 3813. Organizational Behavior. (3) (Prerequisites: MGT 3114). Three hours lecture. Study of behavioral theories used by managers to assist them in better understanding, anticipating, and influencing behavior in an organizational setting.

MGT 3823 Socially Responsible Leadership. (3) (Prerequisite: Junior-level academic standing). Three hours lecture. Study of leadership in organizations, with emphasis on the ethical challenges facing leaders and the impact of leaders' behavior on followers, organizations, and organizational stakeholders.

MGT 4153. Management Seminar. (3) (Prerequisite: Senior standing). Presents for analysis, discussion, and solution case-problems of actual situations met in day-to-day operation of business enterprise which require managerial action.

MGT 4533. Advanced Human Resource Management. (3) (Prerequisite: MGT 3513 or consent of instructor). Three hours lecture. Study of problems in the field of human resource management emphasizing development of the ability to analyze problems and to apply management fundamentals to human resource.

MGT 4543. Compensation Management. (3) (Prerequisite: MGT 3513). Three hours lecture. Compensation fundamentals, practices, and problems, including wage level determinants, wage & salary structures, merit rating, methods of wage payments, fringe benefits, & controls.

MGT 4563. Staffing in Organizations. (3) (Prerequisites: MGT 3114 and MGT 3513). Three hours lecture. Study of the staffing function in organizations, with emphasis on human resource planning, recruitment and selections.

MGT 4613. Cross-Cultural Management. (3) (Prerequisite: MGT 3114). Three hours lecture. Study of managing in a multi-cultural environment. Focuses on global strategies, management approaches, and interactions.

MGT 4713. Quality in Organizations. (3) (Prerequisites: MGT 3114). Three hours lecture. An introduction to theories and tools associated with quality management in organizations. Considers the managerial, employee, organizational, and cultural changes required to enhance quality.

MGT 8063. Survey of Management. (3) (Prerequisite: Graduate standing). Three hours lecture. Survey of management principles and techniques including: objective, policies, functions, leadership, organization, and production control procedures and systems as applied to all fields of business.

MGT 8111. Human Resources Issues. (1) (Prerequisite: MGT 8063 or equivalent). One hour lecture. Survey of nature and influences of human resource management in organizations. Case studies are used to apply and reinforce theory.

MGT 8112. Leadership Skills for Managerial Behavior. (2) (Prerequisite: MGT 8063 or MGT 3114 or equivalent). Two hours lecture. Survey of major behavioral skills used by managers to help them understand and influence behavior in an organizational setting.

**MGT 8122. Business Consulting Project. (2)** (Prerequisite: MGT 8121 or equivalent). Two hours lecture. A group-based, consulting project on strategic issues currently facing a participating organization.

MGT 8123 Strategic Business Consulting. (3) (Prerequisites: BQA 8153, MKT 8153, ACC 8112, FIN 8112, FIN 8122, and MGT 8112). A study of strategic management covering environmental analysis, competition between firms, competitive advantage, and strategy implementation culminating in a consulting project with a participating organization.

MGT 8213. Graduate Seminar in Communications. (3) (Prerequisite: MGT 3114). Three hours lecture. Communication orientation to the managerial function. Includes study of verbal and nonverbal communication, persuasion, semantics, upward, downward and horizontal communication, communication skills, and communication programs.

MGT 8413. Operations Research Problems. (3) (Prerequisites: BQA 8443 and MGT 4413 or consent of instructor). Three hours lecture. Survey of major quantitative and operations research techniques useful in business decision-making, planning, and control; practice in model formulation and solution using the computer.

MGT 8513. Human Resource Management. (3) Three hours lecture. The nature, role, and scope, from a systems approach, of human resource management within organizations. Cases supplement lectures with real-life decision-making situations.

MGT 8613. Managing in the Global Business Environment. (3) Three hours lecture. Analysis of the global environmental elements which impact and are impacted by organizations: global politics and economics, culture, international competition, natural resources, technology.

MGT 8813. Organizational Behavior. (3) Three hours lecture. A study of the major behavioral theories and technologies as they relate to an organizational setting. Theory and research in the major organizational behavior areas will be emphasized.

**MGT 8823.** Organization Development. (3) (Prerequisite: MGT 3114). Study of the ways organizations can better adapt to the challenges of a modern society. The focus is on innovation, change, and action-oriented research.

MGT 9143. Development of Management Theory. (3) (Prerequisite: approval of Instructor). Three hours lecture. Doctoral Seminar. A survey analysis and synthesis of the classical idea which have influenced the development of management and current management theory.

MGT 9533. Seminar in Human Resource Management Literature. (3) (Prerequisite: Approval of Instructor). Discussions and presentations pertaining to HRM literature. Emphasis on understanding the empirical that theoretical research in this area and developing individual theoretical manuscripts for presentation.

**MGT 9613. Organizational Theory and Practice.** (3) (Prerequisite: Approval of Instructor). Three hours lecture. Doctoral Seminar. Analysis and design of organization structure and dynamics of organization. Behavioral aspects of the executive factors affecting the administrative process within organizations.

**MGT 9813. Seminar in Organizational Behavior. (3)** (Prerequisite: Approval of Instructor). Discussions and presentations pertaining to OB literature. Emphasis on understanding the empirical add theoretical research in this area, and developing individual theoretical manuscripts for presentation.

**MGT 9913. Seminar in Strategy Formulation. (3)** (Prerequisite: Approval of Instructor). Doctoral seminar covering the strategic management literature in the area of strategy formulation.

**MGT 9933. Seminar in Strategy Implementation.** (3) (Prerequisite: Approval of instructor). Doctoral seminar covering the strategic management literature in the area of strategy implementation.

# Department of MARKETING, QUANTITATIVE ANALYSIS and BUSINESS LAW

Office: 324 McCool Hall

Professors P. Liddell, M. Moore, R. Moore, Sullivan, Tahai, Taylor and Webster; Associate Professors Chakrabarty, Lueg (head), Ponder; Assistant Professors, Collier, G. Liddell, Shanahan; Instructors Cook, Goree, Lam and McCormick

MKT 2211. PGM Level I Seminar. (1) (Prerequisite: enrollment in the PGM program or consent of instructor). One hour lecture. This course introduces the PGM program and helps students work through Level I checkpoint material as designated by the PGA of America.

MKT 2221. Golf Professional Development I. (1) (Prerequisite: Enrollment in the PGA Golf Management program or consent of instructor.) Two hour lab. Introduction to PGA PGM program course materials. Practical applications of golf tournament operations; introduction to teaching golf and golf club performance; and customer relations material.

MKT 2231. Golf Professional Development II. (1) (Prerequisite: Enrollment in the PGA Golf Management program or consent of instructor). Two hours laboratory. Introduction to PGA PGM program materials. Practical applications of golf fleet management and business planning.

MKT 2241. Golf Professional Development III. (1) (Prerequisite: Enrollment in the PGA Golf Management program or consent of instructor). Two hours laboratory. Introduction to PGA PGM program materials. Practical application of intermediate teaching and golf club alteration. Students will also be introduced to concepts and application of turfgrass management.

MKT 2251. Golf Professional Development V. (1) (Prerequisite: Enrollment in the PGA Golf Management program or consent of instructor). Two hours laboratory. Introduction to PGA PGM program materials. Practical application of advanced teaching and golf club fitting and player development programs and teaching business.

MKT 2311. Golf Professional Development IV. (1) (Prerequisite: Enrollment in the PGA Golf Management program or consent of instructor). Two hours laboratory. Introduction to PGA PGM program materials. Practical applications of golf operations and merchandise and inventory management.

**MKT 3013.** Principles of Marketing. (3) (Prerequisite: junior standing). Three hours lecture. A general survey of the functions, processes, institutions and costs in distribution of goods and services from producers to users.

MKT 3213. Retailing. (3) (Prerequisite: MKT 3013 and Junior standing). Three hours lecture. Survey of the nature, procedure and results of trade at the retail level.

MKT 3323. International Logistics. (3) Three hours lecture. Understanding and applying logistics concepts in a global context. Includes analysis of logistics tradeoffs and integration with other business functions.

**MKT 3513.** Marketing Internship. (3) (Prerequisites: Junior standing and MKT 3013) Students will work with an approved business as an intern. Course available only on MSU-Meridian campus.

MKT 3933. International Marketing. (3) (Prerequisites: MKT 3013, and senior standing in business/marketing.) Three hours lecture. Study of the marketing function in the global marketplace, including the techniques and strategies required when marketing in various cultural, economic, legal and political environments.

MKT 4033. International Transportation. (3) Three hours lecture. Understanding the role of transportation in global logistics and global economy.

MKT 4113. Personal Selling, (3) (Prerequisite: Junior standing). Three hours lecture. Psychology of personal selling; planning and presentation; the sales approach; the interview; closing the sale.

MKT 4123. Advertising. (3) (Prerequisite: MKT 3013 or consent of instructor). Three hours lecture. A course dealing with the role of advertising in society, the relation of advertising to other business activity, and the use of advertising as communication.

**MKT 4143/6143. Sales Management. (3)** (Prerequisites: MKT 3013 and MGT 3114 or MKT 8072). Three hours lecture. Application of scientific management to the selling and distribution of consumer and industrial goods.

MKT 4213/6213. Internet Marketing. (3) (Prerequisite: MKT 3013 or MKT 8072). Three hours lecture. Introduction to practical marketing use of Internet technologies, including basic principles, impact on business and society, and strategic implications.

MKT 4233/6233. Golf Operations Management. (3) (Prerequisite: PGM Major and MKT 3213). Three hours lecture. Development of marketing strategies for the organization, operation, and maintenance of operations in the golf shop and golf course environment.

MKT 4313/6313. Physical Distribution Management. (3) (Prerequisites: BQA 2113 and MKT 3013). Functions of physical distribution in business management; analysis of shippers, distribution problems in relation to carrier types, services and functions; methods of reducing distribution costs, use of internal and external data in warehouse and factory location; study of rate of structure and rate changes.

MKT 4333. International Supply Chain Management. (3) Three hours lecture. Analysis of supply chains and the importance to the global economy. **MKT 4413. Consumer Behavior. (3)** (Prerequisite: MKT 3013). A study of the nature and dynamics of consumer markets, and the significance of these markets to marketing executives.

**MKT 4513. Resort-Convention Marketing. (3)** (Prerequisite: MKT 3013) Three hours lecture. A study of marketing problems unique to resorts and convention centers. Special emphasis is placed on quantitative techniques for pricing, services, event booking, and positioning. Course available only on MSU-Meridian campus.

**MKT 4533.** Marketing Research. (3) (Prerequisites: BQA 3123 and MKT 3013). Three hours lecture. Study of modern marketing research techniques and their applications. Scope and purpose of marketing research: planning of surveys; collecting and analysis of data; preparation of reports.

MKT 4613. Services Marketing. (3) (Prerequisite: MKT 3013.) Three hours lecture. A study of the unique problems associated with the marketing of services and of alternative strategies with which to improve service marketing effectiveness.

MKT 4813. Marketing Management. (3) (Prerequisites: Marketing Graduating Senior). Marketing from managerial viewpoints: critical analysis of functions of marketing opportunity assessment, marketing planning and programming, marketing leadership and organization, evaluating and adjusting marketing effort.

MKT 8072. Survey of Marketing. (2) (Prerequisite: Graduate standing; EC 8043, equivalent or concurrent enrollment). Two hours lecture. Survey of product, price, promotion, and distribution decisions in for-profit and non-profit settings; external environmental factors affecting marketing decisions; focus on strategic decision making.

MKT 8153 Strategic Marketing Management. (3) (Prerequisites: MKT 3013 or MKT 8072 or equivalent). Three hours lecture. Market strategic analysis, research and planning necessary to effectively match marketing strategies with changing macro, micro and organizational environments.

**MKT 8313. Marketing Policies. (3)** (Prerequisite: MKT 3013). Three hours lecture. A graduate survey of marketing focused on the analysis and planning necessary to effectively match marketing programs with competitive, economic, social, political and ethical environments.

**MKT 8323.** Problems in Marketing. (3) (Prerequisite: MKT 8112 or equivalent). Seminar. Identification of current marketing problems and the specification, evaluation and modification of strategies for their resolution, with emphasis on the use of conceptual modeling.

MKT 8333. Seminar in Marketing—Promotion and Distribution Strategies. (3) (Prerequisite: MKT 8313). Intensive analysis of promotion and distribution strategies as key functional marketing variables. Emphasis on obtaining advanced understanding of strategic and research alternatives.

MKT 8343. Seminar in Marketing—Pricing and Product Strategies (3) (Prerequisite: MKT 8313). Intensive analysis of pricing and product strategies as key functional marketing variables. Emphasis is on obtaining an advanced understanding of strategic and research alternatives.

MKT 8533. Research Design and Execution. (3) (Prerequisite: Consent of instructor). Interdisciplinary; designing and executing valid quantitative research projects, developing valid, reliable data collection instruments, correctly analyzing, interpreting data. Wide-range applicability. Master-doctoral-level.

**MKT 8543. Quantitative Marketing Seminar. (3)** (Prerequisites: MKT 8313 and BQA 8443 or consent of instructor). Development of marketing strategy and the solution of marketing problems using quantitative methods.

MKT 9333. Advanced Marketing Theory. (3) (Prerequisite: MKT 8313). Seminar. A critical examination of the evolution of marketing concepts, terminology, principles, and theory, through analysis of the literature in the field.

## **MILITARY SCIENCE**

#### Office: 2nd Floor, YMCA Building

#### MAJ Cardone, MAJ Bowman, MAJ Harbor, CPT Anthony, 1LT Guadagno, MSG Wood, SFC Minor

MS 1112. Introduction to ROTC. (2) One hour lecture. Two hours laboratory. Increases self-confidence through team study and activities in basic drill, physical fitness, rappelling, first aid, and basic marksmanship. Students learn fundamental concepts of leadership.

**MS 1122. Introduction to Leadership. (2)** One hour lecture. Two hours laboratory. Applies principles of effective leadership, develops communications skills to improve individual performance and group interaction, and relates organizational ethical values to the effectiveness of leaders.

MS 2113. Advanced Leadership. (3) Two hours lecture. Two hours laboratory. Applies leadership and problem-solving principles to complex case studies/ simulations. Examines principles of subordinate motivation and organizational skills.

MS 2123. Tactics and Officership. (3) Two hours lecture. Two hours laboratory. Introduces basic tactics. Examines national and Army values. Applies principles of ethical decision-making. Examines the legal and historical foundations, duties and functions of officers. MS 2256. Introductory Leadership Course. (6). (The equivalent of MS 1112, MS 1122, MS 2122; or MS 1113 and MS 2223). Summer leadership training course designed to introduce students to all facets of the military with a focus on understanding traditional military leadership values.

MS 2523. Military Leadership 1. (3). Three hours lecture. A study of leadership skills and concepts. This course is designed for students who are not pursuing a military commission. (Same as AS 2523).

MS 3113. Advanced Military Skills I. (3) (Prerequisites: MS 1112, MS 1122, MS 2112, and MS 2122 or instructor's consent.) Fall semester. Three hours lecture. Two hours laboratory. Detailed instruction on problem solving, squad offensive and defensive tactics, to include specialized operations. Additional instruction in leadership and operations orders.

MS 3123 Advanced Military Skills II. (3) (Prerequisite: MS 1112, MS 1122, MS 2112, MS 2122, MS 3113 or instructor's consent.) Spring Semester. Three hours lecture. Two hours laboratory. Advanced instruction on platoon tactical operations and small unit patrolling. Discussion on the operation and employment of weapons in the platoon.

MS 3376. Advanced Leadership Course. (6) (Prerequisite: MS 3113 and MS 3123). Summer leadership training course designed to train and to evaluate cadet's leadership ability and officer potential. (Summer)

MS 4114/6114. Leadership Challenges and Goal-Setting. (4) (Prerequisite: Military Science Status or consent of instructor). Three hours lecture. Three hours laboratory. Plan, conduct and evaluate activities of the ROTC organization. Develop confidence in skills to lead people and manage resources. Apply Army policies and programs. (Fall)

MS 4124/6124. Transition to Lieutenant. (4) (Prerequisite: Military Science Senior Status or consent of instructor). Three hours lecture. Three hours laboratory. Theory and practice of the laws of war, leadership, and resolving ethical problems.

## Department of MUSIC

## Music Building

Professors Brown (Head), Damm, Edwards-Henry, and Johns; Associate Professors Human, Patilla and Sebba; Assistant Professors Aarhus, Baker, Packwood, Price, Sobaskie and Taylor, Instructors Falcone, Lance and Murphy

#### Music

MU 1003. Fundamentals of Music Theory. (3). Three hours lecture. Development of skills for music reading, writing, listening, and analyzing. Topics will include pitch, rhythm, meter, scales, and basic harmony.

MU 1010. Recital Hour. (0) Minimum one (1) hour weekly. Performance and critique experiences in applied music. Required for music majors.

MU 1103. African American Music. (3) Three hours lecture. A study of African musical and cultural traditions with focus on the impact of these traditions on the development and advancement of African American Music. (Same as AAS 1103.)

MU 1111-1121. Piano Class. (1) Two hours laboratory. Beginning piano for non-music majors.

MU 1113. History and Appreciation of Music. (3) Three hours lecture. Historical development of music and the composers of the different eras; individual investigation of related special topics; individual and directed listening to musical examples.

MU 1131. Voice Class. (1) Two hours laboratory. Class study of Voice Production.

MU 1141. Seminar for Voice Majors. (1) One hour seminar. Acquiring the skills to pronounce and sing vocal text correctly in various languages by the use of the International Phonetic Alphabet (IPA). Music education majors only.

MU 1162. Music History I. (2) Two hours lecture. An introduction to musical styles and an intensive study of the music and composers of the Medieval and Renaissance periods, emphasizing listening and score-study. (Primarily for music majors.)

MU 1211. Guitar Class. (1) Two hours laboratory. Class study of guitarplaying techniques at the beginning level.

MU 1213. Music Theory I. (3) Three hours lecture. Fundamental concepts of notation of key signatures, intervals, scales, chords and clefs. Principles of Common-Practice Period Functional Harmony. Co-requisite: MU 1321.

MU 1321. Ear Training I. (1) Two hours laboratory. Aural identification, singing and dictation of major and minor scales, diatonic melodies, isolated harmonies, simple intervals and rhythms. Co-requisite: MU 1213.

MU 1413. Music Theory II. (3) Three hours lecture. Further elements of harmony, including seventh-chords, non-chord tones, chromatic vocabulary. Small forms. Co-requisite: MU 1521 or consent of instructor.

MU 1521. Ear Training II. (1) Two hours laboratory. Aural identification, singing and dictation of diatonic melodies, triads, simple intervals and rhythms. Co-requisite: MU 1413 or consent of instructor.

**MU 2011. Third Year Woodwind Ensembles. (1)** (Audition required). One to five rehearsals per week. The study and performance of significant woodwind literature. May be repeated for credit more than once.

MU 2111-2121. Piano Class. (1) Two hours laboratory. Beginning piano for instrumental and vocal music majors.

MU 2322. Music History II. (2) (Prerequisite: Grade of C or better in MU 1162 or permission of instructor). Two hours lecture. An intensive study of the music and composers of the Baroque and Classical periods, Monteverdi through Beethoven, emphasizing listening and score-study. (Primarily for music majors).

MU 2323. Music History III. (3) (Prerequisite: Grade of C or better in MU 2322 or permission of instructor). Three hours lecture. An intensive study of Nineteenth and Twentieth Century Western Art music and composers and music of non-Western cultures, emphasizing listening, score-study, writing and speaking. (Primarily for music majors.)

MU 2411. Guitar Ensemble. (1) (Audition required). One to five rehearsals per week. The study and performance of guitar ensemble literature. May be repeated for credit more than once.

MU 2511. Marching Band. (1) (Audition required). One to five rehearsals per week. The study and performance of significant marching band literature. May be repeated for credit more than once. (Fall semester only).

**MU 2551. Percussion Ensemble.** (1) Audition required). One to five rehearsals per week. The study and performance of significant percussion literature. May be repeated for credit more than once.

MU 2571. Wind Ensemble. (1) (Audition required). One to five rehearsals per week. Study, rehearsal, and performance of select literature from the wind band repertory. May be repeated for credit more than once.

**MU 2613. Music Theory III. (3)** (Prerequisite: Grade of C or better in MU 1413; Co-requisite: MU 2721). Three hours lecture. Chromatic vocabulary, including augmented sixth chords, Neapolitans and modulation. Late Romantic and early 20th Century innovations such as extended tertian chords and substitution chords.

**MU 2721. Ear Training III. (1)** (Prerequisite: Grade of C or better in MU 1521; Co-requisite: MU 2613). Two hours laboratory. Aural identification, singing and dictation of diatonic melodies with chromatic inflection, seventh chords and rhythms.

MU 2731. Chamber Singers. (1) (Audition required). One to five rehearsals per week. The study and performance of significant choral literature. May be repeated for credit more than once.

**MU 2813. Music Theory IV. (3)** (Prerequisite: Grade of C or better in MU 2613; Co-requisite: MU 2921). Three hours lecture. 16th century counterpoint, 18th century counterpoint, and 20th century practices. Modes, artificial scales, non-triadic chords, complex meter, changing meter, asymmetrical divisions.

MU 2851. Brass Ensembles. (1) (Audition required). One to five rehearsals per week. The study and performance of significant brass literature. May be repeated for credit more than once.

**MU 2911. Jazz Ensemble. (1)** (Audition required). One to five rehearsals per week. The study and performance of significant jazz ensemble literature. May be repeated for credit more than once.

MU 2921. Ear Training IV. (1) (Prerequisite: Grade of C or better in MU 2721; Co-requisite: MU 2831). Two hours laboratory. Aural identification, singing and dictation of modes, artificial scales, non-triadic chords, modulating melodies, compound intervals.

MU 3111-3121. Piano Class. (1) (Prerequisite: grade of C or better in MU 2121 or equivalent or permission of instructor). Two hours laboratory. Intermediate piano for instrumental and vocal music majors; continuation of MU 2121.

MU 3112-3122. Piano Class. (2) (Prerequisite: Prior credit or concurrent enrollment in MU 1213-1413). Two hours laboratory. Functional keyboard skills for music majors who read and play intermediate to advanced-level piano repertoire.

MU 3123 Creative Arts for Elementary and Middle Levels. (3) (Prerequisite: Admission to Teacher Education) Three hours lecture. An exploration of musical and artistic elements utilizing a variety of multicultural music, dance, drama and aesthetic visuals. (Same as EDE 3443)

MU 3201. Collaborative Piano Ensemble. (1). (Prerequisite: late intermediate to early advanced piano skills. Audition required). One to five rehearsals per weeks. The study and performance of vocal/piano and instrumental piano repertoire. May be repeated for credit more than once.

MU 3333. Orchestration. (3) Three hours lecture. Basic arranging/orchestration techniques for chorus and band. The student will learn the practical ranges of band instruments and voices so that they can write idiomatically.

MU 3412. Conducting. (2) Two hours lecture. The elements of conducting, baton technique, and interpretation.

**MU 3442.** Advanced Conducting. (2) (Prerequisite: MU 3412 or consent of instructor). One hour lecture. Two hours laboratory. Continuation of MU 3412 with emphasis on interpretation of significant instrumental and choral literature.

MU 4313. Form and Analysis. (3) (Prerequisites: MU 2214/2224). Three hours lecture. A comparative survey for music majors of the principal formal designs found in instrumental and vocal literature with emphasis on compositional techniques and harmonic structure.

#### Major Ensembles

MU 2511. Marching Band. (1) MU 2531. Concert Band. (1) Second Semester Only. MU 2561. Symphonic Band.(1) MU 2571. Wind Ensemble. (1) MU 2611. Concert Choir. (1) MU 2631. Starkville Community Choir. (1)

### **Charter Ensembles**

#### Office: Choral Building

Training in the correct principles of singing. Stress on tone quality, enunciation, pronunciation, even scale and musicianship. Repertoire for each of the choral groups during a four-year period is designed to provide participants with opportunity to study and perform standard and contemporary compositions.

MU 2731. Chambers Singers. (1)

MU 2011. Woodwind Ensemble. (1)

MU 2411. Guitar Ensembles (1)

MU 2551. Percussion Ensemble. (1)

MU 2851. Brass Ensemble. (1)

MU 2911. Jazz Ensemble. (1)

MU 3201. Collaborative Piano Ensemble (1)

# APPLIED MUSIC

Variable credit 1 or 2 hours credit: 3 hours practice per week per hour of credit. May be repeated for credit.

All students of applied music will be given proficiency examinations which will be held at the end of each semester. All Music Majors are required to perform in Student Recital on their major instrument at least once each semester. (Does not apply in the first semester of the freshman year or during the teaching internship semester).

MUA 1010, 2010, 3010. Piano (prerequisites: MU 1213 for composition; MU 1121 or MU 3121 for piano; or consent of instructor)

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	MUA 1050, 2050, 3050.	Voice
	MUA 1110, 2110, 3110.	Flute
	MUA 1150, 2150, 3150.	Clarinet
	MUA 1210, 2210, 3210.	Saxophone
	MUA 1250, 2250, 3250.	Oboe
	MUA 1310	Bassoon
	MUA 1350, 2350, 3350.	Trumpet
	MUA 1410, 2410, 3410.	Horn
	MUA 1450, 2450, 3450.	Trombone
	MUA 1510, 2510, 3510.	Euphonium
	MUA 1550, 2550, 3550.	Tuba
	MUA 1610, 2610, 3610.	Percussion
	MUA 1650	Strings
	MUA 1710, 2710, 3710	Guitar
	MUA 1810, 2810, 3810	Music Composition

(Prerequisite: MU 1213 for composition or consent of instructor.) Individual instruction for instruments, voice, or composition. See department guidelines regarding exam procedure and recital performance.

#### MUSIC EDUCATION

**MUE 3001. Practicum in Music Education.** (1) Two hours laboratory. Observation, discussion, and critique of elementary and secondary school music classroom settings.

MUE 3212. Brass Techniques. (2) Two hours lecture. Study of brass winds with emphasis on embouchure, techniques, and teaching problems.

MUE 3213. Performance Assessment in Music Education. (3) (Prerequisite: Admission to Teacher Education) Three hours lecture. Limited to music majors. Methods and materials of performance assessment in music education.

MUE 3221. Woodwind Class. (1) Two hours laboratory. Study of woodwinds with emphasis on embouchure, techniques, and teaching problems.

MUE 3222. Woodwind Techniques. (2) Two hours lecture. Study of woodwinds with emphasis on embouchure, techniques, and teaching problems.

MUE 3231. String Class. (1) Two hours laboratory. Study of strings with emphasis on bowing, techniques, and teaching problems.

**MUE 3242. Percussion Class. (2)** Two hours lecture. Detailed study of percussion instruments with emphasis on teaching problems, training materials, and performance literature. **MUE 3243.** Planning and Managing Learning in Music Education. (3) (Prerequisite: Admission to Teacher Education). Three hours lecture. Study of variables contributing to efficiency and competency for teacher-learner activities and the creation and maintenance of a positive learning environment in music classrooms.

MUE 3262. Instrumental Class. (2) One hour lecture. Two hours laboratory. Instrumental experiences for vocal and piano majors.

MUE 3333. Introduction to Piano Pedagogy. (3) Two hours lecture. Two hours laboratory. Methods, materials, curriculum building, and philosophical bases for teaching beginning piano. Required of all piano pedagogy students.

**MUE 4873.** Professional Seminar in Music Education. (3) (Prerequisites: Admission to Teacher Education and senior standing). Three hours lecture. A seminar dealing with legal, professional, administrative, and curriculum issues as they relate to music education in the schools.

**MUE 4886,4896.** Teaching Internship in Music Education. (6,6) (Prerequisite: Admission to Teacher Education, minimum GPA of 2.5 overall and in major, and completion of all professional education courses with a C or better). Professional full-day public school teaching experience in two consecutive placements or one 16-week placement in diverse settings under direction of supervising teachers and university supervisor.

## PHYSICAL EDUCATION

(For departmental information, see KINESIOLOGY)

**PE 1001. Racquetball.** (1) Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game.

**PE 1011. Badminton. (1)** Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game.

**PE 1021. Volleyball.** (1) Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game.

**PE 1031. Tennis. (1)** Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game.

**PE 1041. Aerobics. (1)** Two hours laboratory. Assessment, development and maintenance of physical fitness through aerobic exercises to music.

**PE 1051. Beginning Karate. (1)** Two hours laboratory. The essential principles both physical and psychological will be stressed. Emphasis is placed on organization of karate techniques and training methods.

**PE 1061. Fitness Walking/Jogging.** (1) Two hours laboratory. An exercise and activity class emphasizing walking and/or jogging to develop and maintain fitness and weight control.

**PE 1071. Soccer. (1)** Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game.

**PE 1081. Beginning Golf. (1)** Two hours laboratory. Instruction and laboratory experience in the development of individual skills for participation in golf.

**PE 1091. Contemporary Dance.** (1) Two hours laboratory. A non-major course designed to develop skills in contemporary dance routines.

**PE 1101. Karate for Intermediates. (1)** (Prerequisite: PE 1051 or prior Karate experience having attained the rank of Yellow Belt). Two hours laboratory. Current events of the American Karate world. Advanced free-fighting and self-defense techniques. Interpretation of forms.

**PE 1111. Physical Development. (1)** Two hours laboratory. This course is designed to develop understanding in the conceptual knowledge of fitness and physical conditioning and maintenance of human wellness. (May be taken up to four times for credit.)

**PE 1121. Advanced Physical Development.** (1) Two hours laboratory. A continuation of PE 1111. This course is designed to further the understanding in the conceptual knowledge of fitness and physical conditioning and maintenance of human wellness. (May be taken up to four times for credit.)

**PE 1141. Fitness and Conditioning.** (1) Two hours laboratory. This course provides the student with the necessary cognitive and laboratory experiences to make personal decisions specific to fitness and conditioning. (May be taken up to four times for credit).

**PE 1151. Strength Training. (1)** Two hours laboratory. Principles and practices of strength training with particular emphasis on specificity of design and management of load, repetitions, rate of exercise and recovery time.

**PE 1161. Modern Dance. (1)** (Prerequisite: Consent of Department Head). Two hours laboratory. Laboratory experience including a wide range of fundamental exercises and techniques, movement patterns, and dance choreography.

**PE 1181. Training Techniques for Physical Conditioning. (1)** Two hours laboratory. Provides the student with theoretical and laboratory experiences in the development of muscular strength, flexibility, and cardiovascular endurance. (May be taken up to four times for credit).

**PE 1202. Teaching Team Sports. (2)** One hour lecture. Two hours laboratory. Theory of and participation in non-traditional and traditional team sports. Analysis of skills, discussion of developmental appropriateness, terms, basic rules, and teaching strategies.

**PE 1212. Teaching Individual and Dual Sports. (2)** One hour lecture. Two hours laboratory. Theory of and participation in non-traditional and traditional individual and dual sports. Analysis of skills, discussion of developmental appropriateness, terms, basic rules, and teaching strategies.

**PE 1222. Teaching Lifetime Activities. (2)** One hour lecture. Two hours laboratory. Activities, methods and theories within outdoor education. Introduction of concepts, activities, technologies and teaching methods for strength training, aerobic conditioning, fitness assessment and stress management.

**PE 1232. Teaching Rhythms. (2)** One hour lecture. Two hours laboratory. Instruction, demonstration, skill development, and teaching techniques in the areas of square, folk, and contemporary dance.

**PE 1323. History and Appreciation of Dance.** (3) Two hours lecture, two hours laboratory. A course designed to acquaint students with the history of dance and to develop a greater sensitivity, appreciation and understanding of this art.

**PE 2043. Introduction to Sport Studies. (3)** Three hours lecture. This course is designed to familiarize the student with historical, philosophical, educational, psychological, biological, sociological, and career emphases related to sport studies.

**PE 3033. Basketball/Football Officials. (3)** Three hours lecture. A course designed to qualify officials for major sports officiating in Mississippi. Rules, rules interpretation, and mechanics of officiating for the major sports are covered.

**PE 3111. Advanced Military Physical Fitness. (1)** (Prerequisites: MS 3113, MS 3123, MS 4113, MS 4123). One hour laboratory. Develops the physical fitness required of an officer in the Army through emphasis of individual fitness programs and examination of the role of exercise/fitness. (May be taken up to four times for credit.)

**PE 3123.** Principles and Methods of Elementary School Health and Physical Education. (3) Admission to Teacher Education required. Three hours lecture. Principles and methods of teaching health and physical education to elementary school children.

**PE 3133. Adapted Physical Education. (3)** (Prerequisite: Consent of the instructor). Two hours lecture. Two hours laboratory. A study of the psychomotor domain with emphasis on identifying handicapping problems and developing instructional strategies for remediating these problems.

**PE 3153. Methods of Elementary Physical Education. (3)** Three hours lecture. Designed to provide students with knowledge and practical experience that will enhance their effectiveness in teaching physical education to pre-school through fifth grade students.

**PE 3163. Sport Psychology. (3)** Three hours lecture. Analysis of the competitive sport process, with study of how personality and situational variables affect motivation, anxiety, and aggression in sport.

**PE 3223.** Motor Development and Movement. (3) (Prerequisite: BIO 1004). Two hours lecture. Two hours laboratory. A study of motor development, movement and the child-centered approach to teaching movement in grades K-6.

**PE 3313. Sport Physiology. (3)** (Prerequisites: BIO 1004 or BIO 2004). Two hours lecture. Two hours laboratory. Athletic performance physiology applicable to physical education and coaching. Physiological concepts of sports performance including training methods, bioenergetics, ergogenics, and nutrition for athletes is examined.

**PE 3422. Coaching Football. (2)** Two hours lecture. Theoretical study of football fundamentals, positions, styles of offensive and defensive rules, signal methods, generalship, and team play.

**PE 3432.** Coaching Basketball. (2) Two hours lecture. Theoretical study of basketball from a coaching standpoint; fundamentals and team play; methods of teaching fundamentals stressed; team organization.

**PE 3433. General Safety Methods. (3)** (Prerequisite: Junior standing). Three hours lecture. Analysis of accident causes and methods of prevention. Home, school, industry, farm, water, pedestrian problems considered.

PE 3452. Coaching Softball and Baseball. (2) Two hours lecture. Theoretical study of baseball and softball fundamentals and coaching techniques.

PE 4163/6163. Principles and Methods of Secondary School Health and Physical Education. (3) (Prerequisite: Senior standing and PE 3153). Admission to Teacher Education required. Three hours lecture. This course is designed to emphasis contemporary teaching methods in all areas of health and physical education in the secondary school.

**PE 4173. Tests and Measurements in Health and Physical Education. (3)** Admission to Teacher Education required. Three hours lecture. Test construction, test administration, and statistical procedures for evaluating test results in health and physical education.

**PE 4283. Sport Biomechanics. (3)** (Prerequisites: BIO 1004 or BIO 2004). Three hours lecture. Qualitative and quantitative analyses of selected athletic performance and human movement utilizing observation and other measurements techniques to detect and correct faults limiting sport performance.

