## BULLETIN of THE

# MISSISSIPPI STATE UNIVERSITY

## ONE-HUNDRED TWENTY-FIFTH ANNUAL BULLETIN 2007-2008

## ANNOUNCEMENTS FOR SPRING 2007 - SPRING 2008

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.

The "Bulletin of the Mississippi State University"
(USPS 072-760)
is published four times a year
(February, July; Semi-Monthly in April) by the
Mississippi State University Registrar's Office
P.O. Box 5268
Mississippi State, MS 39762-5268

Periodical postage paid at Mississippi State, Mississippi

POSTMASTER: Send address changes to "Bulletin of the Mississippi State University" P.O. Box 5268 Mississippi State, MS 39762-5268

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Introduction 5

## 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 23,000. 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 Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097; telephone (404) 679-4501) to award baccalaureate, master's, specialist, and doctoral degrees.

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 and Industry, including the 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 Office of 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 operates 10 branch stations 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 an off-campus, degree-granting center 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. At the request of the U.S. Navy, the College of Education offers the Master of Science degree in Counseling at the U.S. Naval Base in Roosevelt Roads, Puerto Rico.

Several university-level centers and institutes perform specialized teaching, research, or service activities. Among these are the Center for Educational Training and Technology, the Center for Safety and Health, the Center for Science, Mathematics and Technology; the Cobb Institute of Archaeology; the Institute for Clean Energy Technology; the Electron Microscope Center; the Engineering Research Center; the Forest and Wildlife Research Center; the High Voltage Laboratory; the Institute for Neuroscience and Technology; the Mississippi State Chemical Laboratory; the National Center for Intermodal Transportation; the National Warmwater Aquaculture Center; the Raspet Flight Research Laboratory; the Rehabilitation Research and Training Center on Blindness and Low Vision; the Research and Curriculum Unit; the Social Science Research Center; the Stennis Institute of Government; and the T.K. Martin Center for Technology and Disability.

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 \$450 million.

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 Accountancy was established in 1979.

#### Past Presidents of the College/University

1. General Stephen D. Lee (1880-1899)

2. John Marshall Stone (1899-1900)

3. John Crumpton Hardy (1900-1912)

4. George Robert Hightower (1912-1916)

5. William Hall Smith (1916-1920)

6. David Carlisle Hull (1920-1925)

7. Buz M. Walker (1925-1930)

8. Hugh Critz (1930-1934)

9. George Duke Humphrey (1934-1945)

10. Fred Tom Mitchell (1945-1953)

11. Benjamin F. Hilbun (1953-1960)

12. Dean W. Colvard (1960-1966)

13. William L. Giles (1966-1976)

14. James D. McComas (1976-1985)

15. Donald W. Zacharias (1985-1997)

16. Malcolm Portera (1998-2001)

17. J. Charles Lee (2001-2006)

#### VISION AND MISSION STATEMENTS

#### Vision

The vision of Mississippi State University is to be an accessible, responsive, and inclusive land-grant university that is engaged with the many constituencies it serves in delivering excellent programs of teaching, research, and outreach that improve the lives and opportunities of the citizens of the state, region, and world.

#### Mission

Mississippi State University is a public, land-grant, doctoral, research university classified as Doctoral/Research-Extensive by the Carnegie Foundation. Its mission is to provide access and opportunity to students from all sectors of the state's diverse population and to offer excellent and extensive programs in instruction, research, and outreach.

Enhancing its historic strengths in agriculture, natural resources, science, and engineering, Mississippi State entered the twenty-first century with additional strengths in a comprehensive range of graduate and undergraduate programs. These include architecture, the arts, business, education, the humanities, the social and behavioral sciences, and veterinary medicine. The Meridian Campus focuses on meeting the needs of place-bound students and working adults through upper division and graduate programs in education, business, liberal arts, and social work.

The university's educational programs emphasize the exploration of ideas and the discovery, application, and dissemination of knowledge. The university embraces its role as a major contributor to the economic development of the state through targeted research and the transfer of ideas to the marketplace, aided by faculty-industry relationships and by interdisciplinary initiatives. Building on its land-grant tradition, MSU extends its resources and expertise throughout the entire state for the benefit of Mississippi's citizens. Through integration of its programs in learning, research, and service, through traditional scholarship, through statewide extension and outreach, and through engagement with business, industry, government, communities and organizations, the university is committed to maintaining its tradition as the People's University.

#### Commitments

Access and Excellence. Mississippi State University will provide access and opportunity to students from all sectors of the state's diverse population. The university promotes citizenship and leadership in its students and fosters in them an understanding of their history and culture, an appreciation of the arts, a tolerance for opposing points of view, a facility with written and spoken language, an understanding of scientific principles and methods, a command of modern technologies, a competence in critical thinking and problem solving, a commitment to life-long learning, and a spirit of inquiry. MSU will provide mentoring and support to the students admitted to maximize their chances of success and to help Mississippi reach and surpass the national average in the percentage of our population that holds a college degree, and will provide access for working and place-bound adult learners, particularly through its Meridian Campus and distance learning programs. The university will develop competent and informed citizens and professionals who are equipped to lead in the world of work and in their communities through traditional academic programs, experiential learning, and opportunities for leadership development and community service.

**Statewide Mission**. Mississippi State University will serve the State of Mississippi and beyond through its broad range of instruction, research, and outreach functions. The university maintains four strategically located research and extension centers around the state and has staff in every county of Mississippi. The institution regularly enrolls students from each of the state's 82 counties and is actively engaged with business and industry, agriculture and natural resources, schools, communities and organizations in every part of the state.

Research and Economic Development. As a principal research university in the Southeast, MSU will continue to build on existing strengths in engineering and agricultural sciences and pursue emerging opportunities in other fields that match the university's areas of expertise and the needs of the state, including automotive research and development, computational sciences, biotechnology, early childhood learning, biological engineering, remote sensing, and alternative energy sources, among others. The university will contribute to the development and revitalization of communities throughout the state through programs such as those of the Carl Small Town Center and the Stennis Institute of Government and through projects such as the creation in downtown Meridian of the Riley Education and Performing Arts Center.

Outreach and Service. MSU will continue to build on its land-grant tradition and statewide presence through partnerships with business and industry and the agricultural sector, with communities and organizations, and with others. The university will strengthen its numerous partnerships with K-12 schools and community colleges, continue to play a major role in preparing the state's school teachers and other education professionals, reach out to the youth of the state through 4-H and other programs targeted toward youth development, and serve non-traditional students through non-traditional means

#### 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 make an appointment, write to the Office of Admissions and Scholarships, Box 6334, Mississippi State, MS 39762, or call (662) 325-0539. The Web address is www.admissions.msstate.edu, and fax requests may be sent to (662) 325-1MSU.

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 Director of Admissions and Scholarships, 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 must be received by August 1. Applicants to the College of Architecture, Professional 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 \$25 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 \$25 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 SAT is 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.

(6) Must have earned in grades 9-12, at a minimum, the units shown in the following table:

Subject: Units:

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 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. (Foreign Language taken in the 8th grade will be accepted for admission purposes, provided

the course is the same as the high school course.)

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

The high school course requirements above are applicable to high school students graduating after spring 1996. Students graduating prior to spring 1996 will be screened for admission under admission standards previously in effect.

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

- · A minimum 3.20 grade-point average on the required high school courses.
- · A minimum 2.50 grade-point average on the required high school courses 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 grade-point average on the required high school courses 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.

Mississippi residents and out-of-state children of alumni who fail to meet the 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 (if available), placement testing, and a special interests and skills, as well as other non-academic factors. (See Section b. Admission with Deficiencies.)

Entering freshmen with a high school grade point average of less than 2.5 in the pre-college core courses listed above and a composite ACT score of 20 or below will be placed in the undeclared major and will be advised by the University Academic Advising Center for 30 hours of core classes.

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, Mississippi students and eligible children of alumni will be required to participate in counseling and testing, which will be held on campus (and other designated locations) prior to the beginning of the summer session. Students who successfully complete the counseling and testing program will be admitted to the University, with the requirement that they participate in the year-long Academic Support Program.

Mississippi students or out-of-state children of alumni who fail to successfully complete the counseling and testing program may be given admission with the requirement that they enroll in the Summer Developmental Program. This is an 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 term, 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 exit the Summer Developmental Program will be counseled to explore other post-secondary opportunities.

- **c. 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.
- d. 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 a summer's work in college, and (c) have a standard composite score of 25 on the American College Test, may apply for admission to a special summer program in which they may earn regular college credit.
- A SPATS student may take a maximum of six credit hours (two courses) each summer term, selected from a list available for credit under this program. 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: Director, Special Program for Academically Talented Students, Box 5247, Mississippi State, MS 39762.
- e. 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.
  - f. 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 Admissions and Scholarships to enroll under this option.

#### 3. Admission of Transfer Students

- 1. Submit application for admission. Transfer applicants must submit applications by August 1 for consideration for admission for the fall term.
- 2. Submit a \$25 non-refundable application fee.
- 3. Submit an official final transcript from each college or university attended. 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 I:**

- 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 Mississippi State University) 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 Mississippi State University) on all hours attempted. Official transcripts from all institutions attended must be submitted.

The applicant must successfully complete the following 24 semester hours of college work at a regionally accredited college:

- 6 semester hours of English composition
- 3 semester hours of college algebra or higher level mathematics
- 6 semester hours of laboratory science
- 9 semester hours of transferable electives

#### **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 all institutions 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.

International transfer students must meet the requirements in section 4.

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.