**PE 4413. Basic Driver and Traffic Safety Education I. (3)** (Prerequisite: Valid driver's license, two years driving experience). Two hours lecture. Two hours laboratory. Critical analysis of traffic accidents, attitude factors, essential knowledge of automobile operations and traffic laws and regulations; laboratory experiences for developing driving skills.

**PE 4423. Driver and Traffic Education Methods II. (3)** (Prerequisite: PE 4413). Two hours lecture. Two hours laboratory. Professional preparation of college students who plan to teach driver education in secondary schools; methods of teaching and administering programs; scheduling, financing, and public relations.

**PE 4853.** Motor Learning and Skill Analysis. (3) (Prerequisite: PE 3223 and full admission to Teacher Education). Three hours lecture. Designed to provide students with an understanding of how movement is produced and controlled and the principles that underlie the learning of motor skills.

**PE 4873. Professional Seminar in Physical Education. (3)** (Prerequisites: Admission to Teacher Education and senior standing). Three hours lecture. A seminar dealing with legal, professional, administrative, and curricular issues as they relate to physical education and athletics in the schools.

**PE 4883/6883. School Health Education. (3)** (Prerequisites: Admission to Teacher Education). Three hours lecture. Preparation for prospective teachers in planning, implementing and evaluating all aspects of comprehensive school health education.

**PE 4886, 4896. Teaching Internship in Physical Education.** (6,6) (Prerequisites: Admission to Teacher Education, minimum GPA of 2.5 overall and in major, and completion of all professional education courses with a C or better). Supervised observation and directed teaching in respective field of endorsement.

**PE 8103.** Developing Coaching Expertise. (3). This course will provide graduate students with an in depth analysis and practical knowledge of the growth and development of coaches from novice to expertise.

**PE 8113. Curriculum Construction in Physical Education. (3)** Three hours lecture. Principles, problems, and procedures in the development of a physical education curriculum are considered. Special emphasis is placed upon developing a course of study in physical education for a chosen situation.

**PE 8163. Seminar in Physical Education. (3)** The course gives a complete review of current literature in physical education.

**PE 8193.** Professional Preparation in Physical Education. (3) Three hours lecture. This course covers NASPE guidelines for professional preparation. Special areas are professional roles, academic advisement, and professional writing skills.

**PE 8203.** Psychological Aspects of Sport. (3) Three hours lecture. An indepth analysis of the principles, methods and outcomes of sport psychology.

**PE 8213.** Problems in the Administration of Athletics. (3) Three hours lecture. Interscholastic athletic program; place of athletics in education, program organization and administration, budget, equipment, facilities, public relations, legal liability, and eligibility and contest regulations.

## Department of PHYSICS and ASTRONOMY

Office: 125 Hilbun Hall

Professors Novotny (Head), Afanasjevs, Arnoldus, Dunne, Ma, Monts, and Winger; Associate Professors Clay, Kim, Wang and Ye; Assistant Professors Berg, Dutta, Pierce, Rupak and Tanner; Adjunct Lindner, Luthe, Rykaczewski, Singh, Y. Su, and Tao; Instructors Winter and Worthy

When both PHY 2414 and PHY 2424 are taken at the same community college they will equate to PH 1113, PH 1123 and PH 1133.

When both PHY 2514/2515 and PHY 2524/2525 are taken at the same community college they will equate to PH 2213, PH 2223, and PH 2233.

**PH 1001. Introduction to Physics. (1)** (Prerequisite: Consent of instructor). One hour lecture. Only open to Freshmen and transfer physics majors or prospective majors. Introduction to the profession. Historical perspectives. Use of micro-computers in physics.

**PH 1011. Physical Science Laboratory 1. (1)** Two hours laboratory. Experiments in mechanics, sound, light, electricity, and magnetism. Recommended lab to accompany PH 1013.

**PH 1013. Physical Science Survey 1. (3)** Three hours lecture. Topics include mechanics, sound, light, electricity, and magnetism. Recommended laboratory PH 1011.

**PH 1021. Physical Science Laboratory 2.** (1) Two hours laboratory. Experiments in chemistry, heat, astronomy and energy. Recommended lab to accompany PH 1023. Could also accompany PH 1063.

**PH 1023. Physical Science Survey 2. (3)** Three hours lecture. Topics include chemistry, heat, astronomy and energy. Recommended laboratory PH 1021.

**PH 1063. Descriptive Astronomy. (3)** Three hours lecture. Night observation. The solar system; description and evolution of stars and the universe; methods of obtaining astronomical information; applications of astronomical knowledge.

**PH 1113. General Physics I. (3)** (Prerequisites: MA 1313 and MA 1323 or registration in MA 1713). Two hours lecture, one hour drill, two hours laboratory. Noncalculus-based study of the fundamental laws of mechanics, fluids, and relativity.

PH 1123. General Physics II. (3) (Prerequisite: PH 1113). Two hours lecture, one hour drill, two hours laboratory. Noncalculus-based study of thermal physics, waves, sound, and light.

**PH 1133. General Physics III. (3)** (Prerequisite: PH 1113). Two hours lecture, one hour drill, two hours laboratory. Noncalculus-based study of electricity and magnetism and selected topics in modern physics.

**PH 2213.** Physics I. (3) (Prerequisite: Grade of C or better in MA 1713). Three hours lecture. Calculus-based course emphasizing Newtonian mechanics and conservation laws. Honors section available.

**PH 2223.** Physics II. (3) (Prerequisites: PH 2213 and MA 1723). Two hours lecture, one hour recitation, two hours laboratory. Calculus-based introduction to gravitation, electricity and magnetism. Laboratory emphasizes concepts of force and motion, conservation laws, and simple electrical circuits. Honors section also available through invitation only.

**PH 2233.** Physics III. (3) (Prerequisite: PH 2223). Two hours lecture, one hour recitation, two hours laboratory. Calculus-based course in simple harmonic motion, waves, optics and an introduction to modern physics. Laboratory emphasizes optics and electronics.

PH 3063. Astrophysics. (3) (Co-requisite: PH 3613 or consent of instructor). Three hours lecture. Quantitative treatment of astronomical topics. Stellar evolution, black holes, neutron stars, gamma-ray bursts, Newtonian and relativistic cosmologies, Big Bang.

**PH 3613. Modern Physics. (3)** (Prerequisites: PH 2233 or PH 1133; MA 2733, or registration in MA 2733). Three hours lecture. Special relativity, quantum physics, atomic, nuclear, and solid state physics.

PH 4013/6013. Selected Topics in Physics for Teachers. (3) Two hours class work, three hours laboratory. For teachers. Basic concepts of physics. Will include discussion and clarification of material from currently adopted public school textbooks.

**PH 4023/6023. Astronomy for Teachers. (3)** Two hours class work. Three hours laboratory. For teachers. An introduction to the physical universe with emphasis on observational astronomy.

**PH 4033/6033. Demonstrations and Concepts for Physics Teachers I. (3)** (Prerequisite: Consent of instructor). Two hours lecture, three hours laboratory. Topics are those normally covered in first semester high school physics. Equal emphasis on theory, problems, demonstrations, and laboratory.

PH 4043/6043. Demonstrations and Concepts for Physics Teachers II.(3) (Prerequisite: Consent of instructor). Two hours lecture, three hours laboratory. Topics are those normally covered in second semester high school physics. Equal emphasis on theory, problems, demonstrations, and lab.

**PH 4113/6113. Electronic Circuits for Scientists. (3)** (Prerequisites: PH 1133 or PH 2223 and MA 2733). Two hours lecture and three hours laboratory. DC and AC circuits. Resistors, capacitors, inductors, diodes and transistors in basic analog circuits. Topics include filters, tuned circuits, power supplies, amplifiers and oscillators.

**PH 4143/6143. Intermediate Laboratory. (3)** (Prerequisite: Junior standing). Six hours laboratory. Data analysis. Experiments in classical and modern physics. Scientific report writing.

**PH 4152/6152.** Modern Physics Laboratory. (2) (Prerequisite: PH 4143/6143). Six hours laboratory. Scientific report writing. Experiments in modern physics, optics and classical physics.

**PH 4213/6213. Intermediate Mechanics I. (3)** (Prerequisites: PH 1133 or PH 2233 and MA 2733). Three hours lecture. Plane statics and dynamics of particles and systems of particles with emphasis on both derivation and application of principles involved.

PH 4223/6223. Intermediate Mechanics II. (3) (Prerequisite: PH 4213/6213). Three hours lecture. Statics and dynamics of particles in three dimensional space using vector notation; Lagrange's equations; introduction to the special theory of relativity.

**PH 4323/6323. Electromagnetic Fields I. (3)** (Prerequisites: PH 1133 or PH 2233 and MA 2743). Three hours lecture. Electrostatics, dielectrics, electric current, magnetostatics, electromagnetic induction, magnetic properties of matter.

**PH 4333/6333. Electromagnetic Fields II. (3)** (Prerequisite: PH 4323/6323). Three hours lecture. Maxwell's equations, propagation of electromagnetic waves in free space and in matter, reflection and refraction, radiation.

**PH 4413/6413. Thermal Physics. (3)** (Prerequisites: PH 3613 and MA 2743). Three hours lecture. Thermodynamics, kinetic theory, classical and quantum statistical mechanics. Applications to low temperature physics, solid-state physics and plasma physics.

**PH 4433/6433. Computational Physics. (3).** (Prerequisites: PH 3613 and MA 3253). Three hours lecture. An introduction to modern methods of computational physics including topics such as: solution of differential equations, numerical matrix methods, and Monte Carlo simulation.

**PH 4513/6513. Intermediate Optics. (3)** (Prerequisites: PH 1123 or PH 2233 and MA 2733). Three hours lecture. Geometrical optics and physical optics.

**PH 4613/6613. Nuclear and Particle Physics. (3)** (Prerequisite: PH 3613). Three hours lecture. Special theory of relativity; nuclear structure; radioactivity; nuclear reactions; nuclear forces; fission; fusion; high energy particle and astrophysics. Experimental apparatuses and techniques.

**PH 4713/6713. Introduction to Quantum Mechanics. (3)** (Prerequisites: PH 3613 and MA 3253). Three hours lecture. Principles of quantum mechanics, Heisenberg uncertainty principle, angular momentum; the Schrödinger wave equation in one and three dimensions; the one-electron atom.

**PH 4723/6723. Applications of Quantum Mechanics. (3)** (Prerequisite: PH 4713/6713). Three hours lecture. Introduction to perturbation theory and quantum statistics. Topics selected from multi-electron atoms, diatomic molecules, solid state and nuclear physics.

**PH 4813/6813. Introduction to Solid State Physics. (3)** (Prerequisite: PH 3613). Three hours lecture. Crystal structure, crystal diffraction and the reciprocal lattice, crystal binding, free electron gas, energy bands, and semiconductors.

**PH 6053.** Physical Science for Teachers. (3) (Prerequisite: consent of instructor). Three hours video and online. Topics are those normally covered in middle school physical science. Major emphasis on theory, demonstrations, laboratory, and problem solving. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program).

**PH 8013. Modern Topics for Physics Teachers. (3)** (Prerequisites: Consent of instructor). Two hours lecture, three hours laboratory. Historical development of special relativity and quantum physics with particular emphasis on topics and experiments in atomic and nuclear physics.

**PH 8213. Mechanics. (3)** (Prerequisite: A good undergraduate training in physics and mathematics— consent of instructor). Coordinate systems and transformations, tensors, and matrices. Particle dynamics, variational principles, Lagrange's and Hamilton's equations, rigid body motion, special relativity in mechanics.

**PH 8233. Methods of Theoretical Physics I. (3)** (Prerequisite: Consent of instructor). Topics will vary, but may include linear vector spaces, tensor analysis, group theory, function space and orthogonal polynomials.

**PH 8243. Methods of Theoretical Physics II. (3)** (Prerequisite: PH 8233). Topics will vary but may include analytic functions, Fourier analysis, Green's functions, integral transforms, partial differential equations and integral equations.

**PH 8313. Electromagnetic Theory (3)** (Prerequisite: PH 4333 or equivalent). Maxwell's theory of electromagnetism. Boundary value problems in electrostatics, static multipole moments, theory of dielectrics, magnetostatics, plane electromagnetic waves, simple radiating systems. (Same as ECE 8313).

**PH 8513. Statistical Mechanics. (3)** (Prerequisites: PH 4713 and PH 4413). Classical and quantum statistical mechanics and statistical interpretation of thermodynamic quantities.

**PH 8613. Nuclear Physics I. (3)** (Prerequisite: PH 4723). Nuclear two-body problem and nuclear forces. Interpretation of experimental data through a study of nuclear models. Nuclear reactions and spectroscopy.

**PH 8623.** Nuclear Physics II. (3) (Prerequisites: PH 8613, PH 8743). Elementary particle theory and interpretation of experimental data.

**PH 8743. Quantum Mechanics I. (3)** (Prerequisites: PH 4723 and MA 3313). Schrödinger theory, spherically symmetric systems, matrix mechanics, angular momentum and spin, time-independent perturbation theory.

**PH 8753. Quantum Mechanics II. (3)** (Prerequisite: PH 8743). Time dependent perturbation theory, identical particles, theory of scattering, quantum statistical mechanics, introduction of relativistic quantum mechanics, quantum electrodynamics.

**PH 8803. Molecular Structure. (3)** (Prerequisites: PH 8743). Theory of rotational, vibrational and electronic spectra of molecules. Molecular structure and determination of molecular constants.

**PH 8813. Solid State Physics. (3)** (Prerequisite: PH 8743). Theoretical interpretation of thermal, electric, and magnetic properties of solids.

## Department of PHILOSOPHY and RELIGION

#### Office: 2nd Floor Etheredge Hall

Professors Bickle (head), Clifford and Holt; Associate Professor Estes; Assistant Professors Edelmann, Moffat, Phillips, and Thompson; Instructors Bisson, Bruno, and Trullinger

**PHI 1103. Introduction to Philosophy. (3)** Three hours lecture. An introduction to the major ideas and methods of philosophy. At least one philosophic classic is read, usually one suitable for orientation purposes. Honors section available through invitation.

**PHI 1113. Introduction to Logic. (3)** Three hours lecture. A development of practical ability in the major forms of valid argumentation concluding with a consideration of the universal and existential operators.

**PHI 1123. Introduction to Ethics. (3)** Three hours lecture. A study of the specific considerations, such as facts, feelings, principles, values and conflicts, which influence the making of concrete moral decisions.

**PHI 2123. Medical Ethics. (3)** Three hours lecture. A philosophical study of situations requiring ethical decision making in the area of medicine. (Not open to freshmen).

**PHI 3013. Business Ethics. (3)** Three hours lecture. A philosophical exploration of how to recognize, analyze, and implement ethical decisions within the multivalued contexts of the various fields of business.

**PHI 3023. History of Western Philosophy: Part I. (3)** Three hours lecture. A survey of major figures and movements from early Greek philosophy to the late Middle Ages.

PHI 3033. History of Western Philosophy: Part II. (3) Three hours lecture. A survey of major figures from the Renaissance through contemporary philosophy.

**PHI 3113.** Philosophy of Law. (3) Three hours lecture. A philosophical analysis of the concepts of law, liberty, justice, responsibility, and punishment from the rival ethical perspectives of deterrence and retribution.

**PHI 3123.** Philosophy of Religion. (3) (Prerequisite: Three hours of philosophy). Three hours lecture. A critical inquiry into the rational justification of central theistic beliefs, with emphasis on the traditional philosophical arguments for and against the existence of God. (Same as REL 3123).

**PHI 3133. Seminar in Philosophy. (3)** Three hours lecture. (Prerequisites: Completion of fifteen hours of PHI courses, including PHI 1113). The study of selected philosophy essays and practice in philosophical composition.

**PHI 3143. Nineteenth - Century Philosophy. (3)** (Prerequisites: Three hours of philosophy or Junior standing or consent of instructor). Three hours lecture. A study of the major philosophical movements and figures of the nineteenth century.

**PHI 3153.** Aesthetics. (3) Three hours lecture. Theories of art and the nature of beauty, designed to enhance the student's sensitivity and cultural awareness.

**PHI 3313.** Environmental Ethics. (3). Three hours lecture. A philosophical examination of the relationship between humanity and the natural world.

**PHI 4013/6013. Contemporary Philosophy and Architecture. (3)** (Prerequisites: Junior standing or consent of instructor). Three hours lecture. An examination of modernism and postmodernism in philosophy and architecture. (Same as ARC 4333/6333).

**PHI 4123/6123. Contemporary Continental Philosophy. (3)** (Prerequisite: 3 hours PHI or junior standing). Three hours lecture. A survey of the most important trends in 20th and 21st century continental philosophy and their influence on culture, politics, art architecture, and literature.

**PHI 4143/6143. Philosophy of Science. (3)** Three hours lecture. An analytical examination of the essential ingredients of science concluding with the effect of scientific values on contemporary culture.

**PHI 4153/6153. American Philosophy.** (3) (Prerequisite: Junior standing). Three hours lecture. Speculative and practical philosophies beginning with the early colonial settlers, and terminating with pragmatism, Santayana and Whitehead.

**PHI 4163/6163. Research Ethics. (3)** Three hours lecture. This course examines ethical issues that are generated by the tensional balancing of personal consideration against public good in the practice of scientific research.

**PHI 4213/6213. Theories of Inquiry. (3)** (Prerequisite: Junior/Senior standing or consent of instructor). Three hours lecture. A historical and topical examination of rival traditions and theories of inquiry. Special attention will be paid to the concepts of knowledge, warrant, and truth.

PHI 4313/6313. Feminist Interpretations of Western Social and Political Philosophy. (3) (Prerequisite: Junior/senior standing or consent of instructor). Three hours lecture. A survey of modern and contemporary social and political philosophical texts, which emphasizes recent feminist interpretations, analyses, and criticism of traditional social and political philosophy.

**PHI 4423/6423. Process Philosophy.** (3) Three hours lecture. A comprehensive study of the philosophy of Alfred North Whitehead and his influence on modern philosophy.

**PHI 8101. Case Studies in Scientific Research Ethics.** (1) One hour seminar. Practical application of research ethics using case scenarios to direct discussions on data ownership, plagiarism, authorship, conflict of interest, and other regulatory compliance related issues. (Same as CVM 8101)

# ANIMAL PHYSIOLOGY

(For the interdisciplinary graduate programs in Animal Physiology, consult College of Agriculture and Life Sciences section of this Bulletin, and the Graduate Bulletin.)

**PHY 6112. Equine Reproduction. (2)** One hour lecture. Two hours laboratory. A study of equine reproductive activities and the principles for managing the mare, stallion, and foal. (Same as ADS 4112/6122).

PHY 6114. Cellular Physiology. (4) (Same as BIO 4114/6114).

PHY 6335. Anatomy & Physiology of Insects. (3) (Same as EPP 6335.)

PHY 6514. Animal Physiology. (4) (Same as BIO 4514/6514).

**PHY 6611. Practice in Physiology of Reproduction.** (1) (Prerequisite: BIO 1504). Three hours laboratory. Artificial insemination and rectal palpation of reproductive organs of cattle; semen collection, evaluation, processing and handling. (Same as ADS 4611/6611).

**PHY 6613. Physiology of Reproduction. (3)** (Prerequisite: BIO 1504). Three hours lecture. Anatomy and physiology; reproductive cycles; production, evaluation and preservation of gametes; gestation; endocrine regulations; managed production. (Same as ADS 4613/6613).

**PHY 6623. Physiology of Lactation. (3)** (Prerequisite: BIO 1504). Two hours lecture. Two hours laboratory. Anatomy, physiology and pathology of the mammary gland; nervous and hormonal control of lactation, theories of milk secretion, modern methods of milking, factors affecting lactation. (Same as ADS 4623/6623).

PHY 6843. Poultry Physiology. (3) (Prerequisite: PO 4833/6833 or consent of instructor). Two hours lecture. Two hours laboratory. Physiology of the fowl with

emphasis on integration of body functions. (Same as PO 6843).

**PHY 8133. Endocrinology (3)** Three hours lecture. Study of factors by which cells communicate: the traditional endocrine system, autocrine, paracrine and neurocrine secretion. Physiological and genetic control of synthesis and secretion.

PHY 8243. Advanced Physiology of Reproduction. (3) (Prerequisite: ADS 4613/6613). (Same as ADS 8243).

PHY 8333. Advanced Toxicology. (3) (Prerequisite: EPP 4543/6543 or elementary biochemistry). (Same as EPP 8333).

PHY 8433. Bone, Muscle and Fat Deposition in Animals. (3) (Prerequisite: BCH 4613/6613). (Same as ADS 8433).

**PHY 8623. Physiology of Digestion and Metabolism. (3)** (Prerequisite: CH 4523/6523). (Same as PO 8823).

PHY 8633. Homeostatic Regulations and Physiological Stress. (3) Prerequisites: PHY 8133 and BIO 4514/6514). (Same as ADS 8633).

PHY 8811-8841. Animal Physiology Seminar. (1) Four one-hour seminars.

## Department of POULTRY SCIENCE

#### Office: 114 Hill Poultry Science

Professors Hargis\*, McDaniel, Mikel (head), Peebles, Rosen\*, Thaxton Associate Professor Corzo; Assistant Professors Branton\*, Collier\*, Evans\*, Kicss, Olanrewaju\*, Purswell\*, Roush\*

PO 3011-3021. Seminar. (1) One hour seminar. Preparation and presentation of specially assigned current problems in poultry science.

**PO 3103. Genetics I. (3)** (Prerequisites: MA 1313 and BIO 1134 or BIO 2113 or equivalents). Two hours lecture. Two hours laboratory. Principles of heredity, genetic material, and gene expressions. (Same as BIO 3103, GNS 3103).

**PO 3313. Commercial Poultry Production. (3)** Three hours lecture. An introduction to practical management problems encountered in the production of commercial eggs, broiler production, and breeding flocks.

**PO 3323. Poultry Judging. (3)** Two hours lecture. Two hours laboratory. Breed type and variety characteristics including production and exhibition qualities: judging live, dressed poultry, poultry products; organization and operation of poultry contests and shows.

**PO 3333. Advanced Poultry Judging.** (3) Two hours lecture. Two hours laboratory. Advanced study of breed type and characteristics: intensified training in judging for production and exhibition qualities.

**PO 3353.** Poultry Production Internship. (3) (Prerequisite: Consent of instructor). Structured, progressive experiential learning with the live production division of a poultry integrator.

**PO 3363.** Poultry Processing Internship. (3) (Prerequisite: Consent of instructor). Structured, progressive experiential learning with the processing division of a poultry integrator.

**PO 3834. Microbiology of Food Animal Production.** (4) Two hours lecture. Four hours laboratory. Provides training in common food animal industry techniques utilizing basic microbiological methodologies including aseptic technique, isolation of pure colonies and identification of unknown samples.

PO 4031-4041. Seminar. (1) One hour seminar. Preparation and presentation of specially assigned current problems in poultry science.

**PO 4313/6313. Management of Commercial Layers. (3)** Three hours lecture. Management of laying flocks as related to production of edible eggs; including housing, cage design, equipment, feeding techniques, lighting, molting and other factors involved with efficient production.

**PO 4324/6324. Avian Reproduction.** (4) Three hours lecture. Two hours laboratory. Principles of avian reproductive physiology and applications in poultry management to maximize reproductive performance. Reproductive characteristics of several bird species are included.

**PO 4333/6333. Broiler Production. (3)** Three hours lecture. Practical management problems encountered in the production of broilers including breeding, housing, brooding, diseases, and feeding; field trips to intensified broiler areas.

**PO 4373. Hatchery Management Laboratory. (3)** Six hours laboratory. Fundamental principles of hatchery design, incubator layout, ventilation and humidity control, fertility and hatchability problems that relate to hatching chicks.

**PO 4413/6413. Poultry Nutrition. (3)** Three hours lecture. Study of the digestion, absorption, and metabolism of nutrients in avian species. Special emphasis is given to practical nutritional needs of commercial poultry flocks.

**PO 4423/6423. Feed Manufacturing. (3)** Two hours lecture. Two hours laboratory. Mill design and equipment; procurement, storage and quality control for ingredients and complete feeds; formulation of practical type poultry rations.

**PO 4513/6513. Poultry Processing. (3)** Two hours lecture. Two hours laboratory. Operation and study of modern processing; basic and further processing including regulation and marketing or products. (Same as FNH 4513/6513).

**PO 4523/6523. Advanced Poultry Processing. (3)** (Prerequisite: PO 4513/6513). Three hours lecture. Study of preparation of poultry for consumption including all pertinent technology, product flow, equipment and applicable regulations.

**PO 4833/6833.** Avian Anatomy. (3) Two hours lecture. Two hours laboratory. Anatomy of the fowl with emphasis on morphology and organization of the avian body structures.

**PO 4843/6843.** Avian Physiology. (3) (Prerequisites: PO 4833/6833 or consent of instructor). Two hours lecture. Two hours laboratory. Physiology of the fowl with emphasis on integration of body functions. (Same as PHY 6843).

**PO 8123.** Methods in Nutrition Research. (3) (Prerequisites: ST 8114 or equivalent). Two hours lecture. Three hours laboratory. Application of analytical methods used in research techniques; practice in writing research proposals, conducting a research project, and preparing research finds suitable for scientific publication.

**PO 8443.** Avian Nutrition. (3) Three hours lecture. Study of the nutrient functions, dietary relationships, deficiency symptoms, distribution in feedstuffs and quantitative requirements of nutrients.

**PO 8513.** Poultry Food Science Readings. (3) (Prerequisite: PO 6513 or 3 hours in related courses offered in Animal Science, Dairy Science or Horticulture). One hour lecture. Six hours library research weekly. An intensive study of poultry food science literature dealing with chemical, microbial, physical and organoleptic attributes of eggs and poultry meats. (Same as FNH 8513).

# Department of POLITICAL SCIENCE and PUBLIC ADMINISTRATION

## Office: 105 Bowen Hall

Professors Buchanan, Morrison (head), Shaffer, and Wiseman; Associate Professors Emison, and Travis; Assistant Professors Cavanaugh, French, Mellen, McThomas, Patrick, Radin, Shoup, Stanisevski, and Stich; Instructor Waide

## **Public Policy and Public Administration**

**PPA 8103. Seminar in Public Administration. (3)** (Prerequisite: consent of instructor). Detailed examination of the major elements of the field of public administration, with emphasis on emerging trends in the field.

**PPA 8123. State Government Administration.** (3) Seminar in the practice and principles of state government administration, including judicial and legislative administration.

**PPA 8133. City and County Management. (3)** Seminar focus on small town and county management in quasi-bureaucratic settings. Detailed consideration of problem solving capabilities as they relate to different forms of local government structure.

**PPA 8143. Civil Rights and Affirmative Action. (3)** (Prerequisite: consent of the instructor). A seminar which examines the various civil rights laws and acts and court decisions related to affirmative action in the workplace and public policy.

**PPA 8153. Seminar in Privatization. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Examination of the theoretical and practical issues of public-private partnerships.

**PPA 8193. Seminar in Intergovernmental Relations. (3)** (Prerequisite: 9 hours of graduate work). Three hours lecture. Examines the current day functioning of the American federal system. Focuses upon national-state, national-local, interstate, state-local and interlocal relationships as well as fiscal federalism.

**PPA 8400. Public Administration Internship. (1-6)** Hours and credits to be arranged. (Prerequisite: Consent of instructor). Individual work experience under faculty guidance in a governmental or public agency. Scholarly paper on approved topic required. Student evaluations are assigned on satisfactory/unsatisfactory basis.

**PPA 8703. Government Organization and Administrative Theory. (3)** Detailed survey of organization theories and managerial techniques as they relate to the public sector.

**PPA 8713. Public Personnel Management. (3)** Course considers major developments in the issues and management practices affecting personnel such as affirmative action, unions, and civil service reforms.

**PPA 8723.** Public Budgeting and Financial Management. (3) Analysis of current financial and budgetary techniques as they apply to the public sector. Capital budgeting, debt administration, and financial management.

**PPA 8733. Public Program Evaluation.** (3) Techniques and analytical methods of assessing governmental program success. Special emphasis will be given to program designs, data collection and quantitative applications.

**PPA 8743. Administrative Law. (3)** (Prerequisite: PS 4703/6703). Three hours lecture. An environmental study of the legal nature and effect of policies and attitudes of government toward business, especially the power and limitations of regulatory agencies.

**PPA 8803. Research Methods for Public Affairs. (3)** Stress on research designs and methods, survey research and other techniques and measuring data. Focus on applied approaches for mathematically analyzing governmental data. (Same as PS 8803).

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**PPA 8833. Systems in Public Administration. (3)** (Prerequisite: BIS 1012, CSE 1013, TKT 1273, or equivalent). Three hours lecture. Role of automated, computer-based systems in government; their impact on the workplace, government institutions, and the governmental systems; selected topical applications.

**PPA 8903. Public Policy. (3)** Nature, determinants, and effects of public goods and services; policy formulation and implementation; seminar emphasizes contemporary issues such as strategic planning, leadership, and managerial control. (Same as PS 8903).

**PPA 8983. Integrative Capstone. (3)** (Prerequisites: Consent of instructor). Three hours lecture. A group-based consulting project on an issue currently facing a governmental of nonprofit organization. (Should be taken in terminal semester of degree program).

**PPA 9103. American Political Institutions. (3)** (Prerequisite: consent of instructor). Three hours lecture. Seminar addressing theoretical and empirical issues pertaining to the dynamics of American political institutions. (Same as PS 9103)

**PPA 9413.** Normative Analysis of American Public Policy. (3) Three hours lecture. Seminar exploring issues in American politics and public policy from a normative perspective. (Same as PS 9413)

**PPA 9603. Scope of American Public Administration. (3)** (Prerequisite: Consent of the instructor). Seminar dealing with historical background and development of American Public Administration as a discipline, and a review and analysis of current topics in the field.

**PPA 9613. Rural Government Administration I: Theoretical and Environmental Aspects. (3)** (Prerequisite: Consent of the instructor). A seminar dealing with the principles of democratic theory as they affect the role of government and citizens' participation in government in rural settings.

**PPA 9623. Rural Government Administration II. Implementation Aspects.** (3) (Prerequisite: Consent of the instructor). A seminar dealing with program implementation by rural and small town governments, including adoption and diffusion of management innovation by public administrators as change agents.

**PPA 9703. Organization Behavior in the Public Sector. (3)** (Prerequisite: Consent of the instructor). Seminar dealing with major topics, issues, concerns of individual and group behavior in public organizations.

**PPA 9713. Administration of Human Resources in a Public Sector Environment. (3)** (Prerequisite: Consent of the Instructor). A seminar dealing with current basic research concerning management in the public sector environment.

**PPA 9723.** Public Budgeting Processes and Their Policy Implications. (3) (Prerequisite: Consent of instructor). A seminar dealing with norms and behaviors of budget process participants, their impact on budget policy and implications of budget actions for democratic government.

**PPA 9803.** Multivariate Analysis and Design for Public Affairs. (3) (Prerequisite: PPA 8813). Seminar dealing with applications of multivariate statistical methods and special topics in research design to problems in public policy and administration.

**PPA 9893.** American Political Behavior. (3) (Prerequisite: PPA 9803 and consent of instructor). Three hours lecture. Seminar in American political behavior including public opinion, socialization, participation, and voting behavior. (Same as PS 9893).

**PPA 9903.** Public Policy Formulation and Implementation. (3) (Prerequisite: Consent of the instructor). A seminar dealing with public policy formulation implementation and evaluation which stresses the theoretical aspects of policy processes.

## **POLITICAL SCIENCE**

**PS 1113. American Government. (3)** Three hours lecture. The evolution of American governmental institutions and the organization and operation of the U.S. government today. Honors section available through invitation.

**PS 1311. Mississippi Model Security Council Research I.** (1) Hours arranged. Development of "delegate preparation materials" and Model Security Council booklet for use in Mississippi Model Security Council.

**PS 1313. Introduction to International Relations. (3)** Three hours lecture. This course examines through case studies the basic concepts of international politics such as nation, state, power, influence, bipolarity, deterrence, non-alignment, alliances and diplomacy. Honors section open through invitation only.

**PS 1321. Mississippi Model Security Council Internship I.** (1) Hours arranged. Internship experience as participant in Mississippi Model Security Council as delegate, county advisor, council president, or United Nations Secretary General.

PS 1331. Mississippi Model Security Council Research II. (1) (Prerequisite: PS 1311 or PS 1321.) Hours arranged. Development of "delegate preparation materials" and Model Security Council booklet for use in Mississippi Model Security Council.

**PS 1341. Mississippi Model Security Council Internship II. (1)** (Prerequisite: PS 1321.) Hours arranged. Internship experience as participant in Mississippi Model Security Council as delegate, country adviser, council president, or United Nations Secretary General.

PS 1351. Mississippi Model Security Council Research III. (1) (Prerequisite: PS 1331 or PS 1341.) Hours arranged. Development of "delegate preparation materials" and Model Security Council booklet for use in Mississippi Model Security Council.

**PS 1361. Mississippi Model Security Council Internship III. (1)** (Prerequisite: PS 1341) Hours arranged. Internship experience as participant in Mississippi Model Security Council as delegate, country adviser, council president, or United Nations Secretary General.

**PS 1371. Mississippi Model Security Council Research IV. (1)** (Prerequisite: PS 1351 or PS 1361.) Hours arranged. Development of "delegate preparation materials" and Model Security Council booklet for use in Mississippi Model Security Council.

PS 1381. Mississippi Model Security Council Internship IV. (1) (Prerequisite: PS 1361. Hours arranged. Internship experience as participant in Mississippi Model Security Council as delegate, country adviser, council president, or United Nations Secretary General.

**PS 1513. Comparative Government. (3)** Three hours lecture. Survey of various governmental systems. 1513H. Honors section open through invitation. Introduction to comparative political inquiry including developing, democratic and authoritarian political systems.

**PS 2403. Introduction to Political Theory. (3)** Three hours lecture. An examination of selected thinkers, text, ideas, and periods in the history of political thought.

**PS 2703.** Introduction to Public Policy. (3) (Prerequisite: PS 1113 or consent of instructor). Three hours lecture. An examination of the formulation and implementation of public policy and the roles of government institutions and actors in policy making.

**PS 2713. Introduction to Engineering and Public Policy. (3)** (Prerequisite: EN 1113 or equivalent). Three hours lecture. A multidisciplinary analysis of public policy issues involving engineering and technology and the use of policy sciences to explore policy issues. (Same as GE 2713)

**PS 4083. Senior Honors Research in Political Science. (3)** (Prerequisite: Senior standing, and consent of department head). Topic to be selected by the student under the guidance of an honors faculty advisor.

**PS 4093. Senior Honors Thesis in Political Science. (3)** (Prerequisites: PS 4083, and consent of department head). Thesis writing on the topic researched in PS 4083.