#### 4. Admission of International Students

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

- 1. International application form
- 2. \$25 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. Mississippi State's Declaration of Financial Support form

- 5. Bank or employer letter documenting financial support
- 6. Required test scores (see below)

**TOEFL Requirement** - All undergraduate international students must submit an acceptable score on the Test of English as a Foreign Language (TOEFL). The university minimum is 525 for paper-based test, 197 for computer-based tests, and 71 for Internet-based tests. However, many departments have established higher requirements for their own students. TOEFL scores must be no more than two years old and must be verifiable. Completion of intensive English training or English Composition courses at a U.S. college does not waive the TOEFL requirement. Only students who are citizens of Australia, Bahamas, Belize, Canada, England, Guyana, New Zealand, Trinidad and Tobago, and Ghana and The Gambia are automatically exempt from this requirement. Citizens of South Africa, Botswana, Lesotho, and Swaziland are only exempt if English is listed as the first language on the Senior Certificate.

Freshman Admission Requirements - Diploma from secondary school or secondary leaving examination, Scholastic Aptitude Test (SAT) score of 980 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: 24 semester hours of transferable credit from a regionally accredited U.S. college, with a quality point average of 2.00/4.00 or higher, as evaluated by Mississippi State University, including all of the following credits:

6 semester hours of English Composition

3 semester hours of College Algebra (or a higher mathematics)

6 semester hours of laboratory science

9 semester hours of transferable electives

NOTE: Students who meet Option C requirements do not need to submit TOEFL scores.

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 of America.

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.

**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: Director of Admissions and Scholarships, 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 Graduate Studies 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.

The Academic Dean of the College or School may prescribe specific undergraduate level courses as prerequisites to admission without regard to the accreditation status of the institution awarding the bachelor's degree. The Academic Dean of the College or School has the authority to grant admission to all graduate programs in that College or School.

Graduate program areas may prescribe requirements in addition to the above conditions described for regular admission. See the current Graduate Bulletin for additional requirements.

Meeting minimum requirements for admission does not necessarily guarantee admission into a program. Each applicant must compete with all other applicants for availability in the respective programs.

Graduate applicants should consult the Graduate Bulletin or write for information and application materials to this address:

Office of the Graduate School Mississippi State University P.O. Box G Mississippi State, MS 39762

MSU gives preference to self-managed applications. Applicants are encouraged to submit all required materials in one envelope. See Graduate Bulletin for additional information.

#### 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 state laws, court decisions and Institutions of Higher Learning 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:

No student may be admitted to any institution of higher learning as a resident of Mississippi unless his residence has been in the State of Mississippi preceding his/her admission. Residence shall be as defined in Mississippi Code Sections 37-103-7 and 37-103-13 unless excepted in this chapter. § 37-103-3, Mississippi code of 1972. Residency requirement for purpose of being admitted as state resident; definition of residence.

A person who has entered the State of Mississippi from another state and enters an educational institution is considered a nonresident. Even though he/she may have been legally adopted by a resident of Mississippi, or may have been a qualified voter, or landowner, or may otherwise have sought to establish legal residence, such a person will still be considered as being a nonresident of Mississippi if he/she has entered this state for the purpose of enrolling in an educational institution. § 37-103-5, Mississippi Code of 1972. Residence of person entering state for purpose of attendance at educational institution.

Legal Residence of a Minor. For purposes of determining whether a person pays out-of-state or in-state tuition for attendance at universities, community and junior colleges, the residence of a person less than twenty-one (21) years of age is that of the father, the mother or a general guardian duly appointed by a proper court in Mississippi. If a court has granted custody of the minor to one (1) parent, the residence of the minor is that of the parent who was granted custody by the court. If both parents are dead, the residence of the minor is that of the last surviving parent at the time of that parent's death, unless the minor lives with a general guardian duly appointed by a proper court of Mississippi, in which case his residence becomes that of the guardian. A student who, upon registration at a Mississippi institution of higher learning or community college, presents a transcript demonstrating graduation from a Mississippi secondary school and who has been a secondary school student in Mississippi for not less than the final four (4) years of secondary school attendance shall not be required to pay out-of-state tuition. This section shall not apply to the residence of a person as it relates to residency for voter registration or voting. § 37-103-7, Mississippi Code of 1972. Legal Residence of a Minor. Effective July 1, 2005.

Legal Residence of an Adult. The residence of an adult is that place where he or she is domiciled; that is, the place where he or she actually resides with the intent of remaining there indefinitely, or of returning there permanently when temporarily absent. § 37-103-13, Mississippi Code of 1972. Legal Residence of an Adult.

Removal of Parents from Mississippi. If the parents of a minor who is enrolled as a student in an institution of higher learning move their legal residence from the State of Mississippi, the minor is immediately classified as a nonresident student. § 37-103-11, Mississippi Code of 1972. Removal of Parents from Mississippi.

Residence Status of a Married Person. A married person may claim the residence of his or her spouse, or may claim independent resident status as any other adult. § 37-103-15, Mississippi Code of 1972. Residence Status of a Married Person.

Children of Parents Who are Employed by Institutions of Higher Learning. Children of parents who are members of the faculty or staff of any institution under the jurisdiction of the board of trustees may be classified as residents without regard to the residence requirement of twelve (12) months, for the purpose of attendance at the institution where their parents are faculty or staff members. Full-time faculty and staff are also considered residents. Children or spouses of full-time faculty and staff are not automatically considered residents for tuition purposes at the College of Veterinary Medicine. § 37-103-9, Mississippi Code of 1972. Children of Parents Who Are Employed by Institutions of Higher Learning.

Military Personnel Assigned an Active Duty Station in Mississippi. Members of the armed forces and members of the Mississippi National Guard on extended active duty and/or stationed within the State of Mississippi, except those military personnel whose active duty assignment in the State of Mississippi is for educational purposes, may be classified as residents, without regard to the residence requirement of twelve (12) months, for the purpose of attending state-supported institutions of higher learning and junior colleges of the State of Mississippi. Resident status of such military personnel who are not legal residents of Mississippi, as defined under "Legal residence of an adult" shall terminate upon their reassignment for duty in the continental United States outside the State of Mississippi. §37-103-17, Mississippi Code of 1972. Military Personnel Assigned an Active Duty Station in Mississippi (amended).

Children and Spouses of Military Personnel. The resident status of a spouse or child of a member of the Armed Forces of the United States on extended active duty shall be that of the military spouse or parent for the purpose of attending state-supported institutions of higher learning and community/junior colleges of the State of Mississippi during the time that the military spouse or parent is stationed within the State of Mississippi and shall be continued through the time that the military spouse or parent is stationed in an overseas area with last duty assignment within the State of Mississippi, excepting temporary training assignments en route from Mississippi. Resident status of a minor child terminates upon reassignment under Permanent Change of Station Orders of the military parent for duty in the continental United States outside the State of Mississippi, excepting temporary training assignments en route from Mississippi, and except that children of members of the Armed Forces who attain Mississippi residency in accordance with the above provisions, who begin and complete their senior year of high school in Mississippi, and who enroll full time in a Mississippi institution of higher learning or community/junior college to begin studies in the fall after their graduation from high school, maintain their residency status so long as they remain enrolled as a student in good standing at a Mississippi institution of higher learning or community/junior college. Enrollment during summer school is not required to maintain such resident status.

- (2) The spouse or child of a member of the Armed Forces of the United States who dies or is killed is entitled to pay the resident tuition fee if the spouse or child becomes a resident of Mississippi within one hundred eighty (180) days of the date of death.
- (3) If a member of the Armed Forces of the United States is stationed outside Mississippi and the member's spouse or child establishes residence in Mississippi and registers with the Mississippi institution of higher learning or community/junior college at which the spouse or child plans to attend, the institution of higher education or community/junior college shall permit the spouse or child to pay the tuition, fees and other charges provided for Mississippi residents without regard to length of time that the spouse or child has resided in Mississippi.
- (4) A member of the Armed Forces of the United States or the child or spouse of a member of the Armed Forces of the United States who is entitled to pay tuition and fees at the rate provided for Mississippi residents under another provision of this section while enrolled in a degree or certificate program is entitled to pay tuition and fees at the rate provided for Mississippi residents in any subsequent term or semester while the person is continuously enrolled in the same degree or certificate program. A student may withdraw or may choose not to reenroll for no more than one (1) semester or term while pursuing a degree or certificate without losing resident status only if that student provides sufficient documentation by a physician that the student has a medical condition that requires withdrawal or non enrollment. For purposes of this subsection, a person is not required to enroll in a summer term to remain continuously enrolled in a degree or certificate program. The person's eligibility to pay tuition and fees at the rate provided for Mississippi residents under this subsection does not terminate because the person is no longer a member of the Armed Forces of the United States or the child or spouse of a member of the Armed Forces of the United States. § 37-103-19, Mississippi Code of 1972. Children of Military Personnel. Effective July 1, 2005.

Certification of Residence of Military Personnel. A military person on active duty stationed in Mississippi who wishes to avail himself or herself or his or her dependents of these provisions must submit a certificate from his or her military organization showing the name of the military member; the name of the dependent (if for a dependent), the name of the organization of assignment and its address (may be in the letterhead); that the military member will be on active duty stationed in Mississippi on the date of registration at the state-supported institution of higher learning or junior college of the State of Mississippi; that the military member is not on transfer orders; and the signature of the Commanding Officer, the Adjutant or the Personnel Officer of the unit of assignment with signer's rank and title. A military certificate must be presented to the registrar of the state-supported institution of higher learning or junior college of the State of Mississippi each semester or trimester at (or within ten (10) days prior to) registration each semester for the provisions hereof to be effective. § 37-103-21, Mississippi Code of 1972. Certification of Residence of Military Personnel.

Non U.S. Citizens (Alien status). All aliens are classified as nonresidents except that lawfully admitted alien students with permanent resident status, temporary resident status, or refugee status can establish Mississippi residence by meeting the same residency requirements as any U.S. Citizen. § 37-103-23, Mississippi Code of 1972. Aliens. U.S. District Court in the case of Jagnandan v. Giles, 379 F.Supp. 1178 (N.D. Miss. 1974).