**PS 4464. Political Analysis. (4)** (Prerequisite: 6 hours in political science). Three hours lecture. Two hours laboratory. Philosophical and historical foundations of political analysis; constructing and executing research designs; measuring political phenomena; elementary methods of data analysis; games, models, and simulations.

#### **American Politics**

**PS 3013. Political Leadership. (3)** Analysis of political leadership, emphasizing characteristics of successful leadership and opportunities available to students for leadership in the political arena.

**PS 3033. Gender and Politics. (3)** Three hours lecture. Examines gender differences in law, the courts, voting, political involvement, approaches to political power, and violence. (Same as GS 3033)

**PS 3063 Constitutional Powers. (3)** (Prerequisite: Junior standing or consent of instructor). Three hours lecture. A study of the constitutional system; constitutional modification, federal courts and judicial review, separation of the powers, federalism, congressional and presidential powers, and contact clause.

**PS 3073.** Civil Liberties. (3) (Prerequisite: Junior standing or consent of instructor). Three hours lecture. Political and civil rights; individual rights, national security and individual freedom; war and the Constitution; equal protection, criminal procedure; administrative process.

**PS 3183. Law and Politics. (3)** (Prerequisite: Sophomore standing or consent of instructor). Three hours lecture. Study of the politics of selected features of the legal system and the political usages of law as a tool for social control.

**PS 3193.** Intergovernmental Relations. (3) (Prerequisites: PS 1113 or PS 1193). Three hours lecture. Historical, prescriptive, and empirical studies of federalism with emphasis upon recent development in federal-state-local relationships.

**PS 4113/6113. State Government. (3)** (Prerequisites: PS 1113 and junior standing). Three hours lecture. Comparative study of the structures, functions, and policies of the various American states.

**PS 4163/6163. The Chief Executive. (3)** (Prerequisites: PS 1113 and junior standing). Three hours lecture. Historical and comparative study of chief executives, including governors and mayors, with special emphasis on the Presidency.

**PS 4173/6173. Legislative Process. (3)** (Prerequisites: PS 1113 and junior standing). Three hours lecture. Organization, work, and procedure of legislative bodies and other law-making authorities.

**PS 4183/6183. Judicial Process. (3)** (Prerequisites: PS 1113 and junior standing). Three hours lecture. Process and structure of the American legal system and the role of the judiciary.

**PS 4193/6193. Mississippi Judicial System. (3)** (Prerequisite: PS 1113). Three hours lecture. A study of the interrelationship of the actors within Mississippi's judicial system. Emphasis is placed on judicial decision-making, selection process, and resource allocation.

**PS 4203/6203. Political Parties and Electoral Problems. (3)** (Prerequisites: PS 1113 and junior standing). Three hours lecture. The development and operation of American political parties, with special attention to electoral problems

**PS 4213/6213. Campaign Politics. (3)** (Prerequisites: PS 1113 and junior standing). Three hours lecture. Survey of the theory of political campaigns, the resources and techniques they employ, and their effects on voters.

**PS 4223/6223. The Dynamics of American Democracy.** (3) (Prerequisites: PS 1113 and junior standing). Three hours lecture. Analysis of factors affecting the translation of public opinion into public policy within a national institutional context.

**PS 4233/6233. Interest Groups. (3)** (Prerequisite: PS 1113 or consent of instructor). Three hours lecture. The study of the politics and practices of interest groups within the American political process.

**PS 4253/6253. Southern Politics.** (3) (Prerequisites: PS 1113 and junior standing). Three hours lecture. Survey of the politics of the Confederate and border states, examination of party development, leadership, and impact of the South in national politics.

**PS 4263/6263.** Mississippi Government and Politics. (3) (Prerequisites: PS 1113 and junior standing). Three hours lecture. A study of the organization, powers, processes and politics of state government in Mississippi.

**PS 4273/6273.** African American Politics. (3) (Prerequisite: PS 1113). Three hours lecture. The nature, processes, structures, and functions of African American politics in the domestic arena and international arena. (Same as AAS 4273.)

**PS 4283/6283. Public Opinion. (3)** (Prerequisites: PS 1113 and junior standing). Three hours lecture. The nature of public opinion; the influence of the press; pressure groups and propaganda techniques; the means of political communication.

**PS 4293/6293. Political Behavior. (3)** (Prerequisites: PS 1113 and junior standing). Three hours lecture. Examination of the foundations and types of individual political activity; emphasis on psychological, social and cultural factors influencing personal political behavior.

**PS 4703/6703. Principles of Public Administration. (3)** (Prerequisites: PS 1113 and junior standing). Three hours lecture. Bureaucratic politics and power; administrative responsibility in a pluralist democracy; public administrative organization; public personnel administration; and public budgeting.

**PS 4743/6743. Environmental Policy. (3)** (Prerequisite: PS 1113, PS 2703, or consent of instructor). Three hours lecture. History, development, and practice of environmental policy in the United States.

#### **International Politics**

**PS 4303/6303. U.S. Foreign Policy. (3)** (Prerequisite: PS 1313 or consent of instructor.) Three hours lecture. An examination of the decision-making processes, institutions and structures that influence the formulation and execution of past and current U.S. foreign policy.

**PS 4313/6313.** Principles of International Law. (3) (Prerequisites: PS 1313 and junior standing). Three hours lecture. The nature, sources and scope of international law as found in custom, international convention, the teachings of authoritative writers, and judicial decisions.

**PS 4323/6323. International Organization. (3)** (Prerequisites: PS 1313 and junior standing). Three hours lecture. A study of the development of international organization and a concentration on the structure, processes and functions of the United Nations and its specialized agencies.

**PS 4333/6333. Theories of International Relations. (3)** (Prerequisites: PS 1313 and junior standing). Three hours lecture. This course critically examines traditional and contemporary, normative and behavioral, qualitative and quantitative theories of international relations.

**PS 4343/6343. International Conflict and Security. (3)** (Prerequisite: PS 1313 and junior standing). Three hours lecture. Study of the patterns, causes, and consequences of armed conflict between nations.

**PS 4353/6353. International Political Economy. (3)** (Prerequisite: PS 1313 or consent of instructor). Three hours lecture. This course will systematically address the relationship between politics and economics in an international context.

**PS 4383/6383. National Security Policy. (3)** (Prerequisites: PS 1313 and junior standing). Three hours lecture. An examination of those policies and issues affecting American national security with attention to the institutions, organizations and processes which shape them.

**PS 4393/6393. The Global Context. (3)** (Prerequisite: Junior standing or consent of instructor). Three hours lecture. Examination of selected issues of current importance to international relations.

#### Political Theory

**PS 4423/6423. 20th Century Political Thought. (3)** (Prerequisites: PS 2403 or consent of instructor). Three hours lecture. An examination of selected thinkers, text, and ideas in the history of political thought from the late 19th Century to the present.

**PS 4433/6433.** American Political Theory. (3) (Prerequisites: PS 1113 and junior standing). Three hours lecture. Major schools of political thought in America from the colonial to the contemporary period.

PS 4453/6453. Western Political Theory: Plato to Marx. (3) (Prerequisite: PS 1113 or PS 2403). Three hours lecture. Chronological survey of central thinkers, texts, ideas, and movements in Western political thought from Plato to Marx.

## **Comparative Politics**

**PS 4543/6543.** African Politics. (3) (Prerequisites: PS 1513 and junior standing). Three hours lecture. Contemporary sub-Saharan Black Africa; prospects for political development or decay. Role of parties, bureaucracy and mili-

tary and their relation to elite formation and political integration. (Same as AAS 4543.)

**PS 4553/6553. West European Politics. (3)** (Prerequisites: PS 1513 and junior standing). Three hours lecture. Governments of countries of Western Europe with emphasis upon England, France, Germany, Italy, and Spain.

**PS 4593/6593. Latin American Politics. (3)** (Prerequisites: PS 1513 and junior standing). Three hours lecture. Background, organization, and structure of the governments of the various Latin American countries.

**PS 4623/6623. Politics of the Third World. (3)** (Prerequisites: PS 1513 and junior standing). Three hours lecture. Political processes of developing nations. Prospects for development and decline considered. Relationship between political, economic and cultural dimension during the process of social change.

#### **Master of Political Science**

NOTE: See latest Graduate Bulletin for admission information into the Political Science Department's M.A., M.P.P.A., or Ph.D. graduate programs.

**PS 8153. Seminar in Campaign Politics. (3)** (Prerequisite: Consent of instructor). Analysis of conduct and phases of political campaigns; and their effect on voters and the political system generally.

**PS 8203. Seminar in Comparative Government. (3)** (Prerequisites: PS 1513 and nine hours of related courses, or consent of instructor). Special research problems dealing with governmental organization and administration in the major nations of the modern world.

**PS 8513. Readings in Local Government and Politics. (3)** (Prerequisite: Consent of instructor). Reading assigned material in local government and politics and making reports thereon under the supervision of a member of the graduate faculty.

**PS 8523. Readings in State Government and Politics. (3)** (Prerequisite: Consent of instructor). Reading assigned material in state government and politics and making reports thereon under the supervision of a member of the graduate faculty.

**PS 8533. Readings in National Government and Politics. (3)** (Prerequisite: Consent of instructor). Reading assigned material in an appropriate subfield of national government and making reports thereon under the supervision of a member of the graduate faculty.

**PS 8543. Readings in Comparative Government and Politics. (3)** (Prerequisite: Consent of instructor). Reading assigned material in an appropriate subfield of comparative government and making reports thereon under the supervision of a member of the graduate faculty.

**PS 8553. Readings in International Relations. (3)** (Prerequisite: Consent of instructor). Reading assigned material in an appropriate subfield of international relations and making reports thereon under the supervision of a member of the graduate faculty.

**PS 8803. Research Methods for Public Affairs. (3)** Stress on research designs and methods, survey research and other techniques and measuring data. Focus on applied approaches for mathematically analyzing governmental data. (Same as PPA 8803).

**PS 8813.** Quantitative Methods for Public Affairs. (3) (Prerequisite: PS 8803 or PPA 8803). Detailed consideration of selected quantitative analytic models and their application to public sector management and policy problems. (Same as PPA 8813).

**PS 8903. Public Policy. (3)** Nature, determinants, and effects of public goods and services; policy formulation and implementation; seminar emphasizes contemporary issues such as strategic planning, leadership, and managerial control. (Same as PPA 8903).

**PS 9103. American Political Institutions. (3)** (Prerequisite: consent of instructor). Three hours lecture. Seminar addressing theoretical and empirical issues pertaining to the dynamics of American political institutions. (Same as PPA 9103)

**PS 9893. American Political Behavior. (3)** (Prerequisite: PPA 9803 and consent of instructor). Three hours lecture. Seminar in American political behavior including public opinion, socialization, participation, and voting behavior. (Same as PPA 9893).

# Department of PLANT and SOIL SCIENCES

## Offices: 117 Dorman Hall

Professors Baldwin, Byrd, Cox, DelPrince, Harkess, Kingery, Matta, Nagel, Phillips (head), Reddy, Reynolds, Shaw, Triplett, and Varco; Associate Professors Lang, Massey, Peterson, Stewart and Wallace; Assistant Professor Collins; Instructors McDougald and Meints

*Courses noted with an \* are offered online as part of a cooperative alliance.* **PSS 1113. The Gardening Experience. (3)** Techniques for home gardening: Vegetable gardening for your own use and planting and maintaining home outdoor plant spaces.

**PSS 1313. Plant Science. (3)** Two hours lectures. Two hours laboratory. Scientific principles as the basis for practice in producing, handling, processing, marketing, and utilizing agronomic and horticultural plants. **PSS 2343. Floral Design. (3)** Two hours lecture. Two hours studio. The history and appreciation of floral art through exploration of design principles, plant materials, and compositional floral forms.

**PSS 2351. Techniques in Flowershop Management.** (1) (Prerequisite: PSS 2343. Floral Design). Two hours laboratory. Demonstrations and practice of fundamentals which are essential in the operation of a retail flower shop.

**PSS 2423. Plant Materials I. (3)** Two hours lecture. Two hours laboratory. Characteristics, identification and landscape uses of ornamental trees, shrubs, vines, flowers and grasses adapted to Southern conditions.

**PSS 3023. Retail Floristry Operation and Management. (3)** Three hours lecture. To identify and understand the basic principles of retail floristry management and the operation of a florist business.

**PSS 3043. Fruit Science. (3)** Three hours lecture. Principles and practices involved in the production of deciduous trees and small fruits.

**PSS 3133. Introductory Weed Science. (3)** (Prerequisites: BIO 1203, CH 1213 or CH 1053). Three hours lecture. Managing weeds; basic weed biology; methods of controlling weeds, introductory herbicide technology, weed control systems, and the fate of herbicides in the environment.

**PSS 3301. Soils Laboratory. (1)** (Prerequisite: Prior credit for/or current enrollment in PSS 3303.) Two hours laboratory. General treatment of selected phases of the subject matter.

**PSS 3303. Soils. (3)** (Prerequisite: One semester (preferably two) of inorganic chemistry, CH 1043.) Three hours lecture. General treatment of all phases of the subject including lime and fertilizers.

**PSS 3313. Interior Planting Design and Maintenance. (3)** Two hours lecture, two hours laboratory. Identification of plant materials for interior planting and principles of design, installation and maintenance, preparation of cost estimates and maintenance contracts for interior plantings.

**PSS 3343. Wedding Floral Design. (3)** (Prerequisite: PSS 2343). One hour lecture. Four hours laboratory. Application of design principles to wedding floral design.

**PSS 3411. Turf Seminar I. (1)** One hour lecture. Class discussions with invited turf industry representatives. Topics will include turf industry overview, turf career opportunities, writing a resume, and job interviews. May be repeated for credit.

**PSS 3413. Floristry Internship. (3)** (Prerequisites: PSS 2343, PSS 2351 and consent of Retail Floristry Management faculty). Individual work experience in a floral industry enterprise with an approved employer under faculty supervision.

**PSS 3421. Turf Seminar II.** (1) One hour lecture. Review of turfgrass literature and presentations of scientific articles. May be repeated for credit.

**PSS 3423. Agronomy Internship. (3)** (Prerequisites: Junior standing and consent of Agronomy Faculty). Individual work experience in an agronomic or environmental organization with an approved employer under faculty supervision. This course may be repeated under approved conditions.

**PSS 3433. Horticulture Internship. (3)** (Prerequisite: Consent of the Floriculture and Ornamental Horticulture faculty). Individual work experience in a horticulture or allied industry organization with an approved employer under faculty supervision. This course maybe repeated under approved conditions.

**PSS 3443. Permanent Botanical Floral Design. (3)** (Prerequisite: PSS 2343) One hour lecture. Four hours laboratory. Application of design theory and principles to non-perishable, dried, and preserved floral products.

PSS 3473. Plant Materials II. (3) (Prerequisite: PSS 2423). Two hours lecture. Two hours laboratory. Continuation of PSS 2423.

**PSS 3511. Seminar. (1)** (Prerequisite: Nine credits in horticulture). One hour lecture. Review of horticultural literature, and presentation and discussion of scientific articles.

**PSS 3633. Sustainable and Organic Horticulture.**\* (3) Three hours lecture. Online course A study of the base knowledge of the principles and practices of sustainable, organic, and alternative horticulture management systems.

**PSS 3923.** Plant Propagation. (3) (Prerequisite: BIO 1203). Two hours lecture. Two hours laboratory. Basic principles in the propagation of horticultural plants.

**PSS 4043/6043. International Horticulture.\* (3)** (Prerequisite: PSS 1313). Three hours lecture. Online course. Worldwide overview of horticultural export, marketing, and international trade issues and individual country analyses of specific fruit, vegetable and ornamental crops.

**PSS 4103/6103. Forage and Pasture Crops. (3)** Two hours lecture. Two hours laboratory. Origin, uses, and ecology of forage plants, establishment, nutritive value, use, yield and maintenance of forage plants as related to morphology, physiology and pasture management.

**PSS 4113/6113. Agricultural Crop Physiology.\* (3)** (Prerequisite: CH 1043 and BIO 2113). Three hours lecture. Online course. Physiology of agricultural plants, including water relations, respiration, photosynthesis and growth and development.

**PSS 4123/6123. Grain Crops. (3)** (Prerequisite: Junior standing). Two hours lecture. Two hours laboratory. Corn, small grain, practice in commercial grading given in laboratory.

**PSS 4133/6133. Fiber and Oilseed Crops. (3)** (Prerequisite: Junior standing). Three hours lecture. Production and utilization of fiber and oilseed crops. Emphasis on cotton growth, development and production in Mississippi.

**PSS 4143/6143. Advanced Fruit Sciences. (3)** (Prerequisite: PSS 3043 or equivalent). Three hours lecture. Three hours laboratory. A study of the latest advances in pomology and interpretation of current research findings and their application to modern fruit growing.

**PSS 4223/6223. Seed Production. (3)** (Prerequisite: Junior standing). Two hours lecture. Two hours laboratory. Principles and practices, special emphasis on production of varietally pure seeds; agronomic factors in harvesting, drying, storage, treating and marketing seed.

**PSS 4313/6313. Soil Fertility and Fertilizers. (3)** (Prerequisites: PSS 3303 and Junior standing). Three hours lecture. Fundamentals and concepts of soil fertility; sources and responses of crops to plant nutrients; soil fertility evaluation and maintenance through fertilization.

**PSS 4314/6314. Soil Microbiology. (4)** (Prerequisite: BIO 3304). Three hours lecture. Three hours laboratory. Soil microorganisms and their importance in ammonification, nitrification, and other biological processes. (Same as BIO 4324)

**PSS 4323/6323. Soil Classification. (3)** (Prerequisite: PSS 3303). Three hours lecture. Fall semester, odd-numbered years. Origin, development, and classification of soils including identification and field mapping.

**PSS 4333/6333. Soil Conservation and Land Use. (3)** (Prerequisite: PSS 3303). Two hours lecture. Three hours laboratory. Soil identification, topographic relationships and soil-water resources; their characteristics, quality, suitability, and management; conservation practices; using soil maps to determine land use.

**PSS 4341/6341. Controlled Environment Agriculture Laboratory.\*** (1) (Co-requisite: PSS 4343 for horticulture majors). Two hours laboratory. Online course. An experiential study of the principles and practices of controlled environments operation and management

**PSS 4343/6343. Controlled Environment Agriculture.\*** (3) (Prerequisites: BIO 21133 and PSS 3303; co-requisite for horticulture majors: PSS 4341). Three hours lecture. Online course. A detailed review and explanation of principles and practice of controlled environments operation and management.

**PSS 4353/6353.** Arboriculture and Landscape Maintenance. (3) Two hours lecture. Two hours laboratory. Care of ornamental trees and shrubs, including pruning, bracing, surgery, transplanting, and fertilization.

**PSS 4363/6363. Sustainable Nursery Production.**\* (3) (Prerequisites: PSS 2423 and PSS 3303). Three hours lecture. Online course. Nursery crop production including site selection and planning, plant nutrition, water relations and irrigation, shipping, and managing people and resources.

**PSS 4373/6373. Geospatial Agronomic Management. (3)** (Prerequisites: PSS 3303 and PSS 3133). Two hours lecture. Three hours laboratory. This class will utilize the basic tools of geographical information systems and geographical positioning systems technologies to analyze agronomic case studies.

**PSS 4411/6411. Remote Sensing Seminar. (1)** (Prerequisite: Junior standing). One hours lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on next-generation systems, applications, and economic and societal impact of remote sensing.

**PSS 4414/6414. Turf Management. (4)** (Prerequisite: Junior Standing). Three hours lecture. Two hours laboratory. Comprehensive study of turfgrasses, their establishment, and the varied management strategies employed for golf and sports turf, home lawns and commercial turf, and sod production.

**PSS 4423/6423. Golf Course Operations. (3)** (Prerequisite: PSS 4414/6414). Two hours lecture. Two hours laboratory. Scheduling maintenance practices, golf course construction and renovation with emphasis on operation and care of specialized turf equipment.

PSS 4443/6443. Athletic Field Management. (3) (Prerequisite: PSS 3303, PSS 4414, or consent of instructor). Two hours lecture. Two hours laboratory. A comprehensive study of athletic fields, including construction, maintenance, renovation and management. Emphasis will be placed on interactions between soil properties and sports turf performance.

**PSS 4444/6444. Plant Tissue Culture. (4)** (Prerequisite: BIO 4214 and CH 1053 or equivalent). Three hours lecture. Three hours laboratory. A comprehensive study of plant cell, tissue and organ culture with emphasis on practical applications of tissue culture in various areas of plant science.

**PSS 4453/6453. Vegetable Production. (3)** (Prerequisite: PSS 3303 and PSS 3301 or BIO 4204). Two hours lecture. Two hours laboratory. Principles and practices of commercial vegetable production.

PSS 4483/6483. Intro to Remote Sensing Technologies. (3) (Prerequisite: Senior or graduate standing, or consent of instructor). Three hours lecture. Electromagnetic interactions, passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR, Lidar, digital image processing, natural resource applications (Same as ECE 4423/6423 and ABE 4483/6483).

**PSS 4503/6503. Plant Breeding. (3)** (Prerequisite: PO 3103). Two hours lecture. Two hours laboratory. Application of genetic principles to the improvement of economic crop plants; history, methods and procedures of plant breeding.

**PSS 4553/6553. Plant Growth and Development.\* (3)** Three hours lecture. Online course. Structure of plant developmental processes and how environmental factors interact to affect and control plant growth and development.

**PSS 4603/6603. Soil Chemistry. (3)** (Prerequisite: PSS 3303). Two hours lecture. Three hours laboratory. Introduction to the basic chemistry of soils, including: mineral weathering/formation, ion exchange; adsorption, oxidation/reduction, acidity, salinity/alkalinity, and soil reactions of environmental importance.

**PSS 4613/6613. Floriculture Crop Programming. (3)** (Prerequisite: PSS 4343/6343). Two hours lecture. Two hours laboratory. A detailed study of the techniques involved in the production of the major commercial flower crops.

**PSS 4633/6633. Weed Biology and Ecology. (3)** (Prerequisites: BIO 1203, PSS 3133. Junior standing or consent of instructor). Two hours lecture. Two hours laboratory. Weed identification and population responses to agricultural production systems.

**PSS 4813/6813. Herbicide Technology. (3)** (Prerequisites: PSS 3133 and Junior standing). Two hours lecture. Three hours laboratory. Classification and use of herbicides. A detailed look at herbicide application-field use and factors influencing herbicide activity. Credit may not be given for this course and PSS 4823/6823.

**PSS 4823/6823. Turfgrass Weed Management. (3)** (Prerequisite: PSS 3133 and Junior standing). Two hours lecture. Three hours laboratory. Classification and use of herbicides with emphasis on herbicides used in turfgrasses. Credit may not be given for this course and PSS 4813/6813.

**PSS 6833. Temperature Stress Physiology.\* (3)** (Prerequisite: BIO 4214/6214 or BCH 4013/6013). Three hours lecture. Online course. The course focuses on cellular structures and stress metabolites, thermodynamics, and signal transduction before addressing plan responses to heat, chilling, and freezing stresses.

**PSS 8103. Pasture Development. (3)** Three hours lecture. Utilization systems for forage crops in the southeast; adaptation, morphology, identification, and physiology of grasses and legumes; analyses of forage quality; interpretation of forage research.

**PSS 8123.** Crop Ecology. (3) (Prerequisite: BIO 4213/6213 or consent of instructor). Three hours lecture. The geographical distribution, use, and adaptation of field crops as influenced by soil, climate, and other environmental factors.

**PSS 8163. Environmental Plant Physiology. (3)** Three hours lecture. The influences of physical factors of the environment on growth and development of crop plants.

**PSS 8203. Seed Physiology. (3)** (Prerequisite: PSS 4243/6243 or approval of instructor). Three hours lecture. Physiology of seed maturation, germination, dormancy, and deterioration; relation of seed quality to growth and development of plants.

**PSS 8313. Plant Processes and Crop Yield of Horticulture Plants. (3)** (Prerequisite: BIO 6203 or equivalent). Three hours lecture. A study of the genetic variations in physiological processes in relation to crop yield and adaptation.

**PSS 8323.** Advanced Soil Chemistry. (3) (Prerequisite: CH 4413 and preferably CH 4423 or approval of instructor). Three hours lecture. Application of the fundamental laws of colloid chemistry to inorganic and organic soil colloids with special emphasis on chemical equilibria, chelation, cation exchange. Gouy-Chapman theory and electrokinetics.

**PSS 8333.** Advanced Soil Fertility. (3) (Prerequisite: Graduate standing). Two hours lecture. Three hours laboratory. Advanced course in soil fertility; special emphasis on all soil conditions affecting plant growth. Experimental techniques in plant nutrition and in soil fertility will be utilized.

**PSS 8343. Soil Plant Atmosphere Relationships (3)** (Prerequisite: PSS 3301 and 3303 or consent of instructor). Three hours lecture. Relationship of physical factors, water and heat, within the soil-plant-atmosphere continuum. Field-scale regimes including inputs, movement, and storage; emphasis on crop production.

**PSS 8511. Seminar.** (1) (Prerequisite: Graduate standing). One hour lecture. Review of scientific literature and presentation of scientific papers.

**PSS 8513. Advanced Plant Breeding. (3)** (Prerequisite: PSS 4503/6503 or equivalent). Three hours lecture. An intensive review of methods of plant improvement and the application of these methods to modern plant breeding. (Same as GNS 8113.)

**PSS 8523.** Nutrition of Horticultural Plants. (3) (Prerequisites: PSS 3303 and PSS 3301 and BIO 4214/6214 or equivalent). Three hours lecture. Principles of mineral nutrition applied to diverse horticultural plants.

**PSS 8543. Biometrical Genetics in Plant Breeding. (3)** (Prerequisites: PSS 4503/6503 and ST 8114). Three hours lecture. Analysis and interpretation of experiments for estimation of hereditary parameters. Emphasis on mating designs, heritability, and genotype x environment interactions in plant breeding. (Same as GNS 8143.)

**PSS 8553.** Phytohormones and Growth Regulation. (3) (Prerequisites: BIO 4214/6214 and CH 2503). Three hours lecture. Plant growth regulating compounds: synthesis, metabolism, and effects on plant growth and development.

**PSS 8563.** Post-Harvest Physiology of Horticultural Plants. (3) (Prerequisites: Organic Chemistry and BIO 4214/6214 or equivalent). Three hours lecture. The nature, evaluation, and control of chemical and physiological changes that occur after harvest of horticultural products.

**PSS 8573. Morphology of Horticultural Plants. (3)** (Prerequisite: BIO 4204/6204). One hour lecture. Four hours laboratory. Development of the floral and vegetative organs of horticultural plants.

**PSS 8631. Topics in Genomics. (1)** (Prerequisites: PSS/BCH 8623 or BCH 4713/6713 or BCH 8643 or consent of instructor). Two hour discussion and presentation. Review and discussion of classic and current genomics literature; individual presentation of a seminar highlighting an area of genomics research. (Same as BCH 8631)

**PSS 8634. Environmental Fate of Herbicides. (4)** (Prerequisites: CH 4513/6513, PSS 4813/6813). Three hours lecture. Three hours laboratory. Fate of herbicides, including drift volatility, adsorption/desorption, leaching, runoff, microbial, chemical, and photolytic degradation, and plant metabolism, environmental factors that influence these processes.

**PSS 8645. Field Applications of Weed Sciences Principles I.** (5) (Prerequisite: PSS 6633 and PSS 6813 or consent of instructor). Three hours lecture. Four hours laboratory. Field weed identification; herbicide symptomology; problem solving in cotton, soybean, and vegetables; application equipment calibration.

**PSS 8653.** Genomes and Genomics. (3) (Prerequisites: BCH 4113/6113 or BCH 4713/6713 or consent of instructor). Overview of genome structure and evolution with emphasis on genomics, the use of molecular biology, robotics, and advanced computational methods to efficiently study genomes. (Same as BCH 8653)

**PSS 8655. Field Applications of Weed Science Principles II. (5)** (Prerequisite: PSS 8646 or consent of instructor). Three hours lecture. Four hours laboratory. Field weed identification; herbicide symptomology; problem solving in turf, field corn, rice, sorghum and pastures; application equipment calibration.

**PSS 8701-8791. Current Topics in Weed Science.** (1) (Prerequisites: Graduate standing, PSS 4813/6813 or consent of instructor). Lecture, discussion and readings in selected areas of current interest in weed science. Maximum total credits in graduate program allowed, 4 hours-M.S.; 6 hours-Ph.D.

**PSS 8724. Herbicide Physiology and Biochemistry. (4)** (Prerequisites: PSS 4813/6813, BIO 4214/6214 and CH 4513/6513 or consent of instructor). Three hours lecture. Three hours laboratory. Herbicide, plant growth regulator and allelochemic chemistry, mode of action, and effects on plants and plant constituents: fate/ persistence of herbicides in the environment.

**PSS 8811-8831. Seminar. (1)** (Prerequisite: Graduate standing). Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars.

## Department of PSYCHOLOGY

#### Office: 110 Magruder Hall

Professors Berman (head), Bradshaw, Carskadon, Doane, Giesen, Klein, and Morse;

Associate Professors Adams-Price, Armstrong, Eakin, Sinclair and Williams Assistant Professors Keeley, McKinney, and Moss

**PSY 1013. General Psychology. (3)** Three hours lecture. The study of human behavior, heredity and growth; motivation: feeling and emotion; frustration; conflict; learning; language; thinking, attention; sensation; perception; intelligence; aptitudes; social influences. 1013H. Honors section open through invitation only. Intensified study of human behavior, heredity, motivation, emotion, frustration, conflict, learning, sensation, perception, intelligence, experimental methodology, and social interaction.

**PSY 1021.** Careers in Psychology. (1) (Prerequisite: PSY 1013). One hour lecture. Introduction to professions and career opportunities in the field of psychology by university faculty and practicing professionals.

**PSY 3003. Environmental Psychology. (3)** (Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Study of the social and physical environmental factors and their effects on behavior. Theory, research, and application will be examined.

**PSY 3023.** Applied Psychology. (3) (Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Principles, techniques, and results of psychology applied to a wide range of problems in daily life and work.

**PSY 3073.** Psychology of Interpersonal Relations. (3) Three hours lecture. (Prerequisite: Junior standing). Examination of psychological principles, theories and research which apply to various types of human interaction.

**PSY 3104.** Introductory Psychological Statistics. (3) (Prerequisite: PSY 1013, MA 1313). Three hours lecture. Two hours laboratory. An introduction to the techniques and practices in statistical analyses used in psychological experimentation and evaluation along with practical experience in statistical software packages.

**PSY 3203.** Psychology of Gender Differences. (3) (Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Survey of the biological, physiological, and sociocultural factors which influence the psychological differentiation of the genders.

**PSY 3213.** Psychology of Abnormal Behavior. (3) (Prerequisite: PSY 1013). Three hours lecture. Behavioral patterns and causes of deviant behavior from childhood through later maturity. Etiology and symptomatology are emphasized.

**PSY 3314. Experimental Psychology. (4)** (Prerequisite: PSY 3104). Two hours lecture. Four hours laboratory. Introduction to the methods and techniques of research design. Practical experience in conducting experiments, analyzing data, and writing scientific reports.

**PSY 3343. Psychology of Learning. (3)** (Prerequisite: PSY 1013). Three hours lecture. Survey of a variety of learning situations. Consideration of the variables and conditions which influence the learning process.

**PSY 3353.** Motivation. (3) (Prerequisite: PSY 1013). Three hours lecture. Study of the role of motivation in behavior theory; biological and psychological bases; historical and contemporary views.

**PSY 3363. Behavior Modification.** (3) (Prerequisite: PSY 1013). Three hours lecture. Intensive examination of the principles and procedures used to modify the behavior of humans in contemporary situations.

**PSY 3413. Human Sexual Behavior. (3)** (Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Varieties of sexual behavior. Research methods and findings; typical behaviors; homosexuality; sexual disorders; sexual assault and sexual victims; treatments; pornography and prostitution; sexual risk perception.

**PSY 3503. Health Psychology. (3)** (Prerequisites: PSY 1013). Three hours lecture. Overview of research on psychophysiological disorders and related interventions. Emphasis is placed on chronic physical disorders and their relationship to psychological functioning.

**PSY 3623. Social Psychology. (3)** (Prerequisites: PSY 1013 or consent of instructor). Three hours lecture. Human behavior as a product of social interaction; social perception; social norms and roles; group processes, interrelationship of personality, culture, and group.

**PSY 3713. Cognitive Psychology. (3)** (Prerequisite: PSY 1013 or consent of instructor.) Three hours lecture. Introduction to the basic areas of cognitive psychology, including perception, attention, memory, reasoning, and language.

**PSY 3723. Cognitive Neuroscience. (3)** (Prerequisite: PSY 1013 or consent of instructor) Three hours lecture. Introduction to cognitive neuroscience including how the function of neural systems inform our understanding of perception, attention, working memory, memory storage, and higher-order thought.

**PSY 3803. Introduction to Developmental Psychology. (3)** (Prerequisite: PSY 1013). Three hours lecture. A survey and evaluation of current theory and research concerning development from infancy to young adulthood. Cognitive, social, and emotional development is emphasized.

**PSY 4203. Theories of Personality. (3)** (Prerequisite: PSY 1013). Three hours lecture. Current theories of personality. Structure, development, dynamics, acculturation processes. Methods, techniques, and research in personality assessment.

**PSY 4223/6223. Drug Use and Abuse. (3)** (Prerequisite: PSY 1013). Three hours lecture. Study of basic principles of drug use and abuse. Includes an introduction to psychopharmacology and basic treatment strategies.

**PSY 4323. History of Psychology. (3)** (Prerequisite: PSY 1013 and junior standing). Three hours lecture. A discussion of people, events, and theoretical and empirical contributions relevant to development of psychology.

**PSY 4333. Introduction to Clinical Psychology. (3)** (Prerequisites: PSY 3213 and PSY 3314 or consent of instructor). Three hours lecture. Survey of assessment techniques, intervention procedures, professional issues of contemporary clinical psychology. Emphasis placed on the Boulder (scientist-practitioner) model.

**PSY 4343. Clinical Child Psychology. (3)** (Prerequisites: PSY 3213; PSY 3314 or PSY 3803). Three hours lecture. Overview of childhood disorders and related interventions.

**PSY 4353/6353. Psychology and the Law. (3)** (Prerequisite: PSY 1013 and Junior standing). Three hours lecture. Examination of the roles of psychologists in the legal systems; application of psychological theory and research to issues in the legal system.

**PSY 4364. Advanced Forensic Psychology Lab.** (4). (Prerequisite: PSY 3314 and consent of instructor). Ten hours research laboratory per week (hours to be arranged). Course provides students with direct experience planning, conducting, analyzing, and presenting research in the forensic psychology area. May be repeated for credit.

**PSY 4373/6373. Forensic Psychology. (3)** (Prerequisite: PSY 1013 and junior standing). Three hours lecture. Examines topics related to the application of clinical psychology to legal matters.