Out-of-State Tuition for Non-residents. The Board of Trustees of State Institutions of Higher Learning and the boards of trustees of the community/junior colleges are authorized to prescribe the amount of tuition and fees to be paid by students attending the several state-supported institutions of higher learning and community/junior colleges of the State of Mississippi. Except as otherwise provided in this subsection, the

total tuition to be paid by residents of other states shall not be less than the average cost per student from appropriated funds. However, the tuition to be paid by a resident of another state shall be equal to the tuition amount established in the above paragraph if:

- 1. The nonresident student was born in the State of Mississippi but subsequently relocated and resided outside the state as a minor under the care of the minor's father or mother, or both;
  - 2. The nonresident student is a veteran who served in the Armed Forces of the United States; or
- 3. The nonresident student is domiciled in Mississippi no later than six months after the nonresident student's separation from service, as evidenced by a Report of Separation from Military Service or other military discharge document, for the purpose of enrolling in a state institution of higher learning or a community/junior college.
  - § 37-103-25, Mississippi Code of 1972. Effective August 28, 2005.

**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 first day of class** 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 out-of-state tuition waivers 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. A qualified student must maintain full time status. The waiver is 100 percent of out-of-state tuition and will remain at this level unless the student's field of study changes, or a student no longer has full time status.

To be eligible for the non-resident waiver during the first semester of enrollment, applications and resident verification must be submitted to and approved by the Office of the Provost and Vice President for Academic Affairs 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 write to the Academic Common Market at the Southern Regional Education Board, 592 10th Street, N.W., Atlanta, GA 30318-5790. The Web site may be accessed at www.sreb.org/programs/acm/acmindex.asp.

#### C. JUDY and BOBBY SHACKOULS HONORS COLLEGE

Director: Dr. Nancy McCarley Office: 210C Griffis Hall

The Shackouls Honors College is a university-wide program that reports to the Provost. It equally serves all eight colleges/schools and cooperates with all academic departments in tailoring programs for talented students. The Shackouls Honors College is a challenging variation of the standard curriculum, through which many undergraduate students throughout the University enrich their academic experiences. For many courses, both required and elective, Honors sections have been established. These are limited enrollment sections taught by selected senior faculty members. There are Honors courses and seminars 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 phases and offerings are explained below.

Students who complete Phase I and/or Phase II of the Shackouls Honors College are identified as participants in the College, and their achievement is noted in all official University records.

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 Honors sections differ from regular sections because the smaller classes focus on individualized instruction that emphasizes each student's training and experience. The most outstanding members of the faculty teach Honors courses; therefore, Honors College sections are more challenging and interesting than the regular sections for which they substitute. Many students find the courses appealing because they are guided to inquire beyond what they have studied previously. Freshmen and sophomores take courses applicable to basic curriculum requirements for all majors; juniors and seniors take seminars and advanced courses. Seniors may intern in a governmental or research agency, or conduct research and write an Honors thesis.

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, an internal notation of the successful completion of the project on the student's transcript.

Professors can design a project and offer multiple qualified honors students the opportunity to pursue the project for honors credit. Some have found this medium a rewarding means to pursue an academic interest, draw on external resources (visiting scholars, field trips, etc., perhaps funded by the Honors College), or simply to expand the focus of the course for selected students.

The Shackouls Honors College provides experiential study programs under the auspices of the University. The College supports several study-travel programs in Europe, the Far East, Canada, and the Caribbean, as well the Honors Semester Program under the auspices of the National Collegiate Honors Council. The Honors College also offers diverse study opportunities in England, Scotland, Ireland, New Zealand, Barbados, Kenya, and Australia through its membership in the Cooperative Center for Study Abroad.

The Shackouls Honors College has an important role in the cultural and social lives of hundreds of students and faculty members. The Honors Forum and co-sponsored programs with every college and with the Holmes Cultural Diversity Center, the Stennis Institute, the Women's Studies Program, the Institute for the Humanities, the Architecture lecture series, the Model United Nations, and the Center for International Security and Strategic Studies offer Honors students unique opportunities.

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 William Wegman, William Dunlap, Walter Anderson, Marie Hull, John Digby and Maude Gatewood. The Honors College has provided performances and lecture-recitals by notables such as Sarah Johnson, violinist; John Paul, harpsichordist; the Vienna Chamber Trio, The Martha Graham Company, Ballet Mississippi, the Alvin Ailey Dance Company, the National Shakespeare Company, and Malagro Vargas and dramatic productions and workshops by playwrights and performers such as John Pielmeir (Agnes of God) and David Dallas (A Gentleman from Mississippi).