**PSY 4403/6403. Biological Psychology. (3)** (Prerequisite: PSY 1013). Three hours lecture. Nervous, endocrine, and immune systems of the body as they affect behavior and adjustment. Emphasis upon the role of the central and peripheral nervous systems.

**PSY 4423/6423. Sensation and Perception. (3)** (Prerequisite: PSY 1013, PSY 4403). Three hours lecture. Survey of basic sensory mechanisms and perceptual phenomena. Sensory mechanisms reviewed will include vision, audition, olfaction, gustation, and touch with emphasis on vision and audition.

**PSY 4523/6523. Industrial Psychology. (3)** (Prerequisite: PSY 1013). Three hours lecture. Applications of psychological principles and methods to industry emphasizing employee selection, placement, merit rating, training, human relations, and measurement and improvement of employee morale.

**PSY 4624. Advanced Social Psychology Research Lab. (4)** (Prerequisites: PSY 3314 and PSY 3623 and consent of instructor). Ten hours laboratory, research hours to be arranged. Course provides students with direct experience planning, conducting, analyzing, and presenting research in the social psychology area.

**PSY 4643/6643. Social Cognition. (3)** (Prerequisite: PSY 3623 or consent of instructor). Three hours lecture. Examination of how people perceive, categorize and reason about other people and themselves.

**PSY 4653/6653. Cognitive Science. (3)** (Prerequisite: CSE 4633/6633 or PSY 4713 or PHI 4143/6143 or AN 4623/6623 or EN 4403/6403). Three hours lecture. The nature of human cognition from an interdisciplinary perspective, primarily utilizing a computational model, including insights from philosophy, psychology, linguistics, artificial intelligence, anthropology, and neuroscience. (Same as CSE 4653/6653).

**PSY 4713/6713. Language and Thought. (3)** Three hours lecture. Review of current research and theories. Symbolic process, concept formation, problem solving and language development.

**PSY 4726. Internship in Psychology I. (6)** (Prerequisite: Consent of instructor). A minimum of 20 hours per week of professional experience in a human service or other field setting. One hour of seminar and group supervision.

PSY 4733/6733. Memory. (3) Three hours lecture. (Prerequisite: PSY 1013). Introduction to theoretical and practical aspects of memory. Discussion of laboratory memory, computer models of memory, memory self-concepts, everyday memory, and clinical memory problems.

**PSY 4736. Internship in Psychology II. (6)** (Prerequisite: Consent of instructor). A minimum of 20 hours per week of professional experience in a human service or other field setting. One hour of seminar and group supervision.

**PSY 4743/6743. Psychology of Human-Computer Interaction. (3)** (Prerequisites: PSY 3713 or CSE 4663/6663 or IE 4113/6113 or consent of the instructor). Two hours lecture. Two hours laboratory. Exploration of psychological factors that interact with computer interface usability. Interface design techniques and usability evaluation methods are emphasized. (Same as CSE 4673/6673 and IE 4123/6123).

**PSY 4753/6753. Applied Cognitive Psychology. (3)** (Prerequisite: PSY 3713 or IE 4113 or consent of instructor). Three hours lecture. Human perceptual, cognitive and motor capabilities and limitations are described with particular emphasis on the implications of developing effective, user-friendly man-machine systems.

**PSY 4903/6903. Seminar in Psychology. (3)** (Prerequisite: PSY 1013). Indepth examination of particular topics of current interest to faculty and students. Critical evaluation of current research.

**PSY 4983/6983. Psychology of Aging. (3)** (Prerequisite: PSY 1013). Three hours lecture. A description and analysis of the development and changes occurring in individuals from early adulthood through late life.

**PSY 8111. Scientist-Practitioner Applications. (1)** (Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours per week in supervised service delivery and research activities of clinical psychologists.

**PSY 8121. Scientist-Practitioner Applications.** (1) (Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours/week in supervised service delivery and research activities of clinical psychologists.

**PSY 8131. Scientist-Practitioner Applications.** (1) (Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours per week in supervised service delivery and research activities of clinical psychologists.

**PSY 8141. Scientist-Practitioner Applications. (1)** (Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours per week in supervised service delivery and research activities of clinical psychologists.

**PSY 8151. Scientist-Practitioner Applications.** (1) (Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours per week in supervised service delivery and research activities of clinical psychologists.

**PSY 8214.** Quantitative Methods in Psychology II. (4) (Prerequisite: PSY 3104). Three hours lecture. Three hours laboratory. Advanced experimental design and methods with emphasis on analysis of variance.

**PSY 8313. Developmental Psychology. (3)** (Prerequisite: PSY 3803). Three hours lecture. Human growth processes and related developmental tasks in areas such as creative ability, language, social competency, and bodily fitness.

**PSY 8323.** Psychopathology. (3) (Prerequisites: PSY 3213). In-depth coverage of contemporary systems of psychiatric diagnosis, and biological, psychological, and social theories of the etiology of psychological disorders.

**PSY 8333. Systems of Psychotherapy. (3)** (Prerequisite: Consent of instructor). Three hours lecture. A comparative introduction to the theories, techniques, and outcomes of major approaches to psychotherapy.

**PSY 8354. Intelligence Testing. (3)** (Prerequisite: Consent of the instructor). Three hours lecture. Two hours laboratory. Administration, scoring and interpretation of the standard psychometric instruments used in evaluating individual intellectual functioning.

**PSY 8364.** Personality Appraisal. (4) (Prerequisite: PSY 8323). Three hours lecture. Two hours laboratory. Administration, scoring and interpretation using standard self-report and projective methods of individual personality assessment. Current research is also explored.

**PSY 8373.** Child Psychopathology and Treatment of Childhood Disorders. (3) (Prerequisite: PSY 3213). Three hours lecture. Research on the nature, assessment and treatment of disorders of childhood/adolescence.

**PSY 8383. Behavior Therapy. (3)** (Prerequisite: Consent of instructor). Three hours lecture. A survey of contemporary literature relating to the theory, techniques, and outcomes of behavior therapy. Emphases placed on systematic desensitization and operant conditioning techniques.

**PSY 8454, 8464. Professional Practicum. (4)** (Prerequisite: Departmental consent). A minimum of 300 hours per semester of supervised professional psychological experience in an appropriate setting.

**PSY 8503. Learning.** (3) (Prerequisite: PSY 3343). Three hours lecture. Current theories and learning models; methods and results of experimental studies of human and animal learning.

**PSY 8513.** Psychological Research. (3) (Prerequisite: PSY 3314). Three hours lecture. Practicum in the techniques of planning and execution of various areas of psychological research.

**PSY 8533. Introduction to Clinical Practicum in Psychology. (3)** (Prerequisite: Consent of instructor). One hour lecture. Two hours practicum. Intensive introduction to clinical interviewing, as well as the research literature in clinical psychology.

**PSY 8573.** Psychopharmacology. (3) (Prerequisites: PSY 4403 and PSY 8323). Three hours lecture. Overview of research on pharmacological and combined treatments for psychological disorders. Emphasis is placed on psychological disorders in adulthood.

**PSY 8613.** Advanced Social Psychology. (3) (Prerequisite: PSY 3623). Three hours lecture. Examination of research and theories of attraction and liking. Emphasis upon reinforcement theory, gain-loss theory, and dissonance theory.

**PSY 8703. Personnel Psychology. (3)** (Prerequisite: Consent of instructor.) Three hours lecture. Study of theories and methods of psychology as applied to work setting design, personnel management, and organizational behavior with special emphasis on personnel psychology.

**PSY 8713. Issues and Methods in Cognitive Psychology. (3)** (Prerequisite: Graduate Standing). Three hours lecture. Exploration of theoretical issues and research methods in current Cognitive Psychology.

**PSY 8723. Cognitive Models of Skill. (3)** (Prerequisite: Graduate standing). Three hours lecture. Introduction to cognitive modeling, with a focus on computational models of skill acquisition and expert skill (Same as CSE 8613).

**PSY 8731. Applied Cognitive Science Research Seminar.** (1) One hour seminar. Presentations of research in applied cognitive science.

PSY 8803. Advanced Quantitative Methods for Industrial/Organizational and General Psychology. (3) (Prerequisites: PSY 8214). Three hours lecture. Study of advanced analytic and multivariate quantitative methods applied to contemporary problems and research in industrial/organizational and general psychology.

## **READING EDUCATION**

#### (See Elementary Education)

**RDG 3113. Early Literacy Instruction I. (3)** (Prerequisite: Admission to Teacher Education. Co-requisites: RDG 3123 and EDE 3213). Three hours lecture. Field experience. Foundational knowledge of the English linguistic system. Methods/materials for teaching systematically the oral/written language connection, concepts about print, phonological/orthographic awareness, phonics principles.

**RDG 3123. Early Literacy Instruction II. (3)** (Prerequisite: Admission to Teacher Education. Co-requisites: RDG 3113 and EDE 3213). Three hours lecture. Field experience. Concepts, materials, and teaching strategies for oral language development and early systematic reading and writing instruction specific to vo-cabulary, fluency, and comprehension.

**RDG 3313. Practicum: Diagnosis and Remediation of Reading Disability.** (3) (Prerequisite: RDG 3213). The supervised diagnostic teaching of reading in a public school setting.

**RDG 3413. Middle Level Literacy I. (3)** (Prerequisites: Admission to Teacher Education, RDG 3113 and RDG 3123; Co-requisites: RDG 3423 and EDE 3223). Three hours lecture. Field experience. Literacy teaching and learning for upper elementary and middle school. Emphasis on reading instruction, strategy instruction, and assessment.

**RDG 3423. Middle Level Literacy II. (3)** (Prerequisites: Admission to Teacher Education, RDG 3113 and RDG 3123; Co-requisites: RDG 3413 and EDE 3223). Three hours lecture. Field experience. Instructional strategies and materials for teaching literacy in the elementary and middle school. Focus on writing, comprehension and teaching diverse students.

RDG 3513. Developing Reading Strategies in the Secondary School Content Areas. (3) Basic theories and techniques needed by content area teachers for teaching reading to secondary school students. Admission to Teacher Education required.

**RDG 4113/6113. Middle Level Literacy Development and Instruction.** (3) (Prerequisite: RDG 3113). Three hours lecture. Advanced theory and applied methods, techniques, and analyses of literacy strategies for the middle years learner (ages 9-14)

**RDG 4133. Integrating Language Arts Instruction in the Content Areas.** (3) (Co-requisite: EDE 4113, EDE 4123, and EDE 4143; Admission to Teacher Education,). Two hours lecture. Two hours laboratory. Field-based. Selection, organization, and teaching, and assessment for integrating language arts across the content areas - K-8; general effectiveness of and reflection about instructional practices.

**RDG 8113. Middle Level Literacy Instruction. (3)** Three hours lecture. Application of theories, methods and strategies in teaching literacy for the adolescent learner in the middle level classroom.

**RDG 8123. Supporting the Middle Level Literacy Learner. (3)** Three hours lecture. Planning and adapting instruction for middle level students who struggle with literacy achievement.

**RDG 8133. Middle Level Content Area Literacy Instruction. (3)** Three hours lecture. Theory, research, and methods for teaching middle level students to use literacy as a tool for learning in the content areas.

**RDG 8153.** Psychology of Reading. (3) Three hours lecture. Analysis of reading patterns; conditions favorable and unfavorable to progress in reading skill;

the readiness concept; problems of levels. Prevention and correction of reading handicaps.

**RDG 8453. Research in Reading. (3)** Three hours lecture. The function of research in the development of reading programs; contribution of research to reading.

RDG 8593. Issues and Innovations in Reading. (3) Issues and innovations related to trends, methodology, and materials in teaching of reading.

**RDG 8653. Teaching Reading in the Secondary Schools. (3)** Three hours lecture. A study of reading problems of middle and upper level students. A study of technology, materials, and methods used in developmental reading for secondary students.

**RDG 8713. Teaching Struggling Readers and Writers. (3)** Two hours lecture. Two hours laboratory. Practicum experience teaching struggling elementary school literacy learners; identifying literacy learning strengths and difficulties; teaching to improve achievement.

## **REAL ESTATE FINANCE**

#### Office: 312 McCool Hall

(For departmental information, see FINANCE and ECONOMICS)

**REF 3333. Principles of Real Estate. (3)** (Prerequisite: Junior standing). Three hours lecture. A survey of the activities involved in the acquisition, transfer, operation, and management of real estate.

**REF 3433. Real Property Evaluation. (3)** (Prerequisite: REF 3333). Three hours lecture. Methods, evaluation procedures, and techniques of appraising commercial and residential real property under various value-influencing conditions; case problems for appraisal.

**REF 4153. Real Estate Investments. (3)** (Prerequisites: REF 3333 and FIN 3123). Three hours lecture. Direct investment in real estate. Sources of funds; risk analysis; typical policies and procedures of investing and financing investment real estate.

**REF 4253.** Mortgage Financing. (3) (Prerequisites: REF 3333 and FIN 3123). Three hours lecture. Indirect investment in real estate. Institutional sources of funds, mortgage market mechanisms, mortgage derivatives and mortgage underwriting.

**REF 4333/6333. Real Estate Law (3).** (Prerequisite: BL 2413 or consent of instructor). Three hours lecture. The legal principles applicable to real estate, including types of ownership and interests, mortgages, restrictions, and regulations. (Same as BL 4333/6333).

## RELIGION

(For departmental information, see PHILOSOPHY and RELIGION.)

**REL 1103. Introduction to Religion. (3)** Three hours lecture. Religion seen as a human search for meaning in life or response to the holy. Studied through basic structures and modes of expression.

**REL 1213. Introduction to the Old Testament.** (3) Three hours lecture. A survey of Old Testament literature with attention to archaeological findings and the cultural setting.

**REL 1223. Introduction to the New Testament. (3)** Three hours lecture. A survey of New Testament literature with attention to archaeological findings and the cultural setting.

**REL 2233. Introduction to Old Testament Archaeology. (3)** Three hours lecture. A survey of the Old Testament in the light of archaeological research. The approach is chronological-historical-archaeological. (Same as MEC 2233)

**REL 3123.** Philosophy of Religion. (3) (Prerequisite: Three hours of philosophy). Three hours lecture. A critical inquiry into the rational justification of central theistic beliefs, with emphasis on the traditional philosophical arguments for and against the existence of God. (Same as PHI 3123).

**REL 3203. The Prophets of Ancient Israel. (3)** Three hours lecture, seminar. A study of the message and function of prophetic traditions within ancient Israel and in contemporary ancient Near Eastern societies.

**REL 3213. World Religions: Part I. (3)** Three hours lecture. A history and comparative study of beliefs and the cultural impact of the great religions of the East.

**REL 3223. World Religions: Part II. (3)** Three hours lecture. A history and comparative study of beliefs and the cultural impact of the great theistic religions of the West.

**REL 3323. Hindu Mythology. (3)** Three hours lecture. A survey of Hindu literature portraying the activities of gods, goddesses, and sages, and their relevance to Hindu theology and religious practice.

**REL 3453. Hinduism & Buddhism. (3)** Three hours lecture. Introduction to and critical-historical survey of significant texts, doctrines, themes, and thinkers in the main indigenous Indian religion traditions.

**REL 3473. Islam. (3)** A survey of Islamic history, beliefs and practices, law, theology, philosophy, and mysticism. (Same as MEC 3473)

**REL 3483. Judeo-Christian Ethics. (3)** Three hours lecture. A study of the foundation and contemporary application of Judeo-Christian ethics.

**REL 3540.** Archaeological Travel and Participation Program. (1-6) Participation in excavations in the Near East and related lecture program. (Same as AN 3540).

**REL 3553. Near Eastern Archaeology. (3)** Three hours lecture. Introduction to the contributions made by archaeological research to ancient Near Eastern history and prehistory, with special emphasis on the Syro-Palestinian area. (Same as AN 3553 and MEC 3553).

**REL 3703. The Western Church: Beginning to Reformation. (3)** (Prerequisites: Completion of any 1000-level course in history or philosophy and religion). Three hours lecture. An examination of the institutions, doctrines, and spirituality of the Western Church and their impact on Western European politics, society, and culture.

**REL 4123/6123. Scandinavian Mythology. (3)** (Prerequisite: Junior standing or consent of instructor). Three hours lecture. A survey of the myths and legends of Scandinavia in English translation. (Same as FL 4123/6123).

**REL 4143/6143. Classical Mythology. (3)** Three hours lecture. Myths and legends of Greece and Rome and their use in literature and the arts through the ages. (Same as FL 4143/6143).

**REL 4253/6253. Religion in America. (3)** (Prerequisite: HI 1063 or HI 1073). Three hours lecture. Surveys history of religion in America, emphasizing interaction with social and political developments. Same as HI 4253/6253).

**REL 4403/6403. The Ancient Near East. (3)** (Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the origins and development of civilizations in Mesopotamia, Egypt, and Syria-Palestine from prehistoric times to the end of the Persian period. (Same as HI 4403/6403 and MEC 4403/6403).

# STUDENT LEADERSHIP and COMMUNITY ENGAGEMENT PROGRAM

**SLCE 1002.** Day One Leadership Community. (2) Two hours lecture. Introduction to and engagement of core principles of leadership through instruction, mentor discussion, and community service-learning projects.

SLCE 3412. Montgomery Leadership Program, Semester I. (2) (Prerequisite: Admission into Appalachian Leadership Honors Program). Two hours seminar. One hour field experience. Engagement of core principles of leadership through instruction, mentor component, and community service-learning projects from MSU students selected to participate in ALHP.

**SLCE 3812.** Montgomery Leadership Program, Semester II. (2). (Prerequisite: Admission in the Appalachian Leadership Honors Program and completion of SLCE 3412). Two hours seminar. One hour field experience. Advanced principles of leadership through instruction, mentor component, community service-learning projects, and peer class facilitation through Day One Leadership Community.

**SLCE 4812.** Montgomery Leadership Program, Semester III. (2). (Prerequisite: Admission in the Appalachian Leadership Honors Program and completion of SLCE 3412 and SLCE 3812). Two hours seminar. One hour field experience. Practice of advanced principles of leadership through class instruction, mentor component, and development and implementation of student-led initiatives (capstone leadership project).

## Department of SOCIOLOGY

## Office: 207 Bowen Hall

Distinguished Professor Cosby; Professors Cossman, Crudden, Dunaway, Jones, and Parisi; Associate Professors Boyd, May and Rader; Assistant Professors Argeros, Brauner-Otto, Chi, Haynes, Hughey, Irizarry, Kelley, Matthews, Peterson, Pilkinton, and Schewe; Instructor McKinley; Instructor and Undergraduate Academic Advisor Lane

**SO 1003. Introduction to Sociology. (3)** Three hours lecture. The nature and development of culture; social aspects of personality; analysis of community life, population trends, social classes, institutions, processes, and organization; culture change. Honors section open through invitation only.

**SO 1103. Contemporary Social Problems. (3)** Three hours lecture. Analysis of problems related to: life cycle, sexuality, family disruptions, health, illness, death and dying, addictions, crime, minorities, population, environment, resources and poverty. Suggested solutions.

**SO 1173. Introduction to Gender Studies. (3)** Three hours lecture. An introduction to theoretical concepts in Gender Studies. This course will examine the influence of the women's movement on the academic development of Gender Studies (Same as AN 1173 and GS 1173).

**SO 1203. Marriage and Family. (3)** Three hours lecture. A study of dating, mate selection, marriage and parenthood, with emphasis on the contemporary American family.

SO 2203. Cultural and Racial Minorities. (3) (Prerequisite: Three hours in an introductory social science). Three hours lecture. Origins of minority groups and racial attitudes. Biological and cultural concepts of race and minority groups; problems of adjustment in interracial and multiethnic societies. (Same as AAS 2203 and AN 2203).

**SO 3003. Social Inequality. (3)** (Prerequisite: SO 1003). Three hours lecture. Investigates the nature, causes, and consequences of social inequality and stratification, the relationships among class, race, and gender inequalities in cross-cultural perspective.

**SO 3013. Society and the Individual. (3)** (Prerequisite: SO 1003). Three hours lecture. A study of interrelationship between society and the individual. Emphasis is placed on the structural aspects of socialization and the social construction of reality.

SO 3053. Organizations in Modern Society. (3) (Prerequisite: SO 1003). Three hours lecture. Examines the nature and types of formal organizations, their impact on, and outcomes for, individuals and society; organizational structures, processes, environments and effectiveness.

SO 3103. Social Theory I. (3) (Prerequisite: Nine hours of sociology, CSE 1013 or equivalent and junior standing). Lecture course. Study of European and American sociological theory—intellectual antecedents as well as social-cultural context.

**SO 3213. Introduction to Social Research. (3)** (Prerequisites: Nine hours of sociology and junior standing). Three hours lecture. A survey of the general field of research and methodology, including an examination of the various types of research designs, techniques, and procedures.

SO 3313. Deviant Behavior. (3) (Prerequisite: SO 1103 or its equivalent or consent of instructor). Three hours lecture. Introduction to the social and cultural factors related to human deviance. Special attention is given to the study of various theories of deviance.

**SO 3323. Contemporary Woman. (3)** Three hours lecture. Introductory course for the Concentration in Women's Studies. Major topics are women's heritage, identity, culture, and vulnerabilities.

**SO 3333. Society and Religion. (3)** Three hours lecture. Religion as an institution. Examines the social origins of religion and its functions, both positive and negative, in social movements, social control and politics. (Same as REL 3333).

**SO 3343. Gender, Crime, and Justice.** (3) (Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Gender differences in criminal behavior, victimization, and criminal justice processing, emphasizing the unique experiences of women in all of these areas. (Same as CRM 3343).

SO 3353. Race, Crime, & Justice. (3) (Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Racial differences in criminal behavior, victimization, and criminal processing, emphasizing the unique experiences of racial minorities in these areas (Same as CRM 3353).

SO 3503. Violence in the United States. (3) (Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. In-depth study of violence, including types of violence, categories of offenders and victims, its social causes, and potential solutions. (Same as SO 3503).

**SO 3603. Criminological Theory. (3).** (Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Survey of the major sociological and criminological explanations of crime. (Same as CRM 3603).

**SO 4113/6113. Social Organization and Change. (3)** (Prerequisites: SO 1003 and junior standing). Three hours lecture. An intensive examination of recent research focusing on the prediction, explanation and control of social change with attention to trends in developing countries.

SO 4123/6123. Poverty Analysis: People, Organization and Programs. (3) (Prerequisites: SO 1003 and junior standing). Three hours lecture. Historical perspectives; problems of definition and measurement; socio-cultural situations contributing to deprivation; delineation of poverty groups; social consequences of poverty; poverty programs and organizations.

**SO 4173/6173. Environment and Society. (3)** (Prerequisite: AN 1103 or SO 1003 or consent of instructor). Three hours lecture. A study of the interaction between human society and the environment including the social aspects of environmental problems. (Same as AN 4173/6173).

**SO 4203/6203. The Family in the United States. (3)** (Prerequisite: SO 1203). Three hours lecture. A study of the American family as an institution, with emphasis on change and interrelationships with other institutions.

SO 4223/6223. Comparative Family Systems. (3) (Prerequisite: SO 1203). Three hours lecture. A systematic study of family patterns in selected cultures of the world.

SO 4233/6233. Juvenile Delinquency. (3) (Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Critical study of problems, causes, ways of handling; attitudes, roles and relationships of persons involved, including youthful offenders, social workers, court and law enforcement officials. (Same as CRM 4233/6233).

**SO 4243/6243. Drugs, Crime and Control. (3)** (Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Focus on the social factors which give rise to illicit drug use, patterns and trends in drug crime and strategies to control drug crime. (Same as CRM 4243/6243).

SO 4253/6253. White Collar Crime and Elite Deviance. (3) (Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. An overview of the sociological and criminological literature in the area defined as 'White Collar Crime' (Same as CRM 4253/6253).

SO 4273/6273. Sociology of Education. (3) (Prerequisites: SO 1003 and junior standing). Three hours lecture. A sociological analysis of education as a social institution, its role in the larger society, the organization of schooling, and the social dynamics of classrooms.

**SO 4303/6303. Urban Sociology. (3)** (Prerequisites: SO 1003 and junior standing). Three hours lecture. A sociological and ecological study of urban areas emphasizing the processes of population, environment, technology and social organization.

SO 4323/6323. Victimology. (3) (Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. A critical study of victims, examining theories of victimization, the social construction of victimization, the relationship between victims and offenders, and victim prevention efforts. (Same as CRM 4323/6323).

**SO 4333/6333. Sociology of Sport. (3)** (Prerequisites: SO 1003 and junior standing). Three hours lecture. Examination of sport as a social institution in American society, its contributions to society and to participants.

SO 4403/6403. Sociology of Gender. (3) Three hours lecture. Changing character of gender and significance in various social institutions. Intersection between gender and other forms of inequality.

SO 4413/6413. Aging and Retirement in American Society. (3) (prerequisite: Nine hours of sociology or related courses). Three hours lecture. A study of the social and economic aspects of aging and of the social problems in American society related to the aged and retired groups.

**SO 4423/6423. Health and Society. (3)** (Prerequisite: Three hours in sociology). Three hours lecture. Examines health and the health care structure of the United States as it relates to our culture, norms and social institutions.

SO 4433/6433. Sociology of Death and Dying. (3) (Prerequisite: Three hours in sociology). Three hours lecture. Examines death as a social event, the social nature of death, relationships at the end of life, and social structural impacts on death and dying.

**SO 4513/6513. Correctional Systems. (3)** (Prerequisites: CRM 1003 and CRM 3603 or consent of instructor). Three hours lecture. Survey of contemporary correctional systems and practices. Emphasis placed on the formal organization and functioning of penal systems (same as CRM 4513/6513).

SO 4523/6523. Law and Society. (3) (Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Explores the social origins of law and how law can both maintain social order and bring about social change (Same as CRM 4523/6523).

**SO 4623/6623. Language and Culture. (3)** (Prerequisite: AN 1103 or consent of instructor). Three hours lecture. Examination of language as a part of culture, a source of knowledge about other aspects of culture, and a social behavior. (Same as AN 4623/6623 and EN 4623/6623).

**SO 4633/6633. Sociolinguistics. (3)** (Prerequisites: SO 1003, or consent of instructor). Three hours lecture. Examination of relationship between language and society, and how, when, and why people in speech communities use language varieties. (Same as AN 4633/6633 and EN 4633/6633).

SO 4703/6703. Population Problems and Processes. (3) (Prerequisite: SO 1003 or consent of the instructor). Three hours lecture. World population growth and its consequences, population change and national policies, family planning, recent U.S. population trends, basic demographic measurement, the demographic report.

**SO 4803. Social Research Practice. (3)** (Prerequisite: SO 3213 or equivalent). Three hours lecture. Practical application of sociological analysis and methods conducting social research projects. Includes selection of methods and analytical techniques, data collection, ethics, and report writing.

SO 4713/6713. Methods in Population Research. (3) Review and evaluation of censuses, vital statistics, and demographic surveys and their uses, with emphasis on measurement, methods, and analytical techniques.

SO 4733/6733. Community: Organization and Relationships. (3) (Prerequisites: SO 1003 and junior standing). Three hours lecture. Rural-urban approach to community; types of local societies and community organizations; perspectives in community study.

**SO 8103. Graduate Theory I. (3)** Social theories and intellectual antecedents: European and American origins and development. Includes entire range of socio-cultural complex associated with 19th- and early 20th-century sociology.

**SO 8113. Graduate Theory II. (3)** Focus on post-19th century theory and antecedents. Delineation of the basic postures in the discipline and relative relationships of these postures to theory development.

**SO 8213. Research Design. (3)** (Prerequisite: SO 8274). Three hours lecture. Emphasis on overall design, plan, structure, and strategy. Also limitations of theory, measurement, sampling and statistical testing in research.

**SO 8223. Techniques of Survey Research. (3)** (Prerequisite: SO 8213). Schedule construction, sampling, field procedures, techniques of analysis, presentation of statistical materials.

**SO 8233.** Qualitative Analysis. (3) (Prerequisite: SO 8213). Three hours lecture. Qualitative approaches to understanding social behavior. Exposure to all phases of qualitative research: epistemology, design, field work, ethics, and writing research results.

**SO 8243. Spatial Analysis of Social Data. (3)** (Prerequisite: SO 8284, equivalent or consent of instructor). Three hours lecture. Spatial theories of society; relevant digital databases; procedures for visualizing data; exploratory spatial data analysis; local and global spatial regression models.

SO 8274. Graduate Social Statistics I. (4) (Prerequisite: ST 2113 or equivalent). Three hours lecture. Two hours laboratory. Probability, hypothesis testing, tests of means and proportions, contingency table analysis, analysis of variance, bivariate linear regressions correlation; data analysis and interpretation using current statistical software.

**SO 8284. Graduate Social Statistics II. (4)** (Prerequisite: SO 8274). Three hours lecture. Two hours laboratory. Hypothesis testing, analysis of variance, multiple linear regression and correlation, causal models, exploratory factor analysis; data analysis and interpretation using current statistical software.

SO 8293. Structural Equations Modeling with Latent Variables in Sociology. (3) (Prerequisites: SO 8284 or equivalent). Three hours lecture. The application of structural equation modeling techniques to sociological problems containing unobserved variables, focusing on estimation and interpretation of model parameters with errors of measurement.

SO 8343. Complex Organizations. (3) Theory and research in organizations. Nature and types of organizations; determinants and consequences of organizational growth; organizational effectiveness; production, authority, and control systems in organizations.

**SO 8403. Seminar in Race Relations. (3)** Three hours lecture. Contributions of anthropology, sociology and psychology to the field of race relations. Critical analysis of recent studies, current racial theories and programs.

SO 8413. Seminar in Social Stratification. (3) Three hours lecture. Critical analyses of theories and research on social class and related social structures. Explores race/gender/class stratification and policies to alter income wealth inequality.

**SO 8423. Seminar in Deviant Behavior. (3)** Examination of relation between social conditions, social problems, deviance, and deviant careers. The organization of social control activities, and the social differentiation of deviant populations.

**SO 8433. Seminar in Criminology. (3)** Exploration of conceptual, methodological, and substantive problems of research in the field of criminology. The classification of criminals and criminal careers receives special emphasis.

**SO 8503. Seminar in the Family.** (3) An advanced seminar on the family institution, emphasizing theoretical and conceptual frameworks, topics of current concern to family sociology, and major literature in the area.

SO 8523. Symbolic Interaction and Social Structure. (3) Review of classic and current sociological literature in symbolic interaction and development of self as process and product of social structure.

**SO 8703. Seminar in Population. (3)** (Prerequisite: SO 4703/6703 or equivalent). Study of population dynamics; theories of optimum population; population policies and programs; zero population growth; interrelationship of population phenomena with socioeconomic developments.

**SO 8723. Advanced Demographic Analysis and Research. (3)** Techniques of population and migration estimations and projections; and methods of estimating basic demographic measures from incomplete data.

**SO 8900. Fields of Sociology.** (Hours and credits to be arranged up to 3 hours.) A seminar in selected areas of sociological research and practice.

SO 8983. Seminar in Race Relations (3) (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. Contributions of anthropology, sociology, and psychology to race relations. Critical analysis of recent studies, current racial theories and programs. Designed for online Diversity Certificate program students.

**SO 8963. Exploring Issues in Gender. (3)** (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An intensive introduction to theories of gender structures social, economic and cultural inequalities. Designed for online Diversity Certificate program students. (Same as GS 8963)

**SO 8973. Gender and Work. (3)** (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. An intensive examination of how gender impacts experiences of work from the home to the corporation. Designed for online Diversity Certificate program students. (Same as GS 8973)

**SO 8993. Sociology of Gender. (3)** (Prerequisite: graduate standing and enrollment in the Diversity Certificate program). Three hours lecture. Changing character of gender significance in various social institutions. Intersection between gender and other forms of inequality. Designed for online Diversity Certificate program students.

## SPORT STUDIES

#### (For departmental information, see KINESIOLOGY.)

**SS 2003. Foundations of Sport Industry. (3)** Three hours lecture. Overview and analysis of the body knowledge in sport management, including an examination of sport and sport-related organizations.

SS 3103. Sport Sponsorship. (3) Three hours lecture. The sponsorship process as it relates to athletics and commercial sport operations; creation and application of sponsorships to specific sport scenarios.

SS 3203. Sport Law. (3) Three hours lecture. This course addresses the influence of torts, contracts, employment-related issues, and intellectual property on the sport industry.

**SS 3303. Communication Management in Sport. (3)** Three hours lecture. Functions and tasks of communication professionals in the sport business, including such fields as public relations, media relations, community relations, and promotions.

SS 3403. Facility and Event Management in Sport. (3) Three hours lecture. This course covers the requisite responsibilities and tasks involved in facility and event management in the sport industry.

SS 4103. Ethics in Sport Management. (3) Three hours lecture. Ethical issues relevant to administration in the sport business industry across a range of areas, including professional sport, collegiate sport, and youth/ high school sport.

**SS 4203. Funding of Sport. (3)** Three hours lecture. Foundation of fiscal management concepts in the sport industry, including finance, economics, accounting, and general business practices.

SS 4303. Globalization and Sport. (3) Three hours lecture. The impact of globalization trends on the sports industry. The course explores various theories of globalization as they relate to the business of sport.

**SS 4393-4396.** Sport Studies Internship. (3,6) (Prerequisite: Consent of instructor). Hours and credits to be arranged. A supervised observation and practicum experience in a sport management setting.

SS 4403/6403. Gender and Sport. (3) Three hours lecture. An exploration of how ideologies and inequalities related to gender may be constructed, perpetuated, and/or challenged in and through sport. (Same as GS 4403/6403)

SS 8123. Sport Management. (3) Three hours lecture. Study of principles, problems, human relationships, and procedures in supervision in sport management. Involves theories of leadership, programs, and philosophies in the sport industry.

**SS 8203. Funding of Sport. (3)** Three hours lecture. Overview of fiscal management concepts in the sport and recreation industries, including finance, economics, accounting, and general business practices.

SS 8803. Sport Law. (3) Three hours lecture. The analysis and application of the legal foundations, concepts and issues impacting the sports industry.

SS 8823. Sport Sponsorships. (3) Three hours lecture. An examination of the uniqueness of the sport sponsorships and the importance of effective advancement and visibility of the sport brand and positioning.

SS 8833. Event and Facility Management. (3) Three hours lecture. The principles and applications of management, design, and maintenance concepts as they apply to indoor and outdoor events and facilities.

SS 8883. Ethical Issues in Sport. (3) Three hours lecture. Philosophical exploration in the recognition, analysis, and implementation of ethical thought and the ethical decision making process within the multivalued contexts of the sport industry.

## STATISTICS

# (For departmental information, see MATHEMATICS and STATISTICS.)

**ST 2113.** Introduction to Statistics. (3) (Prerequisite: ACT Math subscore 24, or grade of C or better in MA 1313). Two hours lecture. Two hours laboratory. Introduction to statistical techniques: descriptive statistics, random variables, probability distributions, estimation, confidence intervals, hypothesis testing, and measurement of association. Computer instruction for statistical analysis. (Same as MA 2113).