Students' achievements in every realm of university life confirm an advocacy that study and personal development are complementary in the undergraduate experience. Shackouls Honors College students hold leadership roles in the Student Association, Housing and Residence Life, the Greek system, the bands, and every major honorary society, including Phi Kappa Phi, The Society of Scholars, Who's Who, Mortar Board, Golden Key, Cardinal Key, Omicron Delta Kappa, and college organizations. In recent years, the editors of The Reflector and The Reveille have been Honors College students. The slate of elected officers of the Student Association has been dominated by Honors students in the past five years.

Students are central to the Honors College. They elect representatives to the Honors Council, which advises the Director and plans activities of the program. The Honors College has earned national recognition for its participation in regional and national meetings of the National Collegiate Honors Council, to which students have traveled with expenses paid to such cities as New Orleans, Chicago, and Miami. At the end of each academic year, outstanding students are honored at an awards ceremony.

Outstanding faculty contribute significantly to students' opportunities to learn from teaching and research that have yielded numerous awards for that faculty. Winners of the John Grisham Master Teacher Awards, and the MSU Alumni Association Awards routinely teach lower division honors classes and serve as mentors for students; conducting independent research. Students conduct separate evaluations of all honors courses and make the results available to all students selecting honors courses; students also select outstanding Honors faculty members for recognition each year.

Shackouls Honors College students have the opportunity to apply to live in one of two unique living-learning communities in Griffis and Hull Halls. The Office of Housing and Residence Life makes assignments on the basis of first come, first-served applications. Residents have access to both academic and co-curricular programming intended to offer the most productive orientation to a total university experience.

To apply for the Honors College, an entering freshman should have a minimum composite ACT of 27 and at least a 3.75 high school core GPA. The Honors College offers detailed information on admission requirements to more than 50 courses each semester stressing the importance of individual advising and access for all interested students at any class level. A transfer student should have a 3.40 QPA on at least 15 hours of course work. Transferred Honors credits may be applied to Honors College certifications. Anyone who enters the College must maintain a 3.40 average, but an individual may enroll in a single course or selected courses, pursue certification in Phase I or Phase II or both, and earn recognition as a "University Honors Scholar". Inquiries regarding the Honors College should be directed to:

Director, Shackouls Honors College P.O. Box EH; Mississippi State, Mississippi 39762 E-mail: Director, nmccarley@honors.msstate.edu Admission, bgardner@honors.msstate.edu FAX (662) 325-0086

#### 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:

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. 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.career.msstate.edu.

#### E. NATIONAL STUDENT EXCHANGE

The National Student Exchange program is a consortium of more than 190 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.

#### F. INTERNATIONAL STUDY PROGRAMS

#### COOPERATIVE CENTER FOR STUDY ABROAD (CCSA)

Both undergraduate and graduate students may earn academic credit in courses identified to meet MSU degree requirements by the major department. CCSA courses in diverse disciplines are offered in English-speaking countries abroad – England, Scotland, Ireland, New Zealand, Australia, Kenya and Barbados. Consortium faculty members from the 22 American member institutions include outstanding MSU faculty members. Costs of program participation vary according to location and time.

For more information: Cooperative Center for Study Abroad, 210C Griffis Hall, Shackouls Honors College, Mississippi State, MS 39762; Bgardner@honors.msstate.edu; (662) 325-2522

## COLLEGE OF ARCHITECTURE, ART, and DESIGN

The College of Architecture, Art, and Design offers a six-week Italian Study Program open to all students in the college having completed their first year of study. Students receive elective credit for a history course and a sketching/drawing class. The program is housed in Vicenza, Italy with travel venues that include the cities of Rome, Florence, Venice, Milan, Verona, and Padova, as well as the villas and architecture of northern Italy.

The School of Architecture offers fourth-year students the opportunity to study abroad during the fall semester at either the University of Plymouth, England or the Delft University of Technology in Delft, The Netherlands where classes are taught in English. In addition to international study programs, the School of Architecture also offers students an opportunity to study at the Washington-Alexandria Architecture Center in Alexandria, Va., during the fall semester of their fourth-year. School of Architecture students must apply for these opportunities and are selected by March 1 based upon GPA and faculty assessment of their overall academic performance. These students pay normal MSU tuition.

For more information contact, the College of Architecture, Art, and Design, Box AQ, Mississippi State, MS 39762 or (662) 325-2202.

The Department of Art offers students opportunities to study art history and have studio experiences in many different areas around the world. Past locations have included Horn Island, Gulf of Mexico; Blue Ridge Mountains, North Carolina; Alaska; Australia; France; Italy; Scotland. These programs occur during the summer and students enroll and pay tuition at Mississippi State University.

For more information contact, Kay DeMarsche, Box 5182, Mississippi State, MS 39762 or (662) 325-8926 or kud2@ra.msstate.edu.

## COLLEGE OF ARTS AND SCIENCES

### Laval University Foreign Language Study Abroad

The Department of Foreign Languages offers a French language program in Quebec City, with the option of an internship in a Canadian business firm. Students will have the unique opportunity to attain fluency in French, while gaining experience in an international setting. The French language program at Laval University is specially designed for non-native French speakers. Courses are taught every morning, Monday through Friday, for a period of four hours by carefully selected native French speakers. A 3-day review session and introduction to Quebec City will precede the start of classes. Students will be awarded six credit hours for the language component of the program. In addition, three credit hours may be earned from MSU upon completion of a project agreed upon by the student and the director of the program. Honors credit may be arranged for this program.

For more information contact, Dr. Edmond Emplaincourt, Box FL, Mississippi State, MS 39762. (662) 325-3480 or eaempl@ra.msstate.edu.

#### Pueblo, Mexico Foreign Language Study Abroad

The Department of Foreign Languages offers FLS 2133 and FLS 2143 in Pueblo, Mexico. This unique opportunity helps students sharpen language skills and satisfy the foreign language requirement with six hours of credit in Spanish. Classes held each morning provide a basic review of grammar, readings at an intermediate level, and intensive oral-aural practice. Special assignments and afternoon activities with native "accompanantes" will help to involve students linguistically, socially, and culturally in their Mexican history and folklore of Mayan, Aztec, and Toltec civilizations. The opportunity to study the Spanish language in its natural setting is a unique and unforgettable experience.

For more information contact, Dr. Edmond Emplaincourt, Box FL, Mississippi State, MS 39762. (662) 325-3480 or eaempl@ra.msstate.edu.

#### Quebec, Canada Foreign Language Study Abroad

The Department of Foreign Languages offers FLF 2133 and FLF 2143 in Quebec City, Canada to help sharpen language skills in French and to fulfill the foreign language requirement with six hours credit in French. Classes are designed for intermediate-level students, provide over 17 hours a week of review of grammar, intensive oral-aural practice and readings, plus being a French-speaking area makes this a unique educational experience. Classes are held in the morning, leaving the afternoon and evening to study, for extra-curricular activities, or to explore on your own the museums, monuments and other places of interest of this city where you will find a rich blend of two cultures, North American and French. Organized excursions take students through historic and modern Quebec City, the Beaupre Coast, the Island of Orleans, the beautiful Montmorency Falls, Parliament and several museums.

For more information contact, Dr. Edmond Emplaincourt, Box FL, Mississippi State, MS 39762. (662) 325-3480 or eaempl@ra.msstate.edu.

#### San Jose, Costa Rica Foreign Language Study Abroad

Specially recommended for International Business double-degree majors. Limited to 15 students. Participants take two upper-division courses, Advanced Spanish, and Business Spanish at the University of Costa Rica, taught specifically for our students in the morning by faculty from UCR. Each

course will carry three credit hours. In the afternoon, participants have internships in businesses selected and supervised by the Chamber of Commerce of Costa Rica. Three hours of credit in FLS will be given for a project on the internship. Total credit hours is nine.

For more information contact, Dr. Edmond Emplaincourt, Box FL, Mississippi State, MS 39762. (662) 325-3480 or eaempl@ra.msstate.edu.

#### Malaga, Spain Foreign Language Study Abroad

Specially recommended for Foreign Language majors, graduate students, double majors and minors. The program is designed for native English speakers. Courses are taught 8:30 a.m. to 2:30 p.m. Monday through Friday. Undergraduate students will be awarded six credit hours in Spanish language from the language school which will be transferred to Mississippi State University and three MSU credits in Spanish culture and civilization. Graduate students will receive six MSU credit hours. Undergraduate participants must have successfully completed at least eight hours of college-level Spanish courses or the equivalent.

For more information contact, Dr. Edmond Emplaincourt, Box FL, Mississippi State, MS 39762. (662) 325-3480 or eaempl@ra.msstate.edu.

#### **Bahamian Field Program**

The Bahamian Field Program was developed at MSU, in cooperation with the Gerace Research Center (GRC) on San Salvador Island, Bahamas, to present MSU undergraduate and graduate students the opportunity to do field research in a cultural and physical environment unlike that found in Mississippi. Faculty, in addition to mentoring undergraduate and graduate students, have been able to develop additional research projects of their own. The program is generally run over the winter break, after Christmas but prior to the start of the spring semester, and occasionally between the spring semester and the start of summer school. The GRC is affiliated with MSU, which grants MSU students and faculty reductions in costs and increased access to field sites.

The field course begins with structured field trips to expose students to the environment of living and fossil reefs, caves, beaches, inland water bodies, archaeological sites, lagoons, and other sites of natural history significance. Evening lectures are given, and labs are used to analyze samples. As students gain a greater familiarity with the island's many environments, they make decisions about doing research projects with faculty, graduate students, other students, or alone. The remainder of the time on the island is used to execute these research projects. Students are encouraged to schedule free time to enjoy both the Bahamian culture and the scenic landscapes. All students are required to keep a journal and submit it at the end of the trip.

For more information contact, John Mylroie, Box 5448, Mississippi State, MS 39762. (662) 325-8774 or mylroie@geosci.msstate.edu.