ST 3123. Introduction to Statistical Inference. (3) (Prerequisite: ACT Math subscore of 24 or grade of C or better in MA 1313). Two hours lecture. Two hours laboratory. Basic concepts and methods of statistics, including descriptive statistics, probability, random variables, sampling distributions, estimation, hypothesis testing, introduction to analysis of variance, simple linear regression. (Same as MA 3123).

ST 4111/6111. Seminar in Statistical Packages. (1) One hour lecture. Introduction to the statistical computer packages available at MSU.

ST 4211/6211. Statistical Consulting. (1) (Prerequisite: Consent of the department). (May be repeated for credit.) Provides students with the opportunity to participate as statistical consultants on real projects; consultants are required to attend a weekly staff meeting.

ST 4213/6213. Nonparametric Methods. (3) (Prerequisite: An introductory course in statistical methods). Three hours lecture. Nonparametric and distribution-free methods, including inferences for proportions, contingency table analysis, goodness of fit tests, statistical methods based on rank order, and measures of association.

ST 4243/6243 Data Analysis I. (3) (Prerequisite: MA 2743. Co-requisite: MA 3113). Three hours lecture. Data description and descriptive statistics, prob-

ability and probability distributions, parametric one-sample and two-sample inference procedures, simple linear regressions, one-way ANOVA. Use of SAS. (Same as MA 4243/6243.)

ST 4253/6253 Data Analysis II. (3) (Prerequisites: MA 4243/6243 and MA 3113). Three hours lecture. Multiple linear regression; fixed, mixed and random effect models; block designs; two-factor analysis of variance; three-factor analysis of variance; analysis of covariance. Use of SAS. (Same as MA 4253/6253.)

ST 4313/6313. Introduction to Spatial Statistics. (3) (Prerequisite: Grade of C or better in ST 3123 or equivalent). Two hours lecture. Two hours laboratory. Spatial data analysis: kriging, block kriging, cokriging; variogram models; median polish and universal kriging for mean-nonstationary data; spatial autoregressive models; estimation and testing; spatial sampling.

**ST 4523/6523. Introduction to Probability. (3)** (Prerequisite: MA 2733). Three hours lecture. Basic concepts of probability, conditional probability, independence, random variables, discrete and continuous probability distributions, moment generating function, moments, special distributions, central limit theorem. (Same as MA 4523/6523).

ST 4543/6543. Introduction to Mathematical Statistics I. (3) (Prerequisite: MA 2743). Three hours lecture. Combinatorics; probability, random variables, discrete and continuous distributions, generating functions, moments, special distributions, multivariate distributions, independence, distributions of functions of random variables. (Same as MA 4543/6543).

ST 4573/6573. Introduction to Mathematical Statistics II. (3) (Prerequisite: ST 4543/6543). Three hours lecture. Continuation of ST 4543/6543. Transformations, sampling distributions, limiting distributions, point estimation, interval estimation, hypothesis testing, likelihood ratio tests, analysis of variance, regression, chi-square tests. (Same as MA 4573/6573).

ST 8114. Statistical Methods. (4) (Prerequisite: MA 1313). Three hours lecture. Two hours laboratory. Fall and Spring semesters. Descriptive statistics; sampling distributions; inferences for one and two populations; completely random, block, Latin square, split-plot designs; factorials; simple linear regression; chi-square tests.

ST 8214. Design and Analysis of Experiments. (4) (Prerequisite: ST 8114) Three hours lecture. Three hours laboratory. Offered spring semester. Procedures in planning and analyzing experiments; simple, multiple, and curvilinear regression; factorial arrangement of treatments; confounding; fractional replication; block designs; lattices; split-plots.

**ST 8253. Regression Analysis. (3)** (Prerequisite: ST 8114 or equivalent). Three hours lecture. Fall and Spring semesters. Simple linear regression analysis and related inferences, remedial measures, multiple and polynomial regression, use of indicator variables, variable selection methods, and use of computer.

ST 8263. Advanced Regression Analysis. (3) (Prerequisite: ST 8253). Three hours lecture. Continuation of ST 8253, including variable selection methods, optimization techniques, biased estimation methods such as ridge regression, non-linear regression, model validation methodology, indicator variables, design models.

**ST 8313. Introduction to Survey Sampling. (3)** (Prerequisite: ST 8114). Three hours lecture. Topics include: design, planning, execution, and analysis of sample surveys; simple random, stratified random, cluster, and systematic sampling; ratio and regression estimation.

**ST 8353. Statistical Computations. (3)** (Prerequisite: ST 8114). Three hours lecture. Applications of computer packages, including data screening, t-tests and Hotelling's T", analysis of designed experiments, regression analysis, contingency table analysis, projects, and report writing.

**ST 8413. Multivariate Statistical Methods. (3)** (Prerequisite: ST 8253). Three hours lecture. Multivariate normal; multiple and partial correlation; principal components; factor analysis; rotation; canonical correlation; discriminant analysis; Hotelling's T"; cluster analysis; multidimensional scaling; multivariate analysis of variance.

**ST 8533. Applied Probability. (3)** (Prerequisite: ST 4543/6543). Three hours lecture. An introduction to the applications of probability theory. Topics include Markov Chains, Poisson Processes, and Renewal, Queueing, and Reliability theories. Other topics as time permits.

ST 8603. Applied Statistics. (3) (Prerequisite: ST 4253/6253 or equivalent). Three hours lecture. Advanced analysis of experimental data. Topics include mixed and random models, incomplete block design, changeover trials, experiments, analysis of covariance, and repeated measures design.

**ST 8613. Linear Models I. (3)** (Prerequisites: ST 4253/6253 and 4573/6573). Three hours lecture. Random vectors, multivariate normal, distribution of quadratic forms, estimation and statistical inferences relative to the general linear model of full rank, theory of hypothesis testing.

ST 8633. Linear Models II. (3) (Prerequisite: ST 8613). Three hours lecture. Continuation of ST 8613, including generalized inverses; general linear model not of full rank, related inferences, applications; computing techniques; design models, analyses, hypothesis testing; variance-component models.

ST 8853. Advanced Design of Experiments I. (3) (Prerequisite: ST 8603 or ST 8214). Three hours lecture. Noise reducing designs; incomplete block designs; factorial experiments, Yates' algorithms, confounding systems; fractional replication; pooling of experiments; nested designs; repeated measurement designs; messy data analyses.

ST 8863. Advanced Design of Experiments II. (3) (Prerequisites: ST 8853 and ST 8613). Three hours lecture. Continuation of ST 8853, including analysis

of covariance, split-plot designs and variants, applications of the general linear model, response surface methodology, randomization models, pseudo-factors, and cross-over design.

ST 8913. Recent Developments in Statistics. (3) (Prerequisite: Consent of instructor). New results in statistical theory and/or statistical methodology; advanced work organized around topics not usually considered in the other courses.

**ST 8951. Seminar in Statistics.** (1) (Prerequisite: Consent of instructor). (May be repeated for credit). Review of literature on assigned topics; discussions and presentations of papers.

## SOCIAL WORK

Office: 207 Bowen Hall

Associate Professor Crudden; Assistant Professor Burson; Instructors Edwards and Pilkinton

SW 2303. Social Welfare Policy I. (3) Three hours lecture. In-depth study of the historical and contemporary effects of social welfare policy on client systems.

SW 2313. Introduction to Social Work/Social Welfare. (3) Three hours lecture. A study of professional social work and the historical and philosophical development of social work and social welfare.

**SW 2323. Social Welfare Policy II. (3)** (Prerequisite: SW 2313). Three hours lecture. The course provides an analysis and evaluation of social welfare policies as institutional responses to social problems, social justice, and human needs.

SW 3003. Social Work with At-Risk Populations. (3) Three hours lecture. Examines the role and interaction of social workers with vulnerable groups. Includes concepts of racism, sexism, homophobia, oppression, affirmative action, and xenophobia.

SW 3013. Human Behavior and the Social Environment I. (3) Three hours lecture. Examines biological, psychological, social-structural, and cultural aspects of human development from conception through young adulthood from a social systems perspective, emphasizing diversity and oppression.

SW 3023. Human Behavior and the Social Environment II. (3) (Prerequisite: SW 3013). Three hours lecture. Examines biological, psychological, social-structural, and cultural aspects of human development from middle adulthood to death from a social systems perspective, emphasizing diversity and oppression.

SW 3213. Research Methods in Social Work. (3) (Prerequisite: ST 2113). Three hours lecture. A survey of research methodology in social work practice, including an examination of the various types of research design, techniques, and procedures.

SW 3513. Social Work Practice I. (3) (Prerequisites: SW 2313 and SW 3013). Three hours lecture. The course emphasizes problems solving methods utilizing communication theories and skills working with individuals, families, groups, and communities in preparation for generalist social work practice.

SW 3523. Social Work Practice II. (3) (Prerequisites: SW 3513). Three hours lecture. The course focuses on processes involved in engaging client systems in data collection, assessment, intervention, evaluation, and termination in preparation for generalist social work practice.

SW 3533. Social Work with Communities and Organizations. (3) (Prerequisite or Co-requisite: SW 3523). Three hours lecture. The course focuses on processes involved in problem solving with emphasis upon groups and larger systems in generalist social work practice.

SW 4533. Substance Abuse and Addictions in Social Work Services. (3). Role/interaction of social workers with people who use alcohol/drugs (AOD). Concepts of use, abuse, and dependence. Emphasis on the impact of AOD use on families/children.

SW 4613. Child Welfare Services. (3) (Consent of instructor). Three hours lecture. Assessment of parental and society's responsibilities in meeting physical, social, psychological, and legal needs of children and examining the delivery, policies, systems, and services.

SW 4623. Social Work with the Aged. (3) (Consent of instructor). Three hours lecture. Assessment of social, psychological, physical, and economic needs of aging persons; their utilization of services, conjoint planning and creation of new community based resources.

SW 4633. Social Work in Health Care. (3) (Consent of instructor). Three hours lecture. Assessment of social work knowledge, values, and skills in understanding psychosocial aspects of illness, medical terminology, recording, discharge planning, ethics, team disciplines, and community resources.

SW 4643. Social Work Services in Schools. (3) Three hours lecture. Assessment of the development, concepts, policies, planning, implementation, and evaluation of social work services in primary and secondary schools.

SW 4663. Administration in Social Work. (3). Assessment of functions of human service management, planning and program, organizational theory and design, resources, supervision, funding, information systems, and evaluation of service delivery.

**SW 4713. Social Work Senior Seminar. (3)** (Prerequisite: SW 3513). Critical evaluation of current issues in social work practice; examination of career opportunities; and assessment of personal educational preparation for practice.

SW 4916-4926. Social Work Field Practicum/Seminar I-II. (6) (Prerequisites: SW 4713 and SW 3533). The course provides students opportunities to apply generalist social work practice methods by completing a minimum of 450 supervised hours in a social work agency.

# Department of INSTRUCTIONAL SYSTEMS and WORKFORCE DEVELOPMENT

Office: 100 Industrial Education Building Professors Cornelious, Forde (head), Olinzock; Associate Professors Adams, Du, Okojie, Wyatt and Yu; Assistant Professors Beriswill, Earle and Xie; Instructors Giordano, Keel, Melby-Codling, and Mize

## BUSINESS TECHNOLOGY

**TKB 1012. Keyboarding. (2)** One hour lecture: Two hours laboratory. Keyboard mastery; letter writing; vertical and horizontal centering; manuscript writing; tabulation. No credit allowed if student has earned high school credit. Students with no high school credit will be allowed to remove this deficiency during the freshman year.

TKB 1123. Document Formatting/ Information Processing. (3) (Prerequisite: TKB 1012 or equivalent). Two hours lecture. Two hours laboratory. Review of keyboarding principles, development of speed/accuracy using computer software, and mastery of formatting and word processing competencies required to produce business documents.

**TKB 1312. Information Resource Management. (3)** Two hours lecture. Development of guidelines for establishment, implementation, and maintenance of records control programs in various organizations.

**TKB 2112.** Document Production. (2) (Prerequisite: TKB 1122 or equivalent). One hour lecture. Two hours laboratory. Development of speed and accuracy using computer software, advanced application of formatting skills using computer software, machine dictation and transcription.

**TKB 2122. Introduction to Database Management. (2)** (Prerequisite: TKT 1273 or BIS 1012 or CSE 1013 and keyboarding proficiency). One hour lecture. Two hours laboratory. An exploration of database management technology as it applies to business applications in today's contemporary business environment. Provides hands-on technology experience with database management software.

TKB 2132. Introduction to Spreadsheet Design and Analysis. (2) (TKT 1273 or BIS 1012 or CSE 1013 and keyboarding proficiency). One hour lecture. Two hours laboratory. An exploration of electronic spreadsheet technology applied to business applications in today's contemporary business environment. Provides hands-on computer technology with most widely used spreadsheet software.

**TKB 2543. Word Processing—Concepts, Procedures, and Applications.** (3) (Prerequisite: TKB 1122 or instructors consent). Two hours lecture. Two hours laboratory. Concepts and applications in word processing using microcomputers.

TKB 3133. Administrative Management & Procedures. (3) (Prerequisite: TKT 1273 or equivalent and junior standing). Three hours lecture. Principles of effective administrative management and procedures. Planning and directing workplace activities, systems, and technology; selecting and training employees; developing professional leadership and communication skills.

TKB 4283/6283. Advanced Office Systems. (3) (Prerequisite: TKT 1273 or BIS 1012 or CSE 1013; TKB 2132, TKB 2122; and keyboarding proficiency or consent of instructor). Two hours lecture. Two hours laboratory. An exploration of computer technology as it applies to the office. Provides hands-on microcomputer experience with integrated business software and graphics.

**TKB 4543/6543. Advanced Information Processing. (3)** (Prerequisite: TKB 1123 or instructor's consent.) Two hours lecture. Two hours laboratory. Applications in advanced word processing and desktop publishing.

**TKB 4563.** Introduction to Data Networks. (3) (Prerequisite: TKB 1273). Three hours lecture. Strategies in supporting the users of data networking systems and exploration of the associated networking hardware and software that are appropriate for the office environment.

**TKB 4583/6583.** Graphics and Web Design. (3) (Prerequisites: TKT 1273 or BIS 1012 or CSE 1013 and keyboarding proficiency). Two hours lecture. Two hours laboratory. Principles and development of graphics and web design.

#### INDUSTRIAL TECHNOLOGY

**TKI 1203. Industrial Communications. (3)** Two hours lecture. Two hours laboratory. The use of drawings to communicate ideas of manufacturing and maintenance in machining, electricity/electronics, welding, and hydraulics/pneumatics.

TKI 1814. Basic Industrial Electricity and Electronics. (4) (Prerequisite:

MA 1323). Three hours lecture. Two hours laboratory. Study of fundamental industrial electrical and electronic principles with experimentation and project construction.

**TKI 2113. Introduction to PLC Programming. (3)**. Three hours lecture. Study of fundamental methods in the programming of industrial PLC with regard to language and logic.

**TKI 2123. Introduction to CNC Programming. (3).** (Prerequisites: TKI 1203). Two hours lecture. Two hours laboratory. Study of fundamental concepts and techniques in the construction and programming of computer numerical controlled machines.

**TKI 2323. Forging, Welding and Foundry. (3)** (Prerequisite: TKI 1203). Six hours laboratory. Practice in hand forging; annealing, hardening and tempering of tool steel; casting, gas and electric welding; plasma arc cutting.

**TKI 2413. History and Appreciation of the Artcrafts. (3)** Three hours lecture. Growth and development of the artcrafts through the ages; instructional applications; practical designs; demonstrations and projects in artmetal, leather, ceramics, and other handicraft areas.

**TKI 3044. Industrial Safety. (4)** (Prerequisite: Junior standing) Four hours lecture. Principles and procedures relating to appraisal, organization and administration of safety programs in industrial plants including implementation of occupational safety and health legislation.

**TKI 3063. Industrial Human Relations. (3)** (Prerequisite: Junior standing). Three hours lecture. The application of psychological principles to teacher-pupil relationships, employer-employee relationships, and other human relationships in business and industry.

**TKI 3104. Advanced Industrial Electricity and Electronics. (4)** (Prerequisite: TKI 1814). Three hours lecture. Two hours laboratory. Continuation of TKI 1814. Study of and experimentation with industrial electronic, transistor, and integrated circuitry.

**TKI 3183.** Machine Metal Processing. (3) (Prerequisite: TKI 2123 and junior standing) Six hours laboratory. Machine tool (drill, grinder lathe, mill and shaper) operations; bench metals, precision measurements, calculations, and chipless machining; project construction.

**TKI 3224. Industrial Materials Technology. (4)** (Prerequisite: CH 1043 or higher and junior standing). Three hours lecture. Two hours laboratory. An investigation of the mechanical and characteristic properties of industrial materials, including wood, polymers and composites. The influence of these properties on manufacturing and product service requirements.

**TKI 3243. Industrial Metrology. (3)** (Prerequisites: TKI 2123). Two hours lecture. Two hours laboratory. Study of fundamental and advanced methods employed for measurement in industry.

**TKI 3343. CAD/CAM. (3)** (Prerequisite: TKI 2123) Two hours lecture. Two hours laboratory. Basic to intermediate drafting and design techniques using CAD and CAM software, with special emphasis placed on tolerancing, dimensioning, and manufacturing processing routes and selection.

**TKI 3353.** Forecasting and Cost Modeling. (3) (Prerequisite: BQA 2113) Two hours lecture. Two hours laboratory. Use of the higher functions of spreadsheet software to undertake costing of manufacturing process routes and to forecast changes in manufacturing scenarios.

**TKI 3363.** Motion and Time Study. (3) (Prerequisite: TKI 3353 and junior standing.) Two hours lecture. Two hours laboratory. A study of the techniques for analysis of production systems, the design of work stations, and the development of time standards.

**TKI 4103. Industrial Control Systems. (3)** (Prerequisite: TKI 3104). One hour lecture. Four hours laboratory. Application of basic and advanced industrial electronic principles to industrial control systems and processes.

TKI 4113/6113. Industrial Fluid Power. (3) (Prerequisites: PH 1013 or higher and junior standing). One hour lecture. Four hours laboratory. A practical study of fluid power concepts, components, and systems as relates to modern industrial applications and to appropriate scientific principles. Hands-on laboratory activities.

**TKI 4203/6203. Automated Systems. (3)** (Prerequisite: TKI 2113 and junior standing). Two hours lecture. Two hours laboratory. An advanced study of automated systems and applications for the industrial technologist.

TKI 4213/6213. Survey of Energy Sources and Power Technology. (3) (Prerequisite: three semester hours physical science or other physics and junior standing). Three hours lecture. Scientific and applied approaches to energy conversion, transmission, utilization, and conservation. Internal-external combustion, nuclear, fluid, hydroelectric, solar, etc. Current energy problems; lab demonstrations; activities.

TKI 4224/6224. Quality Assurance. (4) (Prerequisites: BQA 2113 and junior standing). Four hours lecture. Concepts and procedures to design, plan, assure and audit quality and quality systems, with an introduction to Six Sigma and experimental design.

**TKI 4233/6233. Maintenance Management. (3)** (Prerequisite: Senior standing). Three hours lecture. Understanding of the concepts and practices of Total Productive Maintenance Management, to give a proactive production maintenance strategy for the future.

TKI 4263/6263. Manufacturing Technology & Processing. (3) (Prerequisite: Senior standing). Three hours lecture. Discussion and appreciation of manufacturing processes with regard to material processing. **TKI 4303/6303. Industrial Robotics. (3)** (Prerequisite: TKI 3104). Two hours lecture. Two hours laboratory. A study of industrial robotics and applications for production supervisors.

**TKI 4413/6413. Evolution of Technology. (3).** (Prerequisite: Junior standing). Three hours lecture. A discussion and appraisal of modern technology and how the technology we have today evolved from the past and how it now affects mankind in industry.

### **TECHNOLOGY TEACHER EDUCATION**

**TKT 1273. Computer Applications. (3)** Three hours lecture. The process of incorporating computer applications.

**TKT 3001. Practicum in Technology Teacher Education.** (1) One hour practicum. Field-based observation of secondary technology students and participation in classroom activities.

**TKT 4153/6153. Teaching Business Technology. (3)** (Prerequisite: Admission to teacher education for teacher education majors). Three hours lecture. A study of objectives, materials, and teaching methods appropriate for business technology courses.

**TKT 3173. Teaching Business Education Skills Subjects. (3)** (Prerequisite: Acceptance to teaching internship). Three hours lecture. A study of objectives, materials, and teaching methods appropriate for business education skills subjects.

**TKT 3213. Call Center Management. (3)** (Prerequisite: TKT 1273 or equivalent and junior standing). Three hours lecture. Presents the strategic, financial and tactical knowledge and skill needed to manage an effective and efficient call center.

**TKT 3463. Computer Repair and Maintenance.** (3) (Prerequisite: TKT 1273 or BIS 1012 or CSE 1013 and keyboarding proficiency). Two hours lecture. Two hours laboratory. An exploration into hardware functions, operating system and software installation, diagnostic and troubleshooting techniques, and safety.

**TKT 3623. Designing Technology Training. (3)** (Prerequisite: TKT 1273 or BIS 1012 or CSE 1013 and keyboarding proficiency, TKB 2132, TKB 2122). Three hours lecture. Learning strategies, design and development of technology training programs for organizations.

TKT 4073/6073. Instructional Materials Development and Use in Vocational Education. (3) Three hours lecture. Development and use of lesson plans and supporting written and audio-visual materials.

TKT 4103/6103. Delivery of the Vocational-Technical Instructional Program. (3) Three hours lecture. Methods and techniques of instructing vocationaltechnical students in the classroom and laboratory setting.

TKT 4143/6143. History and Philosophy of Vocational and Technology Education. (3) Three hours lecture. History and development, aims and purposes of vocational education.

**TKT 4183/6183. Coordination of Part-Time Education. (3)** Three hours lecture. Principles of promotion, organization, and operation of part-time cooperative classes in vocational education: instruction in analyzing needs, preparing schedule of processes, developing instructional materials.

**TKT 4213/6213. Teaching Basic Business Subjects. (3)** (Prerequisite: Acceptance to teacher education.) Three hours lecture. Objectives, materials, and methods of teaching basic business subjects.

TKT 4223/6223. Management of the Vocational-Technical Learning Environment. (3) Three hours lecture. Techniques for organizing and managing vocational-technical education facilities, equipment, supplies, and instructional programs. Methods of managing and controlling student laboratory activities.

**TKT 4233/6233. Design of the Vocational-Technical Instructional Program. (3)** Three hours lecture. Identifying and sequencing teaching content. Planning and designing vocational-technical programs and courses.

TKT 4253/6253. Evaluation and Measurement of Students in Vocational Education and Technology. (3) Three hours lecture. Construction, selection, interpretation, and uses of cognitive and psychomotor evaluation instruments used in vocational-technical programs.

**TKT 4263/6263.** Diversity in Work and Educational Environments. (3). Three hours lecture. Exploring the changing dynamics of the workforce and educational environments in examination of cultural and technological facts and assumptions. Creating an understanding and appreciation of difference.

TKT 4314/6314. Content and Methods of Teaching Technology Discovery. (4) Three hours lecture. Two hours laboratory. The course explores concepts, methods, and techniques for managing and organizing materials appropriate for teaching Technology Discovery.

**TKT 4323/6323. Content and Methods of Teaching Computer Discovery.** (3) Three hours lecture. A study of the objectives, the instructional materials and methods appropriate for teaching Computer Discovery.

**TKT 4333/6333. Content and Methods of Teaching Career Discovery. (3)** Three hours lecture. A study of the objectives, the instructional materials and methods appropriate for teaching Career Discovery.

TKT 4343. Information Technology Project Management. (3) (Prerequisite: TKT 1273 or BIS 1012 or CSE 1013 and keyboarding proficiency). Three hours lecture. Concepts, skills, tools and techniques involved in information technology project management as it applies in today's contemporary business environment.

TKT 4463/6463. Methods of Teaching Information and Communication Technology I. (3) (Prerequisite: keyboarding proficiency using the touch method) Three hours lecture. A study of objectives, materials, and teaching methods appropriate for Information and Communication Technology I.

**TKT 4623. Delivery and Evaluation of Technology Training. (3)** (Prerequisite: TKT 3623). Three hours lecture. Advanced design, live and computer-based strategies, development, delivery, and evaluation of technology training programs for organizations.

**TKT 4683. Senior Seminar in Information Technology Services. (3)** (Prerequisites: TKT 3213, TKT 3463, TKB 4283, TKT 4623, TKT 4633, and senior standing). Three hours seminar. Field experience under supervision of university staff for directed experience and report in end-user support, project management, and training.

**TKT 4713/6713. Authoring for Instruction.** (3) Three hours lecture. (Prerequisite: TKT 1273 or consent of instructor). An introduction to the application of authoring languages for instructional purposes.

**TKT 4733/6733. Managing a Multimedia Learning Environment. (3)** Three hours lecture. The course examines the process of designing, managing and maintaining a multimedia learning environment.

**TKT 4743/6743. Elements of Electronic Desktop Publishing. (3)** (Prerequisites: TKB 2543, 4543 or consent of instructor). Two hours laboratory and two hours lecture. Design applications utilizing electronic desktop publishing technologies.

**TKT 4753/6753. Teaching and Presenting with Multimedia. (3)** (Prerequisite: TKT 4743/6743 or consent of instructor). Three hours lecture. The course deals with the process of using multimedia applications to present instruction and information.

**TKT 4803/6803. Integrating Technology for Meaningful Learning. (3)** Three hours lecture. Understanding the process of integrating technology into instructional practice. Research-based methods for the integration of technology to enhance learning.

**TKT 4813/6813. Introduction to Instructional Systems. (3)** Three hours lecture. An introduction to the field of Instructional Systems and the practice of scholarly writing in the field.

TKT 4853/6853. Philosophy and Principles of Vocational-Technical Instruction. (3) Three hours lecture. Philosophy, objectives and methods of vocational-technical instruction. Introduction to teaching-learning principles and concepts.

TKT 4863/6863. Methods of Teaching Information and Communication Technology II. (3) (Prerequisite: and TKT 4463/6463 and keyboarding proficiency using the touch method or consent of instructor) Three hours lecture. A study of objectives, materials, and teaching methods appropriate for Information and Communication Technology II.

**TKT 4873. Professional Seminar in Vocational/Technical Education. (3)** (Prerequisites: Admission to Teacher Education and senior standing). Three hours lecture. A seminar dealing with legal, professional, administrative, and curriculum issues as they relate to vocational/technical education.

**TKT 4886, 4896. Teaching Internship. (6,6)** (Prerequisite: Admission to Teacher Education, minimum GPA of 2.5 overall and in major, and completion of all professional education courses with a C or better). Professional full-day public school teaching experience in two consecutive placements or one 16-week placement in diverse settings under direction of supervising teachers and university supervisor.

**TKT 8200.** Internship in Career and Technology Education. (1-6) Opportunity under supervision of regular university staff for directed experience and reporting in the major area of interest.

**TKT 8213. Content and Methods of Teaching in Career and Technology Education.** (3) Three hours lecture. The content of various types of courses in career and technical education; instruction in appropriate techniques and methods.

TKT 8233. Analysis of Workforce Education Programs and Survey Research in Workforce Development. (3) Three hours lecture. An examination of workforce development from national and international perspectives and methods and issues in workforce education survey research.

**TKT 8243. Research Problems in Instructional Systems & Workforce development. (3)** Three hours lecture. The course explores issues and problems that impact instructional systems and workforce development and assesses the use of research findings for instructional decision making.

TKT 8263. Philosophy and Administration of Career and Technology Education. (3) Three hours lecture. Development of competencies needed in the leadership, administration, management, and supervision of local programs in technology, and career and technical education.

**TKT 8273. Contemporary Issues in Curriculum Planning in ISWD. (3)** Three hours lecture. Assessment of the contemporary issues that impact curriculum planning in instructional systems and workforce education.

**TKT 8703. Trends and Issues in Instructional Systems.** (3) Three hours lecture. An examination of trends and issues in instructional environments and the related current and emerging instructional systems.

**TKT 8713. Seminar in Industrial Research and Development. (3)** Two hours lecture. Two hours laboratory. A pragmatic study of statistical analysis, computing and research reporting techniques for industrial training and product development.

**TKT 8723. Instructional Design for Industry. (3)** Three hours lecture. Techniques; strategies, and development of instruction for industry.

TKT 8733. Telecommunications: Applications in Scholarship. (3) Three hours lecture. The study and application of the telecommunications to professional

scholarship and research endeavors; includes data search mechanisms applicable to and in support of graduate program demands.

TKT 8743. Interactive Media. (3) Two hours lecture. Two hours laboratory. Investigation and development of a variety of computer-interactive instructional media.

TKT 8753. Technology Issues for School Administrators. (3) Three hours lecture. Investigates the trends and issues in instructional systems that impact school administrators.

**TKT 8763. Seminar in Planning for Instructional Technology.** (3) Three hours lecture. An analytical study of techniques and strategies contributing to the establishment and effective operation of functional instructional technology.

**TKT 8773. Teaching and Training with Multimedia.** (3) Three hours lecture. The process of developing instructional and training materials including adapting existing materials to fit specific objectives and methods in a multimedia learning environment.

**TKT 8793. Directed Project in Instructional Technology. (3)** Design, development, and presentation of a complex, comprehensive instructional product integrating learning theories with contemporary and/or emerging technologies. Evaluation by jury.

**TKT 8803. Design and Evaluation of Instructional Software. (3)** Two hours lecture. Two hours laboratory. (Prerequisite: TKT 4273/6273 and hypermedia authoring experience). Analysis, synthesis, and evaluation of instructional software designed for and applied to varied learning situations.

**TKT 8813. Issues in Distance Education. (3)** Three hours lecture. This course investigates such issues as administration, implementation, instructional challenges, and evaluation in distance education environments including interactive video and online courses.

**TKT 8833. Design and Implementation of Data Networks. (3)** Three hours lecture. This course explores the design and implementation of data networking systems that are appropriate for instructional and research environments.

TKT 9213. Foundations, Trends and Issues in Workforce Development, Technology and Leadership Education. (3). Three hours lecture. This course examines the foundations, trends and issues in workforce, technology and leadership education and their impact on teaching and learning.

# ANIMAL HEALTH SCIENCES

Office: College of Veterinary Medicine (Wise Center)

VS 1012. Introduction to Veterinary Medicine Careers. (2) Two hours lecture. A survey of careers available to graduate veterinarians.

VS 2033. Diseases of Poultry. (3) (Prerequisite: VS 2014 or course in poultry physiology). Two hours lecture. Two hours lecture-demonstration and laboratory. Survey of cause, effects, diagnosis, prevention, and control of common poultry diseases.

VS 3014. Anatomy and Physiology. (4) Three hours lecture. Two hours laboratory. A survey of structure and function of animal body systems and a study of their interrelationships.

# VETERANS TRANSITION PROGRAM

**VTP 1001. Veteran/Service Member Transition (1)** (Prerequisite: Veteran or Service member, and currently enrolled in the V-TAC program) One hour lecture. Introduction of skills that veterans and current military members need to transition to a college academic life style.

# Department of WILDLIFE, FISHERIES and AQUACULTURE

### Office: 109 Thompson Hall

Professors Avery, Burrage, Burger, D'Abramo, Demarais, Dibble, Jackson, Jones, Kaminski, Leopold (Head), Li, Miranda\*\*, Mischke, Schramm\*\*, Tucker, Vilella and Wise; Associate Professors Belant, Guyton, Hunt, Jones, Riffell, and Strickland; Assistant Professors Allen, Boyd, Fogarty\*, Godwin\*, Greenway, Griffin\*, Kroger, Manning, Martin, Neal, Tegt and Wang (\* - adjunct faculty; \*\* - U.S.D.I.)

WFA 1102. Wildlife and Fisheries Profession. (1) (Prerequisite: Freshman or Sophomore standing). Two hour lecture. Orientation to the interdisciplinary and applied nature of wildlife and fisheries management and related fields, emphasizing the department, college, and university; student roles and responsibilities; and career opportunities.

WFA 3013. Human-Wildlife Conflicts Internship. (3) (Prerequisite: consent of instructor) Professional experience in human-wildlife conflict management or research.

WFA 3031. Introductory Wildlife/Fisheries Practices. (1) (Prerequisite: Junior standing). Field exercises and practical exposure to research and management of wildlife and fish species and habitats in Mississippi.

WFA 3133. Applied Aquatic and Terrestrial Ecology. (3) (Prerequisites: BIO 1134 and BIO 1144). Two hours lecture. Four hours laboratory, alternate weeks. The application of ecological principles which serve as a basis for the management of wildlife and fisheries in terrestrial and aquatic habitats.

WFA 4121. Wildlife and Fisheries Biometrics Laboratory. (1) (Prerequisites: ST 3123 and a grade of C or better in MA 1613; Co-requisite: WFA 4122). Four hours laboratory, alternate weeks. Application of basic statistical analytical tools to address wildlife and fisheries management/research questions.

WFA 4122 Wildlife and Fisheries Biometrics. (2) (Prerequisite: ST 3123 and a grade of C or better in MA 1613; Co-requisite: WFA 4121). Two hours lecture. Application or basic statistical analytical tools to address wildlife and fisheries management/research questions.

WFA 4133/6133. Fisheries Science (3) (Prerequisite: ST 3123 or equivalent). Two hours lecture. Four hours laboratory, alternate weeks. Study of the biological parameters of fish populations.

WFA 4153. Principles of Wildlife Conservation and Management. (3) (Prerequisites: Sophomore standing and one of the following: WFA 3133, FO 4123 or equivalent course) Two hours lecture. Four hours laboratory on alternate weeks. Principles of game management; habitat improvement; wildlife techniques; public relations.

WFA 4173/6173. Fish Physiology. (3) (Prerequisite: BIO 1134 and BIO 1144, or consent of instructor) Two hours lecture. Four hours laboratory, alternate weeks. Basic anatomy and physiology of major systems in fish: integration of the physiological systems as they function during development, growth and maturation.

WFA 4183/6183. Principles and Practices of Aquaculture. (3) (Prerequisites: BIO 1134 and BIO 1144, or consent of instructor. Two hours lecture. Four hours laboratory alternate weeks. Principles and practices of aquaculture applied to the farming of marine and freshwater species of fish, crustaceans, and mollusks throughout the world.

WFA 4221/6221. Limnology Laboratory. (1) (Prerequisite: WFA 3133 or consent of instructor; Co-requisite: WFA 4222/6222). Four hours laboratory skills required to evaluate freshwater ecosystems.

WFA 4222/6222. Limnology. (2) (Prerequisite: WFA 3133 or consent of instructor; Co-requisite WFA 4221/6221). Two hours lecture. The physical, chemical and biological processes underlying the function and productivity of freshwater ecosystems.

WFA 4223/6223. Identification of Aquatic and Terrestrial Plants. (3) (Prerequisites: BIO 1134 and BIO 1144 and WFA 3133 or equivalent). Two hours lecture. Four hours laboratory. Identification, taxonomy, ecology and management of wildlife food and cover plants.

WFA 4243. Wildlife Techniques. (3) (Prerequisite: Junior or Senior standing or consent of instructor). Two hours lecture. Four hours laboratory. Contemporary research and management techniques and tools for wildlife populations and habitats.

WFA 4253/6253 Application of Spatial Technologies to Wildlife and Fisheries Management (3) (Prerequisite: Senior standing or consent of Instructor). Two hours lecture. Four hours laboratory weekly. Practical Application of Global Positioning Systems and Geographic Information Systems to Wildlife and Fisheries Management.

WFA 4263/6263. Wildlife Diseases. (3) (Prerequisites: BIO 1134 and BIO 1144, or consent of instructor.) Two hours lecture. Four hours laboratory, alternate weeks. Effects and management of parasites and diseases in wild bird and mammal populations. (Same as CVM 4263/6263).

WFA 4273/6273. Ecology and Management of Human-Wildlife Conflicts. (3) (Prerequisite: WFA 3133 or consent of instructor) Three hours lecture. Ecological principles and management approaches to resolve human-wildlife conflicts.

WFA 4283/6283. Human-Wildlife Conflict Techniques. (3) (Prerequisite: WFA 3133 or consent of instructor) Three hours lecture. Discussion, demonstration, and application of techniques used to resolve human-wildlife conflicts.

WFA 4313/6313. Fisheries Management. (3) (Prerequisite: WFA 3133 or consent of instructor). Two hours lecture. Laboratories alternate weeks. Principles of fisheries management and methods for assessment and analysis of fish populations and aquatic habitats.

WFA 4323/6323. Wildlife Nutrition and Physiology. (3) (Prerequisites: BIO 1134 and BIO 1144, or consent of instructor.) Two hours lecture. Four hours laboratory, alternate weeks. Nutrition and physiology of aquatic and terrestrial wildlife, with emphasis on understanding life history strategies and functional adaptations to habitat and environmental variation.

WFA 4333/6333. Fish and Shellfish Nutrition. (3) (Prerequisites: CH 2503 and CH 2501 or BCH 3613). Three hours lecture. Fundamental and applied aspects of the nutrition of fish, crustacean, and mollusk species including feeding behavior, nutritional ecology, energetics, and nutrient requirements.

WFA 4343/6343. Pond and Stream Management. (3) (Prerequisite: Junior or Senior standing or consent of instructor). Two hours lecture. Four Hours Laboratory alternate weeks. Ecological foundations and management techniques for fisheries in small impoundments and streams.

WFA 4353/6353. Fish and Wildlife Policy and Law Enforcement. (3) (Prerequisite: Sr. standing or consent of instructor). Three hours lecture. A survey of the major content areas of fish and wildlife policy and law enforcement. Emphasis is on the fundamentals of conservation policies and laws.

WFA 4363/6363. Wildlife and Fisheries Administration and Communication. (3) (Prerequisite: Junior standing or consent of instructor) Two hours lecture. Three and one-half hours lab, alternate weeks. Administrative and communication techniques and skills in the workplace and political environments of wildlife and fisheries organizations.

WFA 4373/6373. Principles and Practice of Conservation in Agricultural Landscapes. (3) Two hours lecture. Four hours laboratory, alternate weeks. Introduces theoretical background for ecological conservation in agricultural landscapes with focus on the role of USDA Farm Bill programs in achieving conservation goals.

WFA 4383/6383. Wetlands Ecology and Management. (3) (Prerequisite: WFA 3133 and junior standing, or consent of instructor.) Two hours lecture. Four hours laboratory, alternate weeks. Hydrology, soils and biogeochemistry of wetlands; structure and function of important wetland types; wetland management for wildlife and fisheries; wetland creation and restoration.

WFA 4394/6394. Waterfowl Ecology and Management. (4) (Prerequisite: WFA 3133 and junior standing, or consent of instructor.) Three hours lecture. Four hours laboratory. Annual ecology of North American waterfowl, habitat and population ecology, and management, waterfowl identification, field trips, management plan, and current issues.

WFA 4423. Herpetology. (3) (Prerequisites: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Evolution, systematics, biology and ecology of reptiles and amphibians.

WFA 4433. Mammalogy. (3) (Prerequisites: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hours lecture. Three hours laboratory. Evolution, systematics, and ecology of mammals, with emphasis on North American groups.

WFA 4443. Ornithology. (3) (Prerequisites: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hours lecture. Three hours laboratory. Recent and fossil avifauna of the world; its origin, distribution, classification, and biology.

WFA 4453. Ichthyology. (3) (Prerequisites: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hours lecture. Three hours laboratory. Structure, evolution, classification, and life histories of fishes of the world with emphasis on North American freshwater forms.

WFA 4463. Human Dimensions of Fish and Wildlife Management. (3) (Prerequisite: Junior standing or consent of instructor). Three hours lecture. Survey of the major content areas of human dimensions. Emphasis on the considerations and implications associated with measuring, evaluating and influencing people's attitudes and behaviors.

WFA 4473. Wildlife and Fisheries Practices. (3) (Prerequisites: WFA 3133 and WFA 4153 and senior standing, or consent of instructor). Two hours lecture. Four hours laboratory. The integration of principles of ecology, wildlife and fisheries techniques and policies for effective planning and implementation of natural resource management.

WFA 4483/6483. Seminar in Tropical Biology. (3) (Prerequisites: WFA 3133 or consent of instructor). One hour lecture. Four hours laboratory. An introduction to the composition and function of tropical ecosystems of the New World.

WFA 4484/6484. Upland Avian Ecology and Management. (3) (Prerequisites: WFA 3133 and WFA 4153 and junior standing, or consent of instructor). Three hours lecture. Four hours laboratory. The application of ecological principles to management of wildlife populations, focusing on avian species and communities inhabiting upland ecosystems.

WFA 4494/6494. Large Mammal Ecology and Management. (3) (Prerequisites: WFA 3133 and WFA 4153 and junior standing, or consent of instructor). Three hours lecture. Four hours laboratory, alternate weeks. Ecological principles and applied methods used in the management of large mammals.

WFA 4512/6512. Advanced Topics in Human-Wildlife Conflicts. (2) (Prerequisites: WFA 4273/6273, WFA 4283/6283, or consent of instructor) Two hours lecture. Discussion, synthesis, and presentation of current issues in Human-Wildlife conflicts. Development of manuscripts and research proposal.

WFA 4521/6521. Advanced Topics in Human-Wildlife Conflicts II. (1) (Prerequisite: WFA 4512/6512) One hour lecture. Conduct data collection, analyses, interpretation, and writing of scientific manuscripts in instructor-approved area of human-wildlife conflicts.

WFA 8134. Research Methods in Wildlife and Fisheries Sciences. (4) (Prerequisites: Graduate standing; ST 8114). Three hours lecture. Four hours laboratory. Graduate level introduction to application of scientific methods to wildlife and fisheries ecology and management.

WFA 8144. Theory of Wildlife Population Ecology. (4) (Prerequisite: WFA 3133, ST 3133 or consent of instructor.) Three hours lecture. Two hours laboratory, weekly. Theory of wildlife population ecology including population growth, popu-

lation regulation, predation, and competition. Basic methods of data collection and population sampling.

WFA 8154. Quantitative Applications in Wildlife Population Ecology. (4) (Prerequisite: WFA 8144, ST 8114 or consent of instructor). Three hours lecture. Four hours laboratory weekly. Application of basic statistical analytical tools to address natural resource management research questions.

WFA 8212. Communication Skills in Wildlife and Fisheries. (2) (Prerequisite: Graduate student status in the Department of Wildlife and Fisheries). Two hours lecture. Effective strategies for professional communication to scientific and lay audiences in the fields of wildlife, fisheries, and other natural resources sciences and management.

WFA 8223. Management of Impounded River Ecosystems (3) (Prerequisites: WFA 6313/4313 or equivalent). A survey of guidance and criteria for managing reservoirs and associated riverine environments to enhance fisheries. Focus is on managing fish and their environment.

WFA 8243. Conservation Biology. (3) (Prerequisites: WFA 3133, BIO 3103 or consent of instructor). Three hours lecture. Theory and applications of conservation biology, measures of biodiversity, ecological geography, measures and treatments of decline.

WFA 8273. Advanced Fisheries Management. (3) (Prerequisites: WFA 4133/6133 and WFA 4313/6313 or consent of instructor) Three hours lecture. Field exercises during spring break. Advanced treatment of the multidimensional aspects of fisheries management in a global setting with emphasis on setting realistic objectives and establishing appropriate strategy.

WFA 8343. Conceptual Ecology and Natural Resource Management. (3) (Prerequisites: WFA 3133 or equivalent or consent of instructor). Three hours lecture. A forum to discuss current literature and theory that advances the study of community ecology and its application to natural resource management.

WFA 8344. Wildlife Habitat Analysis and Management. (4) (Prerequisite: BIO 4203). Three hours lecture. Four hours laboratory alternate weeks. Identification, ecology, analysis and management of plant communities of value to upland and wetland game species of North America.

WFA 8413. Advanced Fishery Science. (3) (Prerequisites: WFA 4133/6133 and ST 3123, or equivalents). Two hours lecture. Two hours laboratory. Estimation and interpretation of vital statistics of fish populations: analysis of fishery data using computers; models for assessment of fish stocks.

WFA 8423. Applied Bayesian Statistics in Ag/Natural Resources. (3). Two hours lecture. Four hours laboratory, alternate weeks. Bayesian statistics and Bayesian hierarchal models in wildlife, fishery, agricultural and other natural resource management applications.

WFA 8424. Applied Aquatic Biogeochemistry. (3). (Prerequisite: Instructor discretion). Two hours lecture. Two hours laboratory. Theory and application of aquatic biogeochemistry and water quality principles in aquatic systems through lecture and literature discussions. Laboratory sessions will encompass real-world techniques in water quality sampling and analysis.

# IV. FACULTY. EMERITI and STAFF 2011-2012

## **GILES DISTINGUISHED PROFESSORS**

Dr. Lori M. Bruce Dr. Janice E. Chambers Dr. Keith Coble Dr. Arthur G. Cosby Dr. Louis R. D'Abramo Dr. Mark Horstmeyer Dr. Robert L. King Dr. J. Elton Moore Dr. James Newman, Jr. Dr. Allison Pearson Dr. David R. Shaw Dr. W. Glenn Steele Dr. Rayford B. Vaughn, Jr.

#### FACULTY

- JAMES VINCENT AANSTOOS, Associate Research Professor, Geosystems Research Institute, Ph.D., Purdue University, 1996
- CRAIG H. AARHUS, Asst Professor/Asst Dir Bands, Band, DMA, University of Iowa, 2007 BEN R. ABADIE, Professor, Department of Kinesiology, EdD, University of Southern MS,
- SHERIF ABDELWAHED, Associate Professor, Electrical and Computer Engineering, Ph.D., University of Toronto, 2002
- LARRY T. ABERNATHY, Assistant Research Professor, Social Science Research, Ph.D., Mississippi State University, 2008 MATTIE LOU ABRAHAM, Assistant Professor, General Library, MLS, University Of Texas
- At Austin, 1971
- PATRICIA S. ABRAHAM, Lecturer, Instructional Syst & Workforce Devl, EdD, Mississippi State University, 1985
- JAMES H. ADAMS, Associate Professor, Instructional Syst & Workforce Devl, EdD, Oklahoma State University, 2000 WILLIAM L. ADAMS, Extension Instructor, Animal & Dairy Science, MS, Mississippi State
- University, 1987
- CAROLYN E. ADAMS-PRICE, Associate Professor, Psychology, Ph.D., West Virginia University, 1988
- NOEL D. ADDY, Associate Professor, School of Accountancy, Ph.D., University of Florida, 1985
- ANATOLI AFANASJEV, Professor, Physics & Astronomy, Ph.D., Foreign Institution, 1999 STAMATIS AGIOVLASITIS, Assistant Professor, Department of Kinesiology, Ph.D., Oregon
- State University, 2007 CHRISTOPHER RYAN AKERS, Assistant Extension Professor, School of Human Sciences,
- Ph.D., University of Georgia, 2007 ERIN YONG AKIN, Clinical Instructor, CVM Clinical Science Department, DVM, Auburn University, 2007
- VLADIMIR J. ALARCON, Assistant Research Professor, Geosystems Research Institute, Ph.D., Mississippi State University, 2000
- VAN L. ALEXANDER, Extension Professor, 4-H Youth Development, MEED, Mississippi State University, 1993
- ALBERT J. ALLEN, Professor, Agricultural Economics, Ph.D., Mississippi State University,
- EDWARD B. ALLEN, Associate Professor, Computer Science and Engineering, Ph.D., Florida Atlantic University, 1995
- PAUL W. ALLEN, Lecturer, Meridian Division of Business, DBA, Mississippi State University, 1994 PETER J. ALLEN, Assistant Professor, FWRC-Wildlife, Fisheries&Aquaculture, Ph.D.,
- University of California-Davis, 2005 THOMAS WARD ALLEN, Asst Extension/Research Prof, Delta Research and Extension
- Center, Ph.D., Auburn University, 2003
- SHRINIDHI S. AMBINAKUDIGE, Assistant Professor, Geosciences, Ph.D., Florida State University, 2006
- TERRY L. AMBURGEY, Professor, FWRC Forest Products, Ph.D., North Carolina State Univ At R, 1969 ELTON P. AMBURN, Associate Research Professor, Geosystems Research Institute, Ph.D.,
- University Of North Carolina, 1994 THEODORE GERALD AMMON, Lecturer, Meridian Division of Arts & Science, Ph.D.,
- Washington University, 1985 SHERI L. ANDERS, Lecturer, Meridian Division of Education, MS, Mississippi State
- University, 2001 DEREK T. ANDERSON, Assistant Professor, Electrical and Computer Engineering, Ph.D.,
- Univ Of Missouri-Columbia, 2010
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- CYNTHIA J. WARE, Marketing Coordinator, nSPARC, MS, Mississippi State University,
- LEE E. WARE, Research Associate II (L,P,S), Mississippi State Chemical Lab, BS, Alcorn State University, 1982
- ROCHERYL LATRESE WARE, Extension 4-H Agent II, Hinds County Extension Service, MS, Mississippi State University, 2003 BRADY G. WARREN, Coordinator of Info Systems, FWRC - Director, BS, Mississippi State
- University, 1988 MATTHEW B. WARREN, Web Designer I, User Services, BFA, Mississippi State University,
- 2003 ADRIENNE V. WASHINGTON, Business Manager I, School of Human Sciences, MSIT,
- Mississippi State University, 2001 ALEXANDER GERELL WASHINGTON, Financial Aid Counselor, Financial Aid, MPPA,
- Mississippi State University, 2011 GREGORY WASHINGTON, Teacher Intern Supervisor, Curriculum,Instruction & Special
- Ed, MA, Xavier University, 2000 PAUL WASHINGTON, Laboratory Technologist, CVM MS Veterinary Diagnostic Lab, BS, University of West Alabama, 2007
- LOUIS L. WASSON, Coordinator, Geosystems Research Institute, MS, Mississippi State
- University, 1985 ROY D. WATKINS, Building Services Supervisor, CVM Facilities Engineering
- SANDRA LYNN WATKINS, Technical Assistance Spec, Early Childhood Institute
- SHERAN R. WATKINS, Extension 4-H Agent III, Harrison County Extension Service, MA, University of Phoenix, 2005
- MATT A. WATSON, Graphic Artist, Office of University Relations, BFA, Mississippi State University, 2005 RHONDA H. WATSON, Librarian, Delta Research and Extension Center, MS, Delta State
- University, 1978
- JO ANN WATTS, Senior Research Assoc (L,P,S), Research Curriculum Unit, MED, Louisi-ana Tech University, 1981
- CHARLES E. WEATHERLY, Sr Director of Development, MS State University Foundation, BA, Mississippi State University, 1939 ANITA L. WEBB, County Extension Director III, Scott County Extension Service, BS, USM
- Long Beach Campus, 1981 MARGARET DEREE WEBB, Nursing Supervisor, SHC Clinical Care, AS, Meridian Com-
- munity College, 1979
- MARGARET N. WEBB, Extension 4-H Agent III, Lafayette County Extension Service, MS, Mississippi State University, 2004 SHARON B. WEBBER, Coordinator, CEP-MWTI (MS Writing/Thinking Inst)
- CANDACE BROOK WEED, Research Associate I (L,P,S), Dean of Education, MS, Missis-sippi State University, 2010
- JENNIFER MARIE WEIR, Project Coordinator, Curriculum, Instruction & Special Ed, MA,
- University of Southern MS, 2009 RACHEL CARTER WELBORN, Program Manager, Southern Rural Development Center, MS, Abilene Christian University, 1995
- LINDSAY KATHRYN WELCH, Assistant Director, Finance & Economics, MBA, Missis-sippi State University, 2009
- KENNETH R. WELLS, Coordinator of Computer System, CVM MS Veterinary Diagnostic Lab
- RYAN M. WERSAL, Postdoctoral Associate (L,P,S), Geosystems Research Institute, MS, Minnesota State University, 2002 PETRA WESCHE, Resident, CVM Pathobiology/Population Med Dep, DVM, Foreign
- Institution, 1998
- JAMES L. WEST, Dean & Professor, Dean of Architecture, Art, & Design, MA, University of Florida, 1979
- LAURA ELLING WEST, Managing Editor, Publications MS Quarterly, MLS, University Of North Carolina, 1993 WILLIAM DANIEL WHATLEY, Construction Administrator, Physical Plant Administration,
- BS, Mississippi State University, 2005 SERITA THERESA WHEELER, Research Associate II (L,P,S), Research Curriculum Unit,
- MS, Mississippi State University, 2008 CHAD ALLYN WHEELEY, Research Associate II (Eng), Mechanical Engineering, MS, Mis-
- sissippi State University, 2007 EVA M. WHITE, Assistant Dean & Director, Holmes Cultural Diversity Center, EDS, Missis-
- sippi State University, 2003 JOSHUA ANDREW WHITE, Research Associate I (L,P,S), Plant and Soil Sciences, MS,
- Tarleton State University, 2011 JULIE BROUSSARD WHITE, County Extension Director II, Oktibbeha County Extension
- Service, MS, Mississippi State University, 2003 LORIE A. WHITE, Business Manager II, Dean of Education
- MARY TEMPLE WHITE, Special Projects Srv Deliverer, CEP-Migrant Ed MEGAN KRISTEN WHITE, Extension 4-H Agent I, Jasper County Extension Service, BS,
- Mississippi State University, 2005 MICAH SAMUEL WHITE, Assistant Director, Student Support Services, MS, Mississippi
- State University, 2005 ROGER DELL WHITE, Teacher Intern Supervisor, Curriculum, Instruction & Special Ed,
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- TRENA G. WHITE, Benefits Manager, Human Resources Management WILLIAM E. WHITE, Facilities Coordinator, Foundation Herds, BS, Mississippi State
- University, 2000
- KINDRA LEIGH WHITLOCK, Extension 4-H Agent I, Tishomingo County Extension Service, BS, Auburn University, 2008
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- sity, 2007 HANNAH KATRINA WILDER, Research Associate I (L,P,S), Biological Sciences, BS, Winona State University, 2008

- BRITTANY LEANN WILEMON, Vet Benefit & Prg Counselor, Center for America's Veter-
- ans, BS, Mississippi State University, 2009 GERALD W. WILKERSON, Director & Associate Professor, MS Water Resources Research Inst, MLA, Louisiana State University, 1988
- BRIDGET V. WILLEFORD, Research Associate I (L,P,S), Lab Animal Veterinarian, DVM, Mississippi State University, 2001 CAMILLA RUTH WILLIAMS, Staff Psychologist, Student Counseling Services, Ph.D.,
- Michigan State University, 2004 DRUCILLA ANN WILLIAMS, Classroom Env Eval/MCCQSS Mon, Early Childhood Institute, MED, National-Louis University, 2006
- JENNIFER KELLY WILLIAMS, Extension Agent I, Northeast District Extension Office, BS,
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- State University, 1995 KAREN R. WILLIAMS, Business Manager I, FWRC Forest Products LATOYA ANDREA WILLIAMS, Athletic Academic Counselor, Athletic Academic Advising
- LINDA CHRISTINE WILLIAMS, Compliance Administrator, Regulatory Compliance & Safety, BA, University of Georgia, 1996
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- BSBA, University of Southern MS, 1988
- BEVERLY BARBER WILLIS, Field Supervisor, Early Childhood Institute, MED, Mississippi College, 1985
- GINAA. WILLS, Extension 4-H Agent III, Union County Extension Service, MS, Mississippi State University, 1996 ALLEN WIANT WILSON, Teacher Intern Supervisor, Curriculum, Instruction & Special Ed,
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AMYE I. ZWERSCHKE, Extension 4-H Agent I, DeSoto County Extension Service, BA, University of Mississippi, 2009

## **EMERITI ADMINISTRATIVE PERSONNEL**

WILLIAM M. BOST, Director Emeritus of Mississippi Coperatvie Extension Service ED BUCKNER, Sr. Director Emeritus of Support Services

VERNER HURT, Director Emeritus, Mississippi Agricultural and Forestry Experiment Station

LEWIS F. MALLORY, Vice President Emeritus for Business Affairs

DANIEL W. McCALIP, Comptroller Emeritus

GARNETT J. THOMAS, Administrative Office Emeritus, Mississippi Agricultural and Forestry Experiment Station

## A. MAJOR DIVISIONS and STAFFS

### **BUDGET and PLANNING**

### http://www.vpbp.msstate.edu/

Responsible for accounts payable, budget, cost accounting, financial records, campus mail services, payroll, procurement and contracts, receiving and property control, sponsored programs accounting, student accounting and receivables, travel and treasury services.

Don Zant, B.S., Vice President for Budget and Planning

J. Wayne Bland, M.C.S., Assoc. Vice President for Budget and Planning

### **CONTROLLER and TREASURER'S OFFICE**

### http://www.controller.msstate.edu

The Controller and Treasurer's Office primary mission is to (1) provide financial service to the University community and its customers, (2) protect the University's financial resources and (3) insure compliance with both internal and external financial regulations, policies and procedures.

Kevin Edelblute, M.B.A., Controller and Treasurer

- Betty Gentry, M.B.A., Assistant Controller for Treasury Services Jane Kinard, B.P.A., Assistant Controller for Accounts Receivable and Collections
- Denise Peeples, M.B.A., Assistant Controller for Sponsored Programs Accounting Ken Stewart, M.C.S., Associate Controller for Budget, Records,
- Reporting & Payroll
- June Dempsey, B.P.A., Assistant Controller for Budget & Payroll Amy Burchfield, C.P.A., Assistant Controller for Records & Reporting

### FOREST and WILDLIFE RESEARCH CENTER

### http://fwrc.msstate.edu

The Forest and Wildlife Research Center (FWRC) was authorized by the Mississippi Legislature with passage of the Renewable Natural Resources Act of 1994. The FWRC mission is to conduct research and technical assistance programs relevant to the efficient management, utilization, and protection and enhancement of the forest, wildlife, fisheries, aquaculture, and other aquatic resources of the state and region. Within the scope of this mission, the FWRC has responsibilities for developing through research: (1) natural resource management systems which ensure the optimal production of goods and services while protecting, sustaining and enhancing the upland and aquatic environments; (2) harvesting and manufacturing technologies that promote efficient utilization of the state's timber resources; (3) biological and economic data bases which address specific problems and opportunities related to the state's forest, wildlife, aquatic and fisheries resources, including environmental issues related to those resources; and (4) policy analyses which provide options for renewable resources management and use in Mississippi.

The research center is composed of the Departments of Forestry: Wildlife, Fisheries and Aquaculture; Forest Products, the Mississippi Water Resources Research Institute, and the Franklin Furniture Institute. The agency's base research program involves approximately 250 separate research activities and covers project work in 25 research areas in forestry, forest products, wildlife, fisheries, aquaculture, water, and other areas of natural resources. This research program serves a diverse number of clients which includes forest landowners, forest-based industries, federal and state agencies, private agencies and various forest and other natural resources user groups. Faculty in the Forest and Wildlife Research Center hold joint appointments in the College of Forest Resources, the College of Veterinary Medicine, Mississippi Agricultural and Forestry Experiment Station, and MSU Extension.

### **Forest and Wildlife Research Center**

George M. Hopper, Ph.D., Director Wes Burger, Ph.D., Interim Associate Director

### Forestry

Andy Ezell, Ph.D., Professor and Head

### **Forest Products**

Rubin Shmulsky, Ph.D., Professor and Head

Wildlife, Fisheries, and Aquaculture

Bruce D. Leopold, Ph.D., Professor and Head

Mississippi Water Resources Research Institute Wayne Wilkerson, Ph.D., Director

## **Franklin Furniture Institute**

William Martin, Director

## **MISSISSIPPI AGRICULTURAL** and FORESTRY EXPERIMENT STATION

### http://www.mafes.msstate.edu

The Mississippi Agricultural and Forestry Experiment Station (MAFES) operates under mandates of the U.S. Congress (1862 and 1887) and the Mississippi Legislature (1888) for the purpose of conducting scientific research in agriculture, forestry and related sciences. The foundation mission of MAFES is to improve the state's agricultural and aquacultural industries and the well-being of all Mississippians.

The success of agricultural research in the first 100 years has resulted in a highly complex food, fiber and fuel system that is the envy of the world - but one that is also characterized by the continuing emergence of new problems and opportunities. Thus, the foremost challenge of MAFES is maintaining a continuum of research discovery and education to keep Mississippi's agricultural producers viable and competitive in a global economy.

MAFES Headquarters (MSU Campus): The Leveck Animal Research Center, the Bearden Dairy Research Center, the R.R. Foil Plant Research Center and the Black Belt Branch Station at Brooksville provide field laboratories for on-campus scientists and represent all of the important plant and animal commodities produced in the State.

On-campus departments conducting research to meet these needs are: Agricultural Economics; Agricultural and Biological Engineering; Plant and Soil Sciences; Animal and Dairy Sciences; Biochemistry and Molecular Biology; Entomology and Plant Pathology; Food Science Nutrition and Health Promotion; Human Sciences; Poultry Science; the Social Science Research Center; Landscape Architecture, Veterinary Medicine, Life Science Biotechnology Institute and the Wildlife and Fisheries Aquaculture unit.

Off-campus activities are conducted through four regional research and extension centers and associated branch experiment stations in the various soil and types-of-farming areas of the State. Research efforts involve cooperative projects with scientists from on-campus departments and other branch stations, as well as collaboration with state and federal agencies, producers and private industry sponsors.

Central MS Research and Extension Center: The Brown Loam Branch Station near Raymond carries out an extensive program of beef cattle crossbreeding and management, forage, and field crop studies. At the Coastal Plain Branch Station near Newton, long-standing programs of field crops research blend with studies of wildlife management and Natural Resource Conservation. The Truck Crops Branch Station at Crystal Springs serve a populous of urban-rural area with research on both commercial greenhouses and home garden fruit and vegetable crops and ornamentals.

Coastal Research and Extension Center: The Seafood Processing Research Laboratory at Pascagoula was established in cooperation with the National Marine Fisheries Service and operates to develop processing technologies to enhance the utilization of later marine fishery resources and improve seafood quality and safety. The South MS Branch Station units at Poplarville, White Sand, McNeill and Beaumont conduct research on beef cattle, field and forage crops, agro-forestry, ornamentals and vegetables.

Delta Research and Extension Center: The Delta Branch Station at Stoneville employs an integrated, multidisciplinary approach to discover, develop, and demonstrate new technologies and improved germplasm for enhanced profitability and productivity of agricultural enterprises in the Yazoo River-Mississippi River Delta. Its research programs on the major crop and animal production systems of the Delta Counties (cotton, rice, soybean and catfish) are recognized nationally and internationally. Both the Southern Regional Aquaculture Center and the National Warmwater Aquaculture Research Center are located here.

North MS Research and Extension Center. The North MS Branch Station at Holly Springs emphasizes research on soil erosion management, and crop production systems using conservation tillage methods suitable for the soils of the region. The Horticulture Research and Education Unit at Verona conducts cultivar evaluations and cultural practices studies with vegetable, ornamental, and medicinal herbs crops. The Northeast MS Branch Station at Verona conducts conservation tillage systems research and variety evaluations for the major field crops of the regions. The Pontotoc Ridge-Flatwoods Branch Station at Pontotoc emphasizes sweet potato production and field crops. The Prairie Research Unit at Prairie focuses on utilizing forages in the economic and efficient production of beef, with emphasis on herd health management and improved conception and nutrition.

Extensive collaborative relationships with other state and federal agencies enhance the productivity and applicability of MAFES' research programs on-campus and off-campus. Representative participants include USDA/Agricultural Research Service (Small Grain Nurseries, Pasture Research Laboratory, Forage Research Unit, Corn Research Unit, Small Fruits Research Station, Southern Field Crop Insect Management Laboratory, Cotton Physiology and Genetics Research Unit, Southern Weed Science Laboratory, Field Crops Mechanization Research Unit, Soybean Production Research Unit, U.S. Cotton Ginning Laboratory, Soil Sedimentation Laboratory and Boll Weevil Research Laboratory): USDA/Natural Resources Conservation Service (Artificial Wetland and Global Change Monitoring Station); NOAA/National Weather Service ; MS Department of Agriculture and Commerce; MA Department of Wildlife, Fisheries and Parks; USDA/APHIS Animal Damage Control Unit; USDA/ Forest Service (Southern Hardwoods Laboratory); Tennessee Valley Authority; Mississippi Power Company; U.S. Army Corps of Engineers; and U.S. Department of Commerce (National Marine Fisheries Service).

Research programs of MAFES are both basic and applied. Basic research deals with long-range fundamental opportunities or problems in agriculture and the development of new knowledge. Applied research is directed toward early solution of problems of immediate concern facing farmers, processors and marketers of agricultural products, and all citizens of the state, whether urban or rural.

Research facilities to support the broad scope of research conducted by MAFES include chemical, biological, engineering, and computer laboratories; greenhouses and growth chambers; land for crops, orchards and forests; pastures and building facilities for beef and dairy cattle, sheep, hogs, and poultry; ponds and related facilities for aquaculture and the farm machinery and other equipment required to enable our scientists to conduct effective research programs. In addition, facilities and personnel of ARS, USDA and other federal and state agencies are strategically co-located to augment the total research effort.

While the primary mission of MAFES is agricultural and natural resource research for the State, its presence on the campus adds strength to both the teaching and extension programs. Most department heads and many other staff members have joint appointments involving teaching, research, and/or extension activities, and teach or administer instructional programs in agriculture, engineering, and art and sciences. Agriculture students at Mississippi State University have the opportunity to observe and participate in research, and MAFES provides graduate research assistantships and other part-time employment for many students.

MAFES Operates on state and federally appropriated funds supplemented by income from sales of products from the research projects. Grants and contracts from private industry and from other sources provide additional funds.

### PERSONNEL

Mark E. Keenum, Ph.D., President Greg Bohach, Ph.D., Director Jonathan W. Pote, Ph.D., Associate Director Reuben B. Moore, Ph.D., Associate Director

Agricultural Economics Steven C. Turner, Ph.D., Professor and Head

Agricultural and Biological Engineering Jonathan W. Pote, Ph.D., Professor and Head

Animal and Dairy Science

Terry E. Kiser, Ph.D. Animal Scientist and Dept. Head

### **Biochemistry, Molecular Biology** and Entomology and Plant Pathology

Scott Willard, Ph.D., Interim Head and Molecular Biologist

Food Science, Nutrition and Health Promotion Juan Silva, Ph.D., Professor and Interim Head

#### Human Sciences

Michael Newman, Ph.D., Director

### Plant and Soil Sciences

Mike Phillips, Ph.D., Professor and Head

**Poultry Science** 

- David Peebles, Ph.D., Interim Head
- Research Support Units Black Belt Branch Station, Brooksville Frank E. Boykin, Manager
- Experimental Statistics Dennis E. Rowe, Ph.D., Research Professor
- Social Science Research Center
- Arthur G. Cosby, Ph.D., Director
- Veterinary Medicine Steve Pruett, Ph.D., Interim Assoc Dean, Res. and Grad. Studies

Wildlife and Fisheries

Bruce D. Leopold, Ph.D., Professor and Head

Central MS Research and Extension Center, Raymond Dwayne Wheeler., M.S., Extension/Research; Professor & Head

- Delta Research and Extension Center, Stoneville Steven Martin, Ph.D., Interim Head and Assoc Extension Professor
- Southern Regional Aquaculture Center, Stoneville C. S. Tucker, Ph.D., Director
- North Mississippi Research and Extension Center, Verona Cary W. Nerndon, Ph.D., Head

Coastal Research and Extension Center, Biloxi Patricia Knight, Ph.D., Head

## MISSISSIPPI STATE UNIVERSITY EXTENSION SERVICE

The Mississippi State University Extension Service provides research-based information and educational programs in agriculture and natural resources, 4-H youth development, family and consumer matters, and enterprise and community resource development to improve the economic, social, and cultural well-being of Mississippians.

As part of a three-way partnership of the U.S. Department of Agriculture, the land-grant university system, and individual counties, it provides information and educational programs in all of the state's 82 counties. MSU Extension also cooperates with Alcorn State University, Mississippi's other land-grant institution.

The Extension Service supports positive change for individuals, families, and communities by providing practical, directly applicable information and educational opportunities using the latest information technologies and proven teaching techniques. To achieve its mission, the Extension Service develops and uses volunteers to assist with program delivery, collaborates with many other organizations, and maintains a culturally diverse staff responsive to the needs of people at all socioeconomic levels.

Programs are conducted primarily by county Extension agents supported by specialized area agents and state-level and area specialists responsible for gathering, interpreting, and disseminating information about the latest research findings and technological developments.

Agriculture and its related enterprises are of major economic importance in Mississippi. Also directly affecting quality of life are the relationship between people and their environment and the continuing need for human resource development. The Extension Service directs its programs and resources accordingly and continues to pursue innovative ways to help families, youth, and communities adjust and thrive in an ever-changing world.