#### 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.

#### **COLLEGE OF ENGINEERING**

#### **Engineering Summer Study Abroad**

The Engineering Summer Study Abroad Program takes place during the time frame of MSU's second summer session (July-August). It includes four weeks of study at the University of Bristol, one of the top engineering universities in England. Students live with local families who provide them two meals a day. The experience of living with a host family is one of the most rewarding experiences of the trip. After the four weeks of study in Bristol, the students have two weeks for independent travel in Europe. The students receive six credit hours toward their engineering degree. Three credit hours are for HI 4653, The History for Science and Technology. The other three hours are for either Computer Aided Design and Manufacturing or Digital Signal Processing, which can be used as a technical elective in engineering.

For information you may contact, Dr. Allen Greenwood, Box 9542, MSU, MS 39762. (662) 325-7216 or studyabroad@engr.msstate.edu.

### **Global Engineering Educational Exchange**

The Global Engineering Education Exchange is a consortium of U.S. engineering institutions with counterpart institutions in Europe, Latin America, and Asia to provide reciprocal opportunities for undergraduate and graduate students to receive academic and practical training in each other's countries with no net exchange of funds between participating universities. Students spend a complete term at the international institution. Courses are selected with an academic advisor to apply toward MSU engineering degrees. Students pay tuition and fees at MSU. Scholarships and other financial aid can still apply. Many institutions are available where English is the language of instruction.

For information you may contact, Dr. Allen Greenwood, Box 9542, MSU, MS 39762. (662) 325-7216 or studyabroad@engr.msstate.edu.

#### **Intersession Study Abroad**

The Bagley College of Engineering offers at least one study abroad course during the University's intersession. The course involves approximately three weeks of travel, typically with two faculty, to Europe or Asia. Topical coverage varies depending on the faculty members teaching the courses -- some courses are more humanities or social science-focused, while others emphasize technology and engineering practice. All courses extensively use field studies at sites of significant historic and cultural interest, educational institutions, production facilities and research labs.

For information you may contact, Dr. Allen Greenwood, Box 9542, MSU, MS 39762, (662) 325-7216 or studyabroad@engr.msstate.edu.

## III. DEGREES, CORE REQUIREMENTS, 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 University Core 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.) (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 curriculum requirements, (2) make an overall C average on all hours scheduled and rescheduled at all institutions attended, including Mississippi State University, (3) complete in residence at Mississippi State University no less than 1/4 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, and (4) complete the last 25 percent of course work taken to fulfill degree requirements in residence at Mississippi State University. (Any exception to the 25 percent residence requirement must be made in writing with the Dean prior to taking course work at another institution.)
- **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	6 semester hours
College Algebra	3 semester hours
Laboratory Science	6 semester hours
Humanities and Fine Arts	
Total:	

(Note: These requirements are included in the University Core Curriculum which follows.)

**b.** University Core Curriculum. 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 University Core Curriculum, as follows: (Specific courses to satisfy the Core Curriculum 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	r hours
Mathematics and Natural Sciences	er 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	r hours

Six hours must be humanities and three hours must be fine art.

Refer to Core Curriculum Requirements—Numbers and Course Titles for approved choices.

Refer to Core Curriculum Requirements—Numbers and Course Titles for approved choices.

In addition, students must show proficiency in public speaking, computer literacy, and advanced writing skills. Courses to meet these requirements are determined by the academic departments.

### **Core Curriculum Requirements - Numbers and Course Titles**

NOTE: Students must check course descriptions of core classes for prerequisites and/or grade requirements.

NOTE: Core requirements apply to all students enrolling Fall 2005. Honors sections may be available in selected courses. Consult advisor.

#### 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

## 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.

		Quantitative Reasoning or MA 1313	MA 1463	Finite Mathematics and Introduction to Calculus
MA	1313	College Algebra or MA 1303	MA 1613	Calculus for Business and Life Sciences I
MA	1323	Trigonometry (fulfills second mathematics only	MA 1623	Calculus for Business and Life Sciences II
		with Credit for college algebra)	MA 1713	Calculus I
MA	1413	Structure of the Real Number System	MA 1723	Calculus II
		(Designed primarily for special and	MA 2733	Calculus III
		elementary education majors.)	MA 2743	Calculus IV

MA 1423	Problem Solving with Real Numbers	MA	2113	Introduction to Statistics
	(Designed primarily for special and	MA	3123	Introduction to Statistical Inference
	elementary education majors.)	ST	2113	Introduction to Statistics
MA 1433	Informal Geometry and Measurement	ST	3123	Introduction to Statistical Inference
	(Designed primarily for special and	BQA	A 2113	Business Statistical Methods I
	elementary education majors.)	_		
MA 1453	Precalculus with Graphing Calculators			
	Notural Sciences (6.01		`	
1500000	Natural Sciences (6-9 l		•	
ARC 2713	Passive Building Systems I		1121	Earth Sciences II (Lab)
BIO 1004	Anatomy and Physiology*		1123	Survey