### PERSONNEL

Mark E. Keenum, Ph.D., President of the University

- Gregory A. Bohach, Ph.D., VP DAFVM
- Gary Jackson, Ph.D., Director, MSU Extension Service
- Joe Street, Ph.D., Associate Director, MSU Extension Service and Interim State Program Leader Ag & Natural Resources, Extension Research Professor

Susan L. Holder, Ed.D., State Program Leader, 4-H Youth Development

Paula Threadgill, Ph.D., State Program Leader, Family & Consumer Sciences; Professor, Human Sciences

### **Agricultural Economics**

Steven Turner, Ph.D., Professor and Head

### **Agricultural and Biological Engineering**

Jonathan Pote, Ph.D., Professor and Head

## Animal and Dairy Science

Terry E. Kiser, Ph.D., Professor and Head

## **Center for Governmental Technology**

Sumner Davis, M.A., Extension Professor and Interim Leader Central Mississippi Research & Extension Center, Raymond

Stephen Dicke, Ph.D., Extension/Research Professor & Interim Head

## Coastal Research and Extension Center, Biloxi Patricia R. Knight, Ph.D., Extension/Research Professor and Head

### Computer Applications and Services

Randy Loper, M.S., Interim Department Head

Delta Research and Extension Center, Stoneville Steve Martin, Ph.D., Assoc Extension Professor and Head

### Biochemistry, Molecular Biology, Entomology and Plant Pathology Scott Willard, Ph.D., Professor and Head

Food Science, Nutrition and Health Promotion Juan Silva, Ph.D., Professor and Interim Head

Forestry

Andrew W. Ezell, Ph.D., Professor and Head

## 4-H—Youth Development

Susan L. Holder, Ed.D., State Program Leader

## Geosystems Research Institute

Robert Moorhead, Ph.D., Director

## School of Human Sciences

Michael E. Newman, Ph.D., Director and Professor

North Mississippi Research and Extension Center, Verona Bill Herndon, Ph.D., Extension/Research Professor and Head

Office of Agricultural Communications Bob Ratliff, M.S.S. Interim Head

## Plant and Soil Sciences

Mike Phillips, Ph.D., Professor and Head

### **Poultry Science**

David Peebles, Ph.D., Professor and Interim Head

### Southern Rural Development Center

Lionel J. Beaulieu, Ph.D., Director, SRDC

Al Myles, Ph.D., Interim Associate Director

### Wildlife and Fisheries

Bruce D. Leopold, Ph.D., Professor and Head

## **COUNTY PERSONNEL**

Each of the 82 counties has a core Extension Staff to address 4-H youth development and community needs. In addition, there are program assistants working in targeted nutrition programs. The total number of professionals is approximately 200.

### UNIVERSITY LIBRARIES

### http://library.msstate.edu/

The University's major library collections and functions are housed in the Mitchell Memorial Library, which occupies a central location on the campus. The University Libraries provide access to over 88,000 periodical/journal titles in print and electronically. The Special Collections Department contain materials of historical value, including 491 manuscript collections, church and business records. The Congressional and Political Research Center houses the papers of a number of public figures important to Mississippi - most notably those of U.S. Senator John C. Stennis. The Archives of the University includes papers of the University's presidents and other officers, college, division and departmental records, faculty papers, records of committees and university related organizations. The Library provides an environment for education technology activities and a learning center of techniques related to digital multimedia in the Instructional Media Center. The Library's Computer Commons lab is open until 1:45 a.m., Sunday through Thursday, until 7:45 p.m. on Friday, and until 5:45 p.m. on Saturday.

The University Libraries supports branch libraries for the College of Architecture, Art and Design, College of Veterinary Medicine, MSU Meridian Campus and Jackson 5th Year Architecture Program.

Frances N. Coleman, Dean of Libraries

## UNIVERSITY REGISTRAR

### http://www.msstate.edu/dept/registrar

The Office of the University Registrar is responsible for supervising the scheduling of classes, managing the registration of students in courses, recording grades, and maintaining academic records and transcripts of all students and alumni of the University.

Bobby R. Stokes, M.B.I.S., Registrar

## **B. INTERNAL SERVICE UNITS**

## INFORMATION TECHNOLOGY SERVICES

### http://www.its.msstate.edu/

The mission of Information Technology Services (ITS) is to enable learning, service, and research through an advanced information technology environment. The mission is fulfilled through three operational units within ITS - Information Technology Infrastructure, User Services, and Enterprise Information Systems. ITS supports and operates the University's voice, data, video and wireless networks and provides a broad array of computing and information technology resources and services for students, faculty, and staff, including Internet, Internet2, and National Lambda Rail access. The ITS Help Desk is available to answer questions and help with computer-related problems. A comprehensive suite of workshops is offered to aid faculty and staff in learning new hardware and software. See www.its.msstate.edu for more information.

Mike Rackley, M.S., Chief Information Officer, Information Technology Services

Rene Hunt, M.C.S, Director, Enterprise Information Systems Timothy Griffin, B.S., Director, Information Tech. Infrastructure Steve Parrott, B.S., Director, User Services

### OFFICE of INSTITUTIONAL RESEARCH and EFFECTIVENESS

#### http://oire.msstate.edu

The Office of Institutional Research and Effectiveness (OIRE) provides appropriate and timely information to decision makers at Mississippi State University, the Board of Trustees of State Institutions of Higher Learning, the Federal government, and other constituents. OIRE is also responsible for providing leadership necessary for maintaining Mississippi State University's accreditation with the Southern Association of Colleges and Schools (SACS) and facilitating the development and implementation of assessment programs emphasizing continuous improvement in fulfilling MSU's overall teaching, research, and service mission.

The Institutional Research staff analyzes and prepares reports relevant to evaluating faculty workload, student credit hours produced and departmental data vital in the allocation of university resources. The staff assists the university community through its research, consulting, and survey activities. Evaluation and Test Service utilizes optical scanning equipment to score and analyze faculty-constructed tests, processes, questionnaires and student evaluation of instruction.

The Institutional Effectiveness staff facilitates the development and implementation of assessment programs emphasizing continuous improvement in fulfilling MSU's overall teaching, research, and service mission. The staff uses organizational assessment tools to help departments and units improve key processes, assess institutional needs, and develop institutional effectiveness plans that achieve the goals outlined in Mississippi State's strategic plan

Timothy N. Chamblee, Ph.D., Director

### POLICE DEPARTMENT

### http://www.msstate.edu/dept/police/

It is the mission of the Police Department to support the university and its community by providing effective and efficient services that assist in establishing a safe and secure environment.

The department is staffed 24 hours a day with highly trained officers to enforce the laws, and university rules and regulations. Additionally, police officers actively work with the campus community in providing crime prevention information and addressing crime, safety, and security issues.

Georgia Lindley, Chief of Police

## C. RESEARCH UNITS

## OFFICE of the VICE PRESIDENT for RESEARCH and ECONOMIC DEVELOPMENT

### Office: 617 Allen Hall http://www.research.msstate.edu

The Office of Research and Economic Development is the administrative unit for the coordination of all basic and applied research of the University in the areas of Architecture, Art and Design; Biological and Physical Sciences; Education; Engineering; Business and Economics; Humanities and the Social Sciences. Units include the following: Office of Entrepreneurship and Technology Transfer, Office of Research Security, Laboratory Animal Veterinarian, Radvanyi Chair in International Studies, the Mississippi State Chemical Laboratory, and Centers and Institutes: Center for Educational and Training Technology, Center for Safety and Health, Center for Science, Math and Technology, Geosystems Research Institute, Institute for Imaging and Analytical Technologies, National Strategic Planning and Analysis Research Center, Research and Curriculum Unit, Social Science Research Center (Mississippi Alcohol Safety Education Program). In addition, there are separately organized research units in the various schools and colleges. Interdisciplinary research is promoted and coordinated by the Office of Research and Economic Development.

With a core of excellent scientists, engineers, and economists, aided by numerous graduate research assistants, Mississippi State University contributes to the economic growth of the state. Extensive resources are available to assist economic, industrial, and governmental organizations desiring help in discovery, design, and the development of new products. The Office of Research and Economic Development and the Division of Agriculture, Forestry and Veterinary Medicine work together in the performance of their missions to do basic and applied research.

David R. Shaw, Ph.D., Vice President for Research

and Economic Development

- Melvin C. Ray, Ph.D., Associate Vice President for Economic Development
- Rayford B. Vaughn, Jr., Ph.D., Associate Vice President for Research

Teresa Gammill, Ph.D., Assistant Vice President for Research

## OFFICE of ENTREPRENEURSHIP and TECHNOLOGY TRANSFER

Office: 100 Research Blvd, Suite 120 http://oett.msstate.edu

The Entrepreneurship Center and Office of Technology Commercialization have been merged in a move designed to enhance the university's relations with business and industry. The new Office of Entrepreneurship and Technology Transfer continues to boost the university's efforts to efficiently capture, protect, manage and accelerate the commercialization of university-owned and student-generated intellectual property (IP). The IP stems from new ideas, inventions, software and other creative works generated by research and other scholarly activity.

The OETT team seeks to serve the university and its stake-holders by facilitating the transition of IP to the marketplace. Please contact OETT with your creative works for counsel and assistance on IP protection and commercialization as well as entrepreneurial plans prior to public disclosure.

Gerald Nelson, Director

### **OFFICE of LABORATORY ANIMAL RESOURCES**

### Office: 2008A Wise Center

The Office of Laboratory Animal Resources is a University-wide resource that provides veterinary care, technical support, compliance monitoring, and program direction and planning for regulated animals used in biomedical research and teaching, and some agricultural research. The Vice-President for Research serves as the Institutional Official for regulated animal research and is advised by the University's Institutional Animal Care and Use Committee (IACUC) to ensure that the programs of animal care and use conform to local, state, and Federal regulations and guidelines for animal care and use. The programs of animal care and use in the College of Arts and Sciences and the College of Veterinary Medicine maintain international accreditation through the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC). Mississippi State University maintains an Animal Welfare Assurance with the Office of Laboratory Animal Welfare within the Public Health Service (NIH).

Lucy H. Senter, DVM, M.S., DACLAM, Director of Lab Animal Resources and University Veterinarian

### **RADVANYI CHAIR in INTERNATIONAL SECURITY STUDIES**

Office: 244 Magruder

http://www.msstate.edu/chair/radvanyi

On June 11, 1996, the endowed Chair in International Security and Strategic Studies was established with Dr. Janos Radvanyi as the first chair holder. On June 22,1998, Dr. Malcolm Portera, President, Mississippi State University, named the Chair in Dr. Radvanyi's honor, the Radvanyi Chair in International Security Studies. The Chair manages the Center for International Security and Strategic Studies (CISS) which devotes full attention to vital global problems, with special emphasis on the complex security issues of the post-communist Era. It alerts to America's vulnerability by not having a reliable defense against hostile missile attacks. The Chair is studying U.S. counter terrorism policy and is monitoring German-European and American relations and the insight of the workings of the European Union and Asian Security issues. The Chair, through its Executive Lecture Forum (ELF) provides a unique outreach program, hosting internationally respected speakers from around the globe to address the membership. Its publications reach government agencies, think-tanks, and major libraries. This exclusive lecture forum counts as its members Mississippi business executives, academicians, and state government representatives, and meets on a regular basis, several times a year. Through the Chair, both students and faculty are provided with a wide range of opportunities to gain awareness of international, political, economic, and cultural issues.

Janos Radvanyi, Ph.D., Chair

## OFFICE of REGULATORY COMPLIANCE and SAFETY (ORCS)

Office: 53 Morgan Ave. http://www.orc.msstate.edu

Regulatory Compliance and Safety is a unit of the Office for Research and Economic Development. ORC has two major functions: (1) to provide support and training in the regulatory requirements for the conduct of scientific research, instruction and extension programs in the areas of human subjects research, animal care and use, and recombinat DNA technology and (2) to oversee programs in lab safety, fire safety, biological safety, radiological safety, chemical hygiene and hazardous waste management.

The three regulatory committees include the Institutional Review Board (IRB) which monitors the use of humans in research, the Animal Care and Use Committee (IACUC) and the Institutional Biosafety Committee (IBC). Each area has a compliance administrator who assists researchers in meeting compliance requirements, facilitating committee reviews and monitoring compliance.

Each safety program has a safety officer. The Safety Officer oversees the safety program for teaching and research labs, reviews Worker's Comp data, and coordinates First Aid/CPR and Defensive Driving training. The Biosafety Officer provides support and training in the handling and containment of infectious organisms and recombinant DNA. The Radiological Safety Officer administers the University's radioactive materials license and x-ray registrations. The Chemical Hygiene Officer manages the University's chemical disposal program and provides general and chemical laboratory safety services and training.

Kacey J. Strickland, Director Patricia D. Cox, Ph.D., Assistant Director Jonathan E. Miller, Assistant Director

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#### SPONSORED PROGRAMS ADMINISTRATION

# Office: 133 Etheredge Hall http://www.spa.msstate.edu

Sponsored Programs Administration (SPA) is a component of the Office of Research and Economic Development. This office is responsible for the administration of external proposal activities and pre-award and post-award contractual negotiations of fiscal and administrative matters. Services provided by Sponsored Programs Administration include: Review the proposal for consistency with University mission and policies; Review the budget for compliance with University policies, Cost Accounting Standards and sponsor guidelines; Prepare the required "Representations and Certifications;" Verify that all required reviews have been conducted on proposals that involve research using animals, human subjects, radioisotopes, biohazards, creation of hazardous waste, conflict of interest, and department; Verify that all appropriate arrangements have been made and documented for projects involving extra space allocation, renovation, new courses, campus housing, etc.; Review RFP terms and conditions and if, appropriate or necessary, prepare an exceptions letter to submit with the proposal; Assign a proposal log number; Prepare a transmittal letter to the sponsoring agency; Forward the proposal, transmittal letter, etc. to the sponsor; Distribute a copy of the proposal, transmittal letter, etc. to the Principal Investigator's immediate cognizant administrative unit (e.g. department head, center director or director of research); Maintain records of proposal activities for periodic reporting to the President, Board, etc.; and assist faculty and staff in administrative problem-solving associated with their sponsored projects.

Richard Swann, Director

#### **MISSISSIPPI STATE CHEMICAL LABORATORY**

#### Office: 1145 Hand Lab http://www.mscl.msstate.edu

The State Chemical Laboratory was established in 1892 with the control of fertilizer quality as its primary responsibility. Subsequent legislation added duties in the areas of animal feed control, pesticide control, food control, paint and varnish control, and petroleum products control.

In 1970 the Legislature redefined and clarified the purpose and operations of the Mississippi State Chemical Laboratory under the Office of the State Chemist. Four divisions were established: the Chemical Regulatory Division, the Petroleum Products Division, the Industrial and Agricultural Services Division, and the Research Division. Operation of the first two divisions was continued practically unchanged from the practice of many years. The Industrial and Agricultural Services Division and the Research Division are an expansion of services formerly performed by the Chemical Regulatory Division.

The Chemical Regulatory Division carries out regulatory control programs in food, animal feeds, fertilizers, economic poisons, and paints and varnishes.

The Petroleum Products Division conducts regulatory control testing on petroleum and related products.

The Industrial and Agricultural Services Division provides laboratory analysis and scientific and engineering consultation to industries and individuals residing in or doing business in the state. The guiding principle in services shall be that they contribute to the economic growth of Mississippi or to the welfare of its citizens. Charges are assessed for all services and are self-supporting but nonprofit.

The Research Division conducts self-supported, grant, or contract research having immediate or potential influence on the economic growth and promotion of agriculture or industry in Mississippi, or on improvement of the Laboratory's analytical capabilities.

- Kevin L. Armbrust, Ph.D., State Chemist; Associate Professor of Chemistry
- Jose Rodriguez, Ph.D., Director, Regulatory and Petroleum Programs
- Ashli Brown, Ph.D., Interim Director of Industrial and Agricultural Services and Research

# **CENTERS and INSTITUTES**

# **CENTER for ADVANCED VEHICULAR SYSTEMS (CAVS)**

# http://www.cavs.msstate.edu

CAVS is an interdisciplinary center comprise of engineering, research, development, and technology transfer teams focused on enhancing human and payload mobility. The CAVS activities are clustered around material science, manufacturing process modeling, computational mechanics, computational fluid dynamics, multi-scale modeling, vehicular systems engineering, design optimization, human factors and ergonomics, alternative powered systems, and intelligent electronic systems. While CAVS projects generate timely solutions relevant to regional manufacturers, CAVS research seeks to expand knowledge that is essential for sustained economic development. Through direct involvement in various activities at CAVS, students gain valuable experience that leverages on their classroom learning. CAVS also serves as the academic department for the college's graduate program in Computational Engineering. In support of its mission, CAVS also offers a direct interface to manufacturers and industries throughout the state and region via the CAVS Engineering Extension, located in Canton, Mississippi. The services offered by the CAVS Engineering Extension include discrete event simulation, Six Sigma, lean manufacturing, and metrology.

As a result of CAVS' application-driven, team-oriented approach to research we have contributed to:

- improved vehicle performance and reduced design cycle time and cost;
- timely generation of knowledge on the behavior and capabilities of missile, flight, naval, vessels and other physical systems;
- analysis of behavior and performance of engineering systems (including humans) under adverse or catastrophic conditions;
- development of high-fidelity simulation tools and training;
- simulation and design systems to both enable and support designers and manufacturers of land, sea, air, and space vehicular systems.

Roger L. King, Ph.D., Director

Zachary Rowland, M.S., Deputy Director

#### **CENTER for EDUCATIONAL and TRAINING TECHNOLOGY**

#### Office: 309 Bost

#### http://www.cett.msstate.edu

The Center for Education and Training Technology was created in 1996 as a university level center to provide for the development and implementation of innovative software-based technologies focused at enhancing teaching and learning at all educational levels. The Center operates with an interdisciplinary approach drawing expertise from various colleges and departments from across the University, state and federal agencies, and corporate America. The goals and objectives of the Center are met through the efforts of the two working groups, the Professional Development Group and the Interactive Software Development Group. Beyond technology development, major emphasis is placed on improving education through providing training and staff development related to the effective use of information technologies and the integration of those technologies into the learning environment.

R.D. Brook, Ed.D., Director

#### CENTER for SAFETY and HEALTH

#### Office: Suite B, 2151 Hwy 18; Brandon, Mississippi 39042 http://csh.msstate.edu

The Center for Safety and Health is a federal grant program. It was created in 1978 as a part of the Mississippi State Board of Health. In 1992 it was relocated to the Mississippi Workers' Compensation Commission. In 1994, it was transferred to Mississippi State University and designated a center.

The purpose of the Center is to provide assistance to small and medium size high hazard business employers in Mississippi by helping them come into compliance with the regulations of the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). The services provided by the Center are free of charge, confidential, and conducted only at the request of the business employers. During the consultation visit, an opening conference is held to define the consultation procedure, and explain employer's recordkeeping and program requirements. Also during the opening conference the employers' obligations are addressed. The employer must agree to correct all identified imminent danger and serious hazards. During a conducted tour of the survey site or facility, production processes, methods of operation, and facilities are assessed for potential and observed hazards. Health and safety conditions present in the workplace are evaluated by the use of appropriate monitoring equipment. A closing conference is held to review the observed safety and health hazards and to suggest initial corrective measures. The consultant then prepares a report to describe any hazards as related to applicable standards and to make recommendations for correction and/ or control measures.

Kelly M. Tucker, B.S., Director Davern A. Jones, Program Manager Jennifer Dale, B.S., Assistant Director

# **CENTER for SCIENCE, MATHEMATICS and TECHNOLOGY**

Office: 94 President's Circle http://csmt.msstate.edu

The Center for Science, Mathematics and Technology was created in 1996 to facilitate multidisciplinary research with a focus on science and mathematics education. Concentrating on human resource development issues in preparing people for work, in gender equity, in curriculum reform and in environmental education, the Center has actively pursued research projects in teacher enhancement, advanced technology and faculty development from extramural sources. Under supervision of the Vice President for Research, the Center will continue to undertake collaborative research projects with other Mississippi State University departments and units supporting educational reform, faculty enhancement, environmental education, and encouraging participation of women and minorities in science, engineering, mathematics and technology.

Sandra H. Harpole, Ed.D., Director

#### **GEOSYSTEMS RESEARCH INSTITUTE (GRI)**

Office: HPC<sup>2</sup>, Research Park http://www.gri.msstate.edu

The Geosystems Research Institute (GRI) integrates academic and operational campus units active in research and educational activities in resource management through use of geospatial technologies. GRI's focus is in agriculture, forestry, water resources, information technology, visualization techniques and computational modeling. The Institute supports the research efforts of faculty within the University and collaborates with other public and private research institutions.

The mission of the Institute is to understand and predict earth's systems and develop geospatial technologies that promote their stewardship, sustainability, and contributions to prosperity. Its vision is to advance geospatial discovery, knowledge, and education to improve decision making.

GRI's objectives are to:

• Create an organization that is able to rapidly and effectively respond to opportunities and challenges that arise.

• Enable outstanding research, innovation, and applications by developing unique geosystems infrastructure, data streams, modeling and capabilities.

• Expand and improve the quality of, access to, research opportunities with, and applications using advanced geospatial knowledge, observational data, information technology, and modeling.

• Foster a working environment that is challenging, collegial, entrepreneurial, inclusive, nurturing, outward-looking, and team-rewarding.

• Educate and train a next generation of geosystems-literate scientists, innovators, and educators.

• Develop new and innovative information products, tools, and technologies that support understanding, decision-making, and sustainable management of natural systems and resources.

• Enhance the academic reputation of the Institute, and the University, by establishing and upholding rigorous metrics for publications, research support, education and outreach, and societal impact.

Robert J. Moorhead, Ph.D., Director

Phil Amburn, Ph.D., Deputy Director

Bill McAnally, Ph.D. Associate Director

Bill Cooke, Ph.D., Associate Director

## NORTHERN GULF INSTITUTE (NGI)

Administrative Office: HPC2, Research Park Program Office: Stennis Space Center, Bay St. Louis, MS http://www.northerngulfinstitute.org

The Northern Gulf Institute (NGI) is a NOAA Cooperative Institute that develops, operates, and maintains an increasingly integrated research and transition program focused on filling priority gaps and reducing limitations in current Northern Gulf of Mexico awareness, understanding and decision support. The institute is a collaboration led by MSU that includes the University of Southern Mississippi, Louisiana State University, Florida State University, and the Dauphin Island Sea Lab.

The mission of the NGI is to conduct high-impact research and education programs in the Northern Gulf of Mexico region focused on integration - integration of the land-coast-ocean-atmosphere continuum; integration of research to operations; and integration of individual organizational strengths into a holistic program. The program shall measurably contribute to the recovery and future health, safety, resilience and productivity of the region, through sustained research and applications in a geospatial and ecosystem context.

NGI research focuses on four themes:

**Ecosystem Management** – Characterize Northern Gulf of Mexico Coastal Wetland and Fisheries Habitats, including Restoration Strategies.

Geospatial Data Integration and Visualization in Environmental Science – Develop significant results at the intersection of inland/ watershed-coastal waters and resources, with a particular focus on the research, development, prototype testing, and transition of scientificallybased geospatial observations, integration and improved access to data, and increased use of effective visualization technology.

**Climate Change and Climate Variability Effects on Regional Ecosystems** - Contribute to Northern Gulf of Mexico Climate Assessment and Impact Models.

**Coastal Hazards** - Strengthen the Integration of Watershed, Estuarine and Coastal Models in the Northern Gulf of Mexico.

Robert Moorhead, Ph.D., Director Bill McAnally, Ph.D., Co-Director

### **RESEARCH and CURRICULUM UNIT**

Office: 103 Russell Street http://info.rcu.msstate.edu/

The Research and Curriculum Unit (RCU) provides secondary and community college teachers and instructors with educational curriculum, assessment and evaluation tools to improve teaching and learning. The RCU's core mission is to research and develop curricula and assessment resources for all Mississippi Career and Technical education programs. The RCU offers a wide variety of professional development opportunities ranging from using online learning tools and developing multimedia course materials to dramatically improving schools through team training that focuses on high performance leadership skills.

The Mississippi State RCU outreach projects support partnerships among community colleges and state universities, industry, and public school districts in their endeavor to create workforce leadership for the next century. RCU educational specialists take pride in developing innovative approaches that address future workforce needs impacting our state economy. In essence, the RCU creates intellectual property that positively affects and ultimately ensures Mississippi a competitive, prepared future workforce.

Julie Jordan, M.S., Director

# SCIENCE and TECHNOLOGY RESEARCH CENTER

#### Office: John C. Stennis Space Center

The Science & Technology Research Center (STRC) has been located at The John C. Stennis Space Center (SSC) in Hancock County, MS., since the mid sixties. It provides research coordination and factfinding assistance as a liaison office to all MSU faculty with Federal and State Agencies at SSC and elsewhere on the Mississippi Gulf Coast. Additionally, STRC coordinates research projects through the Mississippi Research Consortium (MRC) for MSU, UM, JSU, and USM.

Glade Woods, Director

#### FRANKLIN FURNITURE INSTITUTE

#### 212 Franklin Center http://www.ffi.msstate.edu

The Franklin Furniture Institute's (FFI) mission is to help build sustainability and enhance international competitiveness of the furniture industry's value chain throughout the region while enhancing economic growth. FFI's vision is to be a nationally-recognized center of knowledge and outreach to the furniture and home furnishings industry. As a collaborative effort of interdisciplinary units, FFI partners with the Colleges of Business, Architecture, Art and Design, Bagley Engineering, and Forest Resources to help fulfill its mission. External collaborative partners include Mississippi Development Authority, US Department of Commerce, American Home Furnishings Alliance, Southeastern Home Furnishings Association, and the Mississippi Manufacturers Association.

Supporting comprehensive furniture research, technical support and assistance, workforce and management training, outreach, and component and product testing to the furniture value chain, FFI provides assistance in areas such as market analysis, strategy development, customer surveys, lean manufacturing, value stream mapping, business planning, web site development, supervisor training, IT assessment, logistics and supply chain management, and environmental sustainability. The Institute also works with scholarship foundations to secure student aid for MSU students interested in a career in the furniture and home furnishings industry. FFI has also developed an Export Resource Service (ERS) which provides the furniture and home furnishings industry with strategies that will assist them in becoming more competitive in the global marketplace. Targeted at manufacturers and suppliers, ERS works to expand export opportunities and increase knowledge in exporting by providing global trade leads, networking with export businesses in finance, logistics, and other essential business requirements.

Bill Martin, Director

#### SOCIAL SCIENCE RESEARCH CENTER

#### Office: 1 Research Blvd., Suite 103

http://www.ssrc.msstate.edu

The Social Science Research Center (SSRC) was established at MSU in 1950 to promote, enhance and facilitate social science research and scholarly activities. Organized as a university-wide Center, it reports to the Vice Presidents for Research and Economic Development and Agriculture, Forestry and Veterinary Medicine. Housed in the Thad Cochran Research and Technology Park, it offers researchers an array of opportunities and options, state-of-the-art facilities, and support units to enhance their research endeavors. It fosters a rigorous, independent, and interdisciplinary environment and seeks to ensure objective, relevant and unbiased analyses of social, economic, political, human resource, and social-environmental problems.

The SSRC relies on the expertise, talents, and entrepreneurial skills of its scientists, who provide the impetus and direction of its research program. Fellows and associates, supported by an administrative staff and student assistants, conduct both sponsored and unsponsored projects. Recognizing the importance of combining the expertise and capacities of multiple institutions, disciplines and professions in addressing complex problems, it forms partnerships, strategic alliances and collaborative agreements with agencies, off-campus national-level research organizations, and professional groups. This provides a steady stream of innovative projects and creative investigations funded by federal and state agencies, foundations, MSU units, and other public and private entities.

It contributes to the university's educational program by involving students in research projects and offers a vehicle for unique social research and public service programs that do not fit traditional academic structures. The SSRC follows the land grant tradition by serving Mississippi and the nation through research, education and public service.

Arthur G. Cosby, Ph.D., Director

#### INDUSTRIAL OUTREACH SERVICE

Office: 137 ICET (205 Research Blvd.) http://ios.msstate.edu

The MSU Industrial Outreach Service (IOS) is an outreach unit of the James Worth Bagley College of Engineering that provides services to business and industry. The primary mission of IOS is to assist Mississippi businesses in becoming more competitive in the global economy, with a focus on small- to medium-sized manufacturers. Secondary missions include supporting the development of new industries for the state, and fostering faculty and student engagement with business and industry. To accomplish these missions IOS provides technical assistance and management training to businesses and partners with industry organizations and economic development groups.

Joe D. Jordan, Ph.D., Director

#### T.K. MARTIN CENTER for TECHNOLOGY and DISABILITY

Office: T.K. Martin Center http://www.tkmartin.msstate.edu

The T.K. Martin Center for Technology and Disability at Mississippi State University was created in 1994 as a unique entity which provides direct clinical service in assistive technology for individuals with disabilities in an environment that promotes application and research.

The T.K. Martin Center for Technology and Disability works with individuals to provide evaluation, prescription and training of a variety of assistive technologies, from design and fabrication of mechanical devices to computer based technologies. The Center collaborates with other University Centers, Institutes and Departments on research issues involving new technologies and technology integration issues.

The T.K. Martin Center for Technology and Disability is located adjacent to the Longest Student Health Center.

Janie Cirlot-New, M.S., CCC/SLP, Director

### INSTITUTE FOR IMAGING AND ANALYTICAL TECHNOLOGIES

#### Clay Lyle Entomology Building and Premier Health Complex http://www.i2at.msstate.edu

I<sup>2</sup>AT is a university research institute and core facility which meets MSU's missions in research, teaching and service by housing major research instrumentation that is available to faculty, staff, students, and outside users. Instrumentation includes technologies for diverse microscopy (light, confocal, atomic force, and electron) and microanalysis (e.g. X-ray diffraction) applications, in addition, to the magnetic resonance imaging machine used to visualize detailed internal structures. These technologies provide MSU, the State of Mississippi and the local community with premier resources that facilitate scholarly research, enable high-quality undergraduate and graduate education, enhance impact of outreach, and promote economic development.

Director: Dr. Giselle Thibaudeau, 662-325-3019

#### **MISSISSIPPI TRANSPORTATION RESEARCH CENTER**

#### Office: 235 Walker Hall

http://www.cee.msstate.edu/transportation-research-center.html

The Mississippi Transportation Research Center (MTRC) was established in 1997 as a partnership between the Mississippi Department of Transportation and MSU. The purpose of the center is to provide an efficient point-of-contact for solicitation, evaluation, execution and administration of selected research and technology development efforts or services to be performed at MSU and other state universities. The center promotes the transportation industry within the state of Mississippi and provides educational opportunities for MDOT personnel in order to advance their professional standing through formal advanced degrees, professional engineering registration and professional advancement. Research through the center is being conducted at MSU, University of Mississippi, University of Southern Mississippi, and Jackson State University. Research projects include: pavement materials design, construction and evaluation; transportation issues including intermodal policy planning and design, accident detection, seat belt use, and user cost and training in bridge design.

Thomas D. White, Ph.D., Director, Technical Programs Dennis D. Truax, Ph.D., Director, Center Operations

# FOREST and WILDLIFE RESEARCH CENTER Measurements and Spatial Technologies Laboratory (MSTL)

#### http://www.cfr.msstate.edu/forestry/mstl/mstl.htm

This facility is committed to excellence in teaching and research in measurement and spatial technologies used for natural resource assessment and monitoring. The MSTL houses both Unix and PC servers and workstations that provide measurements and spatial technologies software (GIS, image analysis, statistics, modeling) for a broad range of applications. It also maintains an extensive collection of geospatial (imagery and GIS) and natural resource inventory data for use in both teaching and research in the CFR/FWRC.

MSTL affiliated faculty, staff and students are involved in a wide variety of research projects in topical areas such as: forest inventory, forest/tree growth and yield modeling, forest health, invasive species, and wildlife habitat assessments. Much of this research enhances support of resident instruction in the Department of Forestry. Courses offered in measurements and spatial technologies include: Forest Measurements, Forest Description and Analysis, Computer Applications for Forest Resources, Forest Biometrics, Spatial Technologies for Natural Resource Management, Remote Sensing Applications, and GIS for Natural Resource Management. Graduate level courses are also offered in Advanced Spatial Technologies, Advanced Forest Inventory, Quantitative Ecology, Spatial Statistics for Natural Resources, and special problems in measurements and spatial technologies. Graduate programs are offered that lead to Masters and Doctor of Philosophy degrees with concentration in forest measurements, biometrics and spatial technologies and modeling.

MSTL faculty: David L. Evans, Joseph (Zhaofei) Fan, Thomas G. Matney, and Emily B. Schultz.

MSTL manager: H. Alexis Londo

# SCHOOLS and COLLEGES

# SCHOOL of ARCHITECTURE RESEARCH

#### Office: 240 Giles

Research in the discipline of architecture aims to improve the quality of life and ranges from the development of more efficient, safer, less expensive, more durable building materials and components, to the design of environmentally sensitive, energy efficient, and economically viable communities.

There are currently five research centers in the School of Architecture; three located on the Starkville campus, one in Biloxi., and one in Jackson. The Carl Small Town Center provides research and service assistance to small towns through downtown redevelopment and other community design initiatives. It addresses quality of life issues, such as economic diversification, town planning, conservation of architectural and historic resources, and affordable housing design and technology. The work of the Design Research and Informatics Lab applies state-of-the-art visualization technology to design problems to yield significant quality of life improvements for the people of Mississippi and beyond. The Educational Design Institute is a collaborative initiative between the College of Education and the School of Architecture, and is charged with exploring changes in educational delivery and rethinking how schools envision, plan, design, manage, and use their facilities. The Gulf Coast Community Design Studio works with elected officials, city and regional planning departments, neighborhood groups, and non-profit organizations to provide leadership and design assistance to Mississippi Gulf Coast communities damaged or destroyed by Hurricane Katrina. The Jackson Community Design Center is an urban research center providing visioning, planning, and technical assistance to organizations that work to make mid-size American cities, viable, healthy urban environments.

Faculty research activities focus on programming, planning and design, anthropometric modeling and evaluation, architectural theory and history, visual imagery, post-occupancy evaluation, and the technological evaluation of materials and methods, energy efficiency, and construction.

David C. Lewis, Ph.D., Associate Dean for Research and Director,

Digital Research and Imaging Laboratory

David Perkes, M. Arch., Director, Gulf Coast Community Design Studio

John Poros, M.Arch., Director, Carl Small Town Center Chris Cosper, AIA, Co-Director Educational Design Institute Jasson Callender, Director Jackson Community Design Center

#### COLLEGE of ARTS and SCIENCES

### BIOLOGICAL and PHYSICAL SCIENCES RESEARCH INSTITUTE

#### Office: 208 Allen Hall

Support for research activities in the biological and physical sciences comes both from the University and from outside sources, including state and federal agencies, private industry, and foundations. Some projects are carried out by staff members working independently or with graduate students, while other projects are multidisciplinary in nature and are conducted in cooperation with staff members from other colleges in the University, the Mississippi Agricultural and Forestry Experiment Station and the Mississippi State Chemical Laboratory. Staff members also participate in multi-institutional projects in cooperation with personnel from the University of Mississippi, the University of Southern Mississippi and Gulf Coast Research Laboratory.

The results of the research efforts are published in appropriate scientific journals and, in the case of graduate student participation, become the basis of theses and dissertations.

The research staff of 21 consists of faculty and staff members from the departments of Biological Sciences, Chemistry, Geosciences, Mathematics and Statistics, and Physics and Astronomy.

### **CENTER for COMPUTATIONAL SCIENCES**

Office: 2 Research Boulevard http://www.ccs.msstate.edu

The Center for Computational Sciences (CCS) is part of a coalition of member centers and groups housed at the HPCC (formerly known as the Engineering Research Center) that share a common core objective of advancing the state-of-the-art in computational science and engineering using high-performance computing; a common approach to research that embraces a multi-disciplinary, team-oriented concept; and a commitment to a full partnership between education, research, and service.

The mission of CCS is to foster interdisciplinary research in both the fundamental understanding and application of all the natural sciences. In particular, CCS strives to model and develop integrated computational environments and crosscutting tools which allow a comprehensive, cross-disciplinary approach to problem-solving. The CCS contributes to the state of Mississippi in numerous ways. Firstly, this program generates a better-educated populace and a better-trained work force by educating students at both the undergraduate and graduate levels in interdisciplinary research, providing them with strong skills in computers, modeling, and the application of the scientific method. These skills are required in a multitude of varied industries and businesses. Secondly, the CCS introduces MSU scientists from diverse fields to different research and new methodologies. This uniquely positions our scientists to fashion multidisciplinary proposals. Such multidisciplinary approaches to problemsolving are often requirements in requests for proposals from federal agencies and industries. CCS thus creates new opportunities for leveraging resources within MSU as well as drawing resources to MSU.

Seong-Gon Kim, Ph.D., Director

# THE COBB INSTITUTE of ARCHAEOLOGY

Office: Cobb Institute Building http://www.cobb.msstate.edu

The Cobb Institute of Archaeology was founded in July, 1971, at Mississippi State University by Mr. Cully A. Cobb (Class of 1908) and Mrs. Lois Dowdle Cobb, for instruction and research in Archaeology with emphasis upon the origins of Western European Civilization and the Indians of the South, particularly Mississippi. The Institute was endowed by the Cobbs to complement the university's activities in archaeological instruction, research and service.

The Institute provides active support for the instructional programs in archaeology offered through the Department of Anthropology and Middle Eastern Cultures. Research and field work are actively pursued, primarily in the Middle East and the Southeastern United States. The Institute actively supports an archaeological field school offered in alternate summers in the Middle East and Mississippi. The Institute is housed in two specially designed archaeological buildings which include classrooms, archaeological laboratories, environmentally controlled artifact storage areas, and a museum in which archaeological exhibits are made available to students and the public.

Joe D. Seger, Th.D. Director

# JOHN C. STENNIS INSTITUTE of GOVERNMENT and COMMUNITY DEVELOPMENT

Office: The Depot Building http://www.sig.msstate.edu

Founded in 1976, the John C. Stennis Institute of Government and Community Development (Stennis Institute) seeks to integrate research, service, and teaching activities to enhance local communities throughout Mississippi. As a research, training, and outreach unit of Mississippi State University, the Stennis Institute shares the land-grant institution's mission of extending university resources to local communities to improve their overall quality of life.

The mission of the Stennis Institute is to enhance the efficiency and effectiveness of state and local government and promote more desirable and competitive Mississippi communities through governmental assistance, civic education, and community development. The Stennis Institute's activities relating to governmental assistance include training symposiums such as the State Executive Development Institute (SEDI) for key state officials and comprehensive policy and research generated at the request of state legislators, state agencies, and municipal governments on various topics, such as municipal salaries, taxes, housing, and more. The Stennis Institute's civic education programs include participation in the Congressional Insight program, as well as a variety of state and national programs. The Stennis Institute's community development programs and activities focus on such areas as community design; strategic planning; and local capacity building. Through state-wide programs such as First Impressions, Selected to Serve, and YourTown, Mississippi, the Stennis Institute helps community leaders to foster informed decision making and helps build partnerships between local, regional, and state officials and associations to support community development initiatives.

W. Martin Wiseman, Ph.D., Director

# **COLLEGE of BUSINESS and INDUSTRY**

#### **GRADUATE STUDIES and OUTREACH**

Office: 200 McCool Hall http://www.business.msstate.edu/bizservices/

Graduate Studies and Outreach is the external liaison for the College of Business. The major function of the Outreach division of this office is to serve as point of contact between the College and the business and public sector.

This office serves a variety of functions. It is the coordinating center of funded research for the College and offers administrative services to faculty in the preparation and development of research proposals. The office also assists faculty in locating organizations for student projects, affording the opportunity to combine real world experience with academic learning.

The Technology Resource Institute (TRI) promotes university public/private partnerships that enhance economic development throughout the state. While housed in the College of Business, TRI is funded by a grant from the Economic Development Administration as part of that agency's University Center program. This Institute serves as liaison with appropriate faculty or service agencies and assists in resolving business issues.

The Small Business Development Center (SBDC) provides counseling in Oktibbeha County and surrounding counties to people who own a small business or are interested in starting one. The SBDC assists small businesses through direct counseling, training, and community planning. The Center's services are provided at minimal, if any, costs.

Sharon L. Oswald, Ph.D., Dean

Preston "Hamp" Beatty, Director, Small Business Development Center

#### COLLEGE of EDUCATION

# **BUREAU of EDUCATIONAL RESEARCH and EVALUATION**

http://www.educ.msstate.edu.research

Office: 309 Allen

The Bureau of Educational Research and Evaluation (BERE) was authorized by the Board of Trustees in the Spring of 1966. This research organization is an integral part of the College of Education and is a cooperating unit of the MSU Office of Research and Economic Development. The major functions of the Bureau are:

The major functions of the Dureau are.

1. To engage in basic and applied research pertaining to all phases of education.

2. To consult with faculty and students about problems of research design and analysis as well as identify potential funding opportunities.

3. To provide aid in dissemination of research findings.

4. To assist faculty/staff in the development of proposals for research and program development in the College of Education.

5. Promote research discussion and foster collaboration among faculty and students within the College of Education.

6. Serve as a resource in collecting and analyzing data to support unit accreditation activities.

J. Elton Moore, Associate Dean for Research and Assessment Iva. B. Ballard, Research Associate II

#### **CENTER for EDUCATIONAL PARTNERSHIPS (CEP)**

#### 400 Morrill Road

The Center for Educational Partnerships is an integral part of the College of Education, functioning as a facilitator of technical and support services to the public school districts of Mississippi.

Major functions of the Center include:

1. Providing administrative support for the Program for Research and Evaluation of Public Schools, Inc (PREPS, Inc.) PREPS is a private nonprofit consortium composed of 88 public school districts.

2. Providing administrative support for the Mississippi Writing/ Thinking Institute. The Institute is a state-wide project chartered by the National Writing Project.

3. Providing administrative support for the World Class Teaching Project. The Project is a state-wide initiative intended to support the certification of Mississippi teachers through the National Board of Professional Teaching Standards.

4. Providing administrative support for the America Reads - Mississippi Project. This project is intended to support and enhance the reading performance of elementary students in participating schools located in the State's 14 Level 1 accredited school districts.

5. Providing administrative support for the Educational Design Institute. This project focuses on improving the educational design of education facilities and offering educational planning consultation and other services to school districts.

6. Administering the Mississippi Superintendent Mentor Program. The Mentor program provides training and consultation for newly selected Mississippi school superintendents.

7. Providing assistance in the development of a National Center for the Community College.

Cynthia Ward, Ed.D., Executive Director

### REHABILITATION RESEARCH and TRAINING CENTER on BLINDNESS and LOW VISION

Office: 150 Industrial Education Building http://www.blind.msstate.edu

The Rehabilitation Research and Training Center (RRTC) on Blindness and Low Vision was established in 1981 at Mississippi State University to serve all states and territories of the U.S. It is cooperatively sponsored by the National Institute on Disability and Rehabilitation Research (NIDRR) and the College of Education. The mission of this National Center is to enhance employment and independent living outcomes for individuals who are blind or visually impaired through research, training, education, and dissemination. The programs of the RRTC are based on the two following assumptions:

1. All blind and severely visually impaired people have a right to work at a wage comparable with non-disabled persons and in careers which provide satisfaction and opportunity for advancement and;

2. Many persons who are blind or visually impaired may obtain satisfying gainful employment through the utilization of findings and products produced by research and training programs.

Michele McDonnall, Ph.D., CRC, Interim Director and Research Professor

#### COLLEGE of ENGINEERING

### INSTITUTE FOR CLEAN ENERGY TECHNOLOGY (ICET)

Office: 205 Research Boulevard http://www.icet.msstate.edu

The Institute for Clean Energy Technology (ICET) at Mississippi State University is a multidisciplinary group of scientists and engineers focused on measurement technologies and engineering scale testing for energy and environmental systems. Established in 1979, the Institute has a tradition of excellence in diagnostic instrumentation development, including imaging and laser-based techniques, and in the utilization of these systems in large-scale applications.

Current initiatives within ICET include processing legacy waste within the US Department of Energy's national security complex, solutions to greenhouse gas emissions, conventional and alternative energy sources and technologies, environmental monitoring and remediation, and robust instrumentation to characterize difficult real-world environments. ICET is at the forefront of developing advanced diagnostic technologies.

ICET's research results and partnerships with industry are designed to enhance economic development. The Institute offers students nontraditional educational experiences through a multidisciplinary approach to research.

W. Glenn Steele, Ph.D., P.E., Director Charles A. Waggoner, Ph.D., Deputy Director Jeffrey S. Lindner, Ph.D., Associate Director Yi Su, Ph.D., Associate Director

## HIGH PERFORMANCE COMPUTING COLLABORATORY (HPC<sup>2</sup>)

Office: 2 Research Boulevard http://www.hpc.msstate.edu

The High Performance Computing Collaboratory (HPC<sup>2</sup>), an evolution of the MSU NSF Engineering Research Center for Computational Field Simulation, at Mississippi State University is a coalition of member centers and groups that share a common core objective of advancing the state-of-the-art in computational science and engineering using high performance computing. Members share a common approach to research that embraces a multi-disciplinary, team-oriented concept, and a commitment to a full partnership between education, research and service. The mission is to serve the university, state and nation through excellence in computational science and engineering.

The HPC<sup>2</sup> is comprised of four independent centers with the common characteristics of a multi-disciplinary, team-oriented effort that is strategically involved in the application and advancement of computational science and engineering using high performance computing.

Center for Advanced Vehicular Systems (CAVS)

Roger King, Director

Center for Computational Sciences (CCS)

Seong-Gon Kim, Interim Director

GeoResources Institute (GRI)

Robert Moorhead, Director

Northern Gulf Institute (NGI)

Robert Moorhead, Interim Director

Institute for Genomics, Biocomputing, and Biotechnology (IGBB) Daniel Peterson, Interim Director

The HPC<sup>2</sup> mission is to serve the University, State, and Nation through excellence in computational science and engineering. Our goal is to become the nation's premier interdisciplinary high-performance computing research facility.

William B. (Trey) Breckenridge III, HPC<sup>2</sup>Resources and Operations Administrator Jennifer Easley, Business Manager

#### EMERGING MATERIALS RESEARCH LABORATORY (EMRL)

Office: 412 Simrall Engineering Building

The Emerging Materials Research Laboratory (EMRL), a unit within the Department of Electrical and Computer Engineering, was established to serve as a center of development in the State of Mississippi in the field of wide-bandgap semiconductors and nanotechnology. This exciting field is where the next generation of advanced semiconductor devices will be developed, and EMRL will ensure that the State of Mississippi plays an active role in this important field of research.

The Emerging Materials Research Laboratory is housed in a class 10,000 clean room with class 1,000 work stations. The principal equipment of EMRL is a high-temperature, RF-induction-heated Chemical Vapor Deposition (CVD) system for growing state-of-the-art single-crystal silicon carbide. Materials characterization capabilities include electrical characterization and photoluminesce spectroscopy.

Yaroslav Koshka, Ph.D., Director

# GLOBAL CENTER for DESICCANT TECHNOLOGY (GCDT)

#### Office: 210 Carpenter Engineering Building

The Global Center for Desiccant technology is a partnership of equipment manufacturers, users, utilities, and academe to foster research, development, validation, design, and applications of gas-fired desiccant technology. The Center will pursue desiccant topics collectively funded by affiliates and will make such information available to the HVAC industry. Additionally, research into topics of a proprietary nature and equipment testing with confidentially maintained are possible by contract with individual sponsors.

B. Keith Hodge, Ph.D., Director

### **HIGH VOLTAGE LABORATORY (HVL)**

#### Office: 115 Simrall Engineering Building

The Mississippi State University High Voltage Laboratory is part of the Department of Electrical and Computer Engineering and serves as an independent, non-industrial, university center for high voltage engineering. The mission of the High Voltage Laboratory includes research, evaluation/testing, and education activities. The principal objective of this laboratory is to meet the research and evaluation/testing needs of industry, utilities, and government, and to provide the necessary environment for an academic program associated with high voltage engineering.

The main laboratory of the High Voltage Laboratory is the largest high voltage laboratory among North American universities. This unique laboratory is comparable in size to many industrial facilities and is equipped with the following energy sources: 3000kV, 57kJ lightning/switching impulse generator; 60Hz, 1000kV, 1000 kVA conventional test transformer, 100kV, 150kV and 250kV transformer test sets; a 1050kV, 7kW dc test set: high frequency pulse generator, 20-40 kHz, +/-3600V, 200°C.

Current research projects include: lightning protection of electrical power transmission and distribution lines and substations; lightning protection of marine vehicles and other objects; an electrical breakdown mechanism in high voltage polymer insulation; lightning impulse performance of composite insulation; electrical degradation of high voltage polymer insulators and cables.

The High Voltage Laboratory offers short courses in the area of high voltage engineering. The lecturers at the short courses are recognized as experts in their field of high voltage engineering. They are from the U.S. as well as internationally-recognized institutions and industries.

S. Grzybowski, Ph.D., Director

#### INDUSTRIAL ASSESSMENT CENTER (IAC)

#### Office: 210 Carpenter Engineering Building

The primary mission of the Industrial Assessment Center is to serve the energy-related needs of small and medium-sized manufacturers within a geographic radius of approximately 150 miles of the Mississippi State University Campus. This is accomplished by analyzing the operating characteristics and energy requirements of manufacturing facilities to identify and recommend specific opportunities to conserve energy and/or utilize alternate energy sources, to improve productivity and minimize waste production, and to report the findings to the manufacturer together with estimates of their implementation costs, payback periods, and returns on investment. The Center fulfills its mission through site visits to plants which are carried out by the Center director or student teams under the supervision of the assistant director.

B. Keith Hodge, Ph.D., Director

Mary C. Emplaincourt, M.S., Assistant Director

#### **MISSISSIPPI ENERGY RESEARCH CENTER (MERC)**

#### Office: 210 Carpenter Engineering Building

Sponsored by the Division of Energy within the Mississippi Economic and Development Authority, the purpose of the Mississippi Energy Research Center is to develop, implement and coordinate energy and energy related research programs in Mississippi. This mission is accomplished by developing appropriate policies and procedures (a) for identification of priority research problems (b) for collaborating with local and state government agencies, utilities, industry, other universities, federal government agencies and the Legislature in the formation of their research programs (c) for selection of projects to be funded; and (d) for the transfer of technology which is produced by the research.

B. Keith Hodge, Ph.D. Director

# **RASPET FLIGHT RESEARCH LABORATORY (RASPET)**

#### Office: Raspet Building 2

#### http://raspet.msstate.edu

The Raspet Flight Research Laboratory (RASPET) is one of the premier university flight research facilities in the country. Established at Mississippi State University (MSU) in 1948 by Dr. August Raspet, this aeronautical research laboratory, possesses a rich heritage in full-scale flight vehicle development and testing, advanced composites development and fabrication, computer controlled manufacturing and testing of prototype composite applications. RASPET is an integral part of the Bagley College of Engineering (BCoE). In addition to externally funded research, RASPET makes significant contributions to the educational goals of BCOE and the University as a superior training ground and research facility for MSU students at the graduate and undergraduate level. RASPET is one of very few university-based laboratories with the capability to design, build, and test prototypes of full-scale manned and unmanned aircraft. RASPET has engaged in a broad spectrum of composite prototyping and flight test activities, ranging from the development and fabrication of the first turbine powered composite aircraft and the first all-graphite turbofan business jet to the development of an Ultra Light UAV sensor platform. RASPET also plays a major role in meeting university goals in the area of economic development.

Lori M. Bruce, Ph.D., Interim Director

### DIVISION of AGRICULTURE, FORESTRY, and VETERINARY MEDICINE

#### **CENTER for ENVIRONMENTAL HEALTH SCIENCES**

Office: r1102 Wise Center http://www.cvm.msstate.edu/cehs/index.html The Center for Environmental Health Sciences provides a research focus for university activities directed towards maintaining and improv-

ing the quality of environmental health in Mississippi, the nation, and the world. Its goal is to facilitate the development, implementation, and administration of focused and of multi-disciplinary efforts in research and training in the areas of environmental health, with primary consideration of human health impacts. One of the primary focus areas in environmental health is discerning the effects of environmentally relevant chemicals on organisms, and, conversely, the effects that organisms have on these chemicals. The Center provides an interdisciplinary mechanism for uniting researchers from different MSU administrative units to work on common problems which require interdisciplinary solutions. Participants have appointments in the College of Veterinary Medicine, the College of Arts and Sciences and the Mississippi Agricultural and Forestry Experiment Station. Major disciplines represented are biochemical toxicology, neurotoxicology, cardiovascular toxicology, immunotoxicology, analytical chemistry, exposure science and computational toxicology. The Center unites MSU faculty members with appropriate expertise into teams which can respond to environment health issues when general or specific needs arise.

Janice E. Chambers, Ph.D., D.A.B.T., A.T.S., Director

# **D. OTHER UNITS**

#### FLOW CYTOMETRY FACILITY

#### Office: Wise Complex, Room R3200

The Flow Cytometry Facility is a University-wide facility supported by the College of Veterinary Medicine. The facility has a two-fold purpose of providing flow cytometry and high speed cell sorting support of scientists at Mississippi State University and consultation on research problems involving flow cytometry. The facility is staffed by two trained technicians.

John Stokes, Director Stephen Pruett, Faculty Advisor

#### FOOD SCIENCE INSTITUTE

Office: 150 B Lloyd-Ricks http://www.fsnhp.msstate.edu

The Food Science Institute was authorized by the Board of Trustees of the Institution of Higher Learning in 1968 and designated as the "Flagship" for food-related issues in Mississippi. The Institute, located within the Division of Agriculture, Forestry, and Veterinary Medicine, is composed of numerous faculty from various departments to address the many issues related to the broad area food science. The general area of food science encompasses food safety, value-added processing, culinary innovation, nutrition, health promotion, food marketing, sensory analysis, food engineering, and food entrepreneurship. Both undergraduate and graduate programs including Master of Science and Doctor of Philosophy programs are available in the Department of Food Science, Nutrition and Health Promotion. Research and Extension programs span numerous departments and disciplines including, but not limited to: Animal and Dairy Sciences; Agricultural and Biological Engineering; Agricultural Economics; Food Science, Nutrition and Health Promotion; Plant and Soil Sciences; Microbiology; Aquaculture; and Poultry Science.

The major goals of the Food Science Institute are:

- 1) Stimulate and coordinate new innovative fundamental and application research and technology transfer in food science.
- 2) Serve as an economic engine for the state with constant industry interaction to enhance cutting edge technology adoption.
- Assist faculty and staff in exploring opportunistic research areas with associated extramural funding potential.
- 4) Be recognized by the industry, regulatory agencies, and academia as the leader in food science-related matters in the southeast.
   William Benjy Mikel, Ph.D., Director

#### THE MISSISSIPPI QUARTERLY

### Office: 213 Lee Hall

http://www.missq.msstate.edu

The *Mississippi Quarterly* is a publication of the College of Arts and Sciences and the Office of Research. Founded in 1948, it is a refereed, scholarly journal which publishes articles on the literature and culture of the South, past and present.

Noel Polk, Ph.D., Editor

Laura E. West, MLS, Managing Editor

#### OFFICE of the STATE CLIMATOLOGIST

Office: 201 Hilbun Hall

http://www.msstate.edu/dept/geosciences/stateclimatologist.htm

A State Climatologist for Mississippi was appointed in the Department of Geosciences at MSU in 1983. The State Climatologist serves as the focal point for climatic information and analysis within the state. The State Climatologist communicates data and information, performs research, and monitors current climate conditions and places events in historical perspective. The State Climatologist in Mississippi has the distinction of being an American Association of State Climatologists-Recognized State Climate Office.

Charles L. Wax, Ph.D., State Climatologist for Mississippi

#### MISSISSIPPI DEPARTMENT of AGRICULTURE and COMMERCE - BUREAU of PLANT INDUSTRY

Office: Mississippi Department of Agriculture and Commerce Building on Stone Boulevard http://www.mdac.state.ms.us

The Bureau of Plant Industry is a division of the Mississippi Department of Agriculture and Commerce.

The Bureau is established under the Mississippi Plant Act, Sections 69-25-1 through 69-25-47, Mississippi Code 1972, and is responsible for protecting the agricultural and horticultural interests of the state from the introduction into and dissemination within the state of injurious insects and plant diseases. The Bureau of Plant Industry is the Plant Protection and Quarantine Division of the Mississippi Department of Agriculture and Commerce. An Advisory Board is established by law to advise the Commissioner of Agriculture on matters regarding the Bureau, especially in adopting rules and regulations.

The Bureau is responsible for administration and enforcement of:

- 1. The Mississippi Plant Act Sections 69-25-1 through 69-25-47.
- 2. Regulation of Professional Services Sections 69-19-1 through 69-19-11.
- 3. Mississippi Pesticide Law Sections 69-23-1 through Sections 69-23-27.
- Mississippi Pesticide Application Act Sections 69-23-101 through 69-23-133.
- 5. Crop Spraying and Licensing of Aerial Applicators Sections 69-21-1 through 69-21-27.
- Mississippi Boll Weevil Management Act Sections 69-37-1 through 69-37-33.
- 7. Mississippi Bee Disease Act Sections 69-25-101 through 65-25-109.
- Mississippi Commercial Feed Law Sections 75-45-151 through 75-45-195.
- 9. Mississippi Pure Seed Law Sections 69-3-1 through 69-3-27.
- 10. Mississippi Fertilizer Law Sections 75-47-1 through 75-47-39.
- Mississippi Soil and Plant Amendment Law Sections 69-24-1 through 69-24-27
- 12. Mississippi Agricultural Liming Materials Act Sections 69-39-1 through 69-39-19.

#### **Headquarters Staff:**

John Campbell, M.B.A., State Entomologist/Director Laura Vollor, B.S., Deputy Director Tommy McDaniel, M.S., Director, Pesticide Division Fabian Watts, M.S., Director, Seed Division Kenneth Calcote, B.S. Director, Plant Pest Division Zack Chesser, M.S., Branch Director, Pesticide Registration; Feed, Fertilizer, and Lime Denise Clanton, B.S., Branch Director, Boll Weevil Program

James Dale, M.S., Branch Director, Plant Pest Division

#### MISSISSIPPI STATE CLIMATOLOGY LABORATORY

#### Office: 314 Hilbun Hall

The MSU Climatology Laboratory is the focal point of the Broadcast and Professional Meteorology Programs within the Department of Geosciences. The Climatology Lab is equipped with state-of-the-art meteorological hardware and software systems in support of the teaching, research, and service missions of the department. In support of our broadcast component, the laboratory houses Weather Central and Accuweather graphics production machines, a GR3-level radar system, as well as a full digital studio with linear and non-linear editing capabilities. Daily weather forecasts developed in the Climatology Lab are disseminated through WMSV (FM 91.1), Bulldog Weather (Local TV-18), WOBV-TV (Starkville), and through live "webcasts" (http://www.msstate.edu/dept/ geosciences/webcast.htm).

The Climatology Lab also serves as a base of operations for the North Mississippi Severe Storms Intercept Team. Members of this group are highly trained operational meteorology students who pursue severe local storms in order to provide the National Weather Service and local community with the most up-to-date severe weather information.

Recent research supported by the Climatology Lab includes topics in Climatic Impacts on Mississippi Agriculture, Suicide and Climate, Population Biases Associated with Tornado Events, The Role of the Earth's Surface on Climate, and a Thermodynamic Climatology of SE Tornado Events. The Climatology Lab also supports the Office of the State Climatologist and is opened on a limited basis to tour groups.

### MISSISSIPPI STATE SEED TESTING LABORATORY

#### www.mdac.state.ms.us

The State Seed Testing Laboratory is a facility operated by the State Department of Agriculture in cooperation with Mississippi State University. Its primary function is to test official seed samples submitted by inspectors of the State Department of Agriculture in connection with the enforcement of the Mississippi Pure Seed Law. The laboratory also serves as the official testing laboratory for the Mississippi Seed Improvement Association.

In addition, the laboratory operates as a service department for farmers and seed merchants. Seeds submitted for analysis are tested for purity, germination and noxious weeds. Seed merchants are charged a nominal fee. Resident farmers are entitled to have one sample of each kind tested free in any calendar year, but for each additional sample a small fee is charged.

The State Seed Testing Laboratory is in the Mississippi Department of Agriculture and Commerce Building on the west side of Stone Boulevard along with the Bureau of Plant Industry.

Fabian Watts, M.S., Director/Seed Division

#### USDA, ARS, CROP SCIENCE RESEARCH LABORATORY

http://www.ars.usda.gov/main/site\_main.htm?modecode=64-06-00-00

In the Crop Science Research Laboratory of the U. S. Department of Agriculture basic and applied research is conducted by scientists representing many scientific disciplines. The major objectives of the research programs are to provide increased crop production with greater efficiency by developing cropping systems, pest resistant strains with improved agronomic traits, and decision-making models to reduce costs and conserve natural resources.

Major research lines include corn host plant resistance, genetics and precision agriculture, waste management and forage research.

Johnie N. Jenkins, B.S., M.S., Ph.D., Director

#### USDA, FOREST SERVICE, SOUTHERN RESEARCH STATION

Two research units of the Southern Research Station, U.S. Department of Agriculture, Forest Service are located in the Forestry Sciences Laboratory, 201 Lincoln Green, in the southwest portion of the campus, and one in Thompson Hall. Basic and applied research on the ecology and physiology of seeds of forest tree species as well as the study of hydrologic and forest soil processes are conducted by staff of the Center for Bottomland Hardwoods Research. The Forest Inventory and Analysis Unit personnel conduct the continuous forest resources inventory for the mid-south states. The Wood Products Insect Research Team personnel conduct basic and applied research on termites.

For more information about these Units, the Southern Research Station, or the Forest Service, please visit our web site: http://www.srs. fs.usda.gov/

Center for Bottomland Hardwoods Research

Tracy Hawkins, Ph.D. - Research Ecologist

Forest Inventory and Analysis

David V. Few, B.S. - Supervisory Forester

Wood Products Insect Research Terence L. Wagner, Ph.D. – Supervisory Research Entomologist

# USDA, ARS, POULTRY RESEARCH UNIT

The South Central Poultry Research Laboratory of the U.S. Department of Agriculture was dedicated May 29, 1965. Located on the west side of the campus on Spring Street, it is a center for the study of disease, environmental, and waste management factors that affect the poultry industry. Research facilities include the office-laboratory building, environmental chambers, disease isolation units and seven poultry research houses. The research is being conducted by specialists in the fields of Engineering, Molecular Biology, Poultry Science, and Veterinary Science of Agricultural Research Service, U.S.D.A., in cooperation with Mississippi State University and other interested universities.

Scott L. Branton, D.V.M., Ph.D., Veterinary Medical Officer; Research Leader

### USDA/APHIS/WS NATIONAL WILDLIFE RESEARCH CENTER

#### 103 Scales Building

http://www.aphis.usda.gov/wildlife\_damage/nwrc

The National Wildlife Research Center (NWRC) is the research arm of the Wildlife Services program of the U.S. Department of Agriculture/ Animal and Plant Health Inspection Service. NWRC is the U.S. federal organization responsible for conducting research to resolve conflicts between humans and wildlife. The NWRC Mississippi field station was established by Congressional mandate in 1988 to develop methods for reducing bird depredations at aquaculture farms in the southern United States. Personnel at the NWRC Mississippi field station study the biology, impact, and management of a variety of captive and free-ranging avian species, including cormorants, pelicans, and wading birds.

Fred L. Cunningham, DVM., Project Leader/Supervisory Wildlife Research Biologist; Fred.L.Cunningham@aphis.usda.gov

#### **USDA/APHIS/ WILDLIFE SERVICES**

### 200 Thompson Hall

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (WS) program is legislatively mandated to provide assistance in the prevention and control of wildlife damage. WS programs are directed toward the protection of agriculture, property, industrial resources, and public health and safety, and natural resources. Services include technical assistance or direct operational control. Technical assistance consists of advice, recommendations, training, information transfer, or materials provided to others for the resolution of problems. In contrast, direct operational control activities are conducted by WS personnel through cooperative wildlife damage management programs. These two types of assistance are available upon request to anyone.

Kris Godwin, M.S., State Director, kris.godwin@aphis.usda.gov

#### UNIVERSITY PRESS of MISSISSIPPI

The University Press of Mississippi was founded in 1970 to encourage the dissemination of the results of research and study through the publication of scholarly works. Functioning as the scholarly publishing arm of the state-supported universities in Mississippi, the University Press is governed by a Board of Directors made up of two representatives from each of the eight state universities, one representative from the Board of Trustees of Institutions of Higher Learning, and the director of the Press, ex officio.

The University Press normally publishes approximately 65 books each year. Primary areas of interest are history, literature, culture, African American studies, and regional topics but manuscripts in all areas of study are welcomed.

Administrative offices of the University Press are located in the Education and Research Center of Mississippi, 3825 Ridgewood Road, Jackson, Mississippi.

#### Offices to Assist You

#### (All postal addresses are Mississippi State, Mississippi 39762.)

Admissions and General Information (requirements and application questions): Director of Admissions, P.O. Box 6334; (662) 325-2224

Graduate Admissions: Director of the Office of the Graduate School, P.O. Box G; (662) 325-7400

Student Financial Aid (loans, grants, College Work-Study Program, scholarships): Director of Student Aid, P.O. Box 6035; (662) 325-2450

Student Housing and Residence Life: Director of Housing and Residence Life, P.O. Box 9502; (662) 325-3555

Student Registration and Records: University Registrar, P.O. Box 5268; (662) 325-2022, 325-2662

The Career Center: Director of the Career Services Center, P.O. Box P; (662) 325-3344

Vice President for Student Affairs, P.O. Box DS; (662) 325-3045

Provost and Vice President for Academic Affairs, P.O. Box BQ; (662) 325-3742

# **Privacy Act**

Notification to Students of Their Privacy Rights under the Family Education Rights and Privacy Act (General Education Provisions Act, Sce.438, Pub. L. 90-247, Title IV, as Amended) by Mississippi State University.

The purpose of this notification is to inform eligible students at Mississippi State University about the University's policy concerning the privacy rights of students under the stated Act. Specifically, this notification (1) informs students of their rights under the Act, (2) defines directory Information and the conditions for its release, and (3) specifies the location on campus of the policy statement and how copies of it may be obtained.

I. Subject to limitations specified in the Act, eligible students are assured the following rights pertaining to their educational records.

A. The right to inspect and review their records, to request reasonable explanations and interpretations of them.

B. The right to seek correction of the records through a request to amend them or through a formal hearing.

C. The right to control the disclosure of personally identifiable information from their records.

D. The right to file complaints with the Family Education Rights and Privacy Act (FERPA) Compliance Officer at Mississippi State Univer-

sity. The FERPA Compliance Officer at Mississippi State University is the University Registrar, P.O. Box 5268; (662) 325-2022, 325-2662. E. The right to file complaints with the Family Educational Rights and Privacy Act Office (FERPA), Department of Health, Education and Welfare, 330 Independence Ave. S. W., Washington, DC 20201, concerning alleged failures by Mississippi State University to comply with the requirements of Section 438 of the Act.

II. Directory Information is treated as general information and will be released upon request unless a written request that it not be released is received by the University Registrar (278 Garner Hall or P. O. Box 5268, Mississippi State, MS 39762) within thirty (30) days from the beginning of any period of registration. Directory Information instructions received by this date will be reflected in the printed student directory. Instructions received after this date will be so noted in the on line directories but not the printed directories. Students may update the release instructions of directory infor-

mation on line via MyBanner/OnCampus at any time.

III. The information about eligible students treated as Directory Information is defined in Academic Operating Policy (AOP) 12-13 Academic Records (November 8, 2000 / Revised December 1, 2006). This document also contains the University's policy concerning the privacy rights of students and the procedures for implementing this policy and available on the University's Web site at: <a href="http://www.msstate.edu/dept/audit/mainindex.html">http://www.msstate.edu/dept/audit/mainindex.html</a>

# 2012 DISCLOSURE STATEMENTS - Student Right-to-Know Act (P.L. 101-542)

### **Graduation Rate of Entering Freshmen**

1. Mississippi State University is pleased to provide the following information regarding our institution's graduation/completion rates. This information is provided in compliance with the Higher Education Act of 1965, as amended. The rates reflect the graduation status of students who enrolled during the 2003-04 school year and for whom 150 percent of the normal time-to completion has elapsed. During the school year of 2003-04, 1,659 firsttime, full-time, degree seeking undergraduate students entered Mississippi State University. After six years (as of August 31, 2009), the proportion of students who had graduated from our institution or completed their programs was 61.4 percent. (MSU reported this data to the Integrated Postsecondary Education Data System (IPEDS) March 16, 2009.)

2. While reviewing this information, please bear in mind: (1) The graduation/completion rate is based on six years of attendance that equates to 150 percent of our longest programs; (2) Since we are a four year degree granting institution our primary mission is to award earned degrees, not to prepare students to transfer to other institutions, therefore, we have elected not to report our transfer-out rate; (3) The graduation/completion rate does not include students who left the University to serve in the armed forces, on official church missions, or in the foreign service of the federal government. This information will be updated once annually and will be presented on our Web site at http://www.registrar.msstate.edu/Policies/policies.html and in the annual Bulletin of Mississippi State University.

3. Questions related to this report should be directed to the University Registrar, Mississippi State University, P. O. Box 5268, Mississippi State, MS 39762. Email to registrar@registrar.msstate.edu or telephone 662-325-2663.

# **Other Right-to-Know Information**

1. The information Mississippi State University is required to provide by Federal Law can now be found at the Web addresses listed below:

2. University Policies Relating to Students and Student Records\* may be located at http://www.msstate.edu/dept/audit/mainindex.html.

\*All MSU students are responsible for knowing and abiding by these policies.

3. Consumer Information Regarding Student Financial Aid may be located at http://www.sfa.msstate.edu/policies/

4. Mississippi State University Annual Security Report\*\* may be located at http://www.msstate.edu/web/security.html

\*\*This report includes statistics for the previous three years concerning reported crimes that occurred on campus; in certain off-campus buildings or property owned and controlled by MSU; and on public property within, or immediately adjacent to and accessible from the campus. This report also includes institutional policies concerning campus security, such as alcohol and drug use, crime prevention, the reporting of crimes, sexual assaults, and other matters. If you have questions or wish to have a paper copy of any of the above information, please contact the Dean of Students Office at 662-325-3611.

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3+1 Pre-Veterinary Program

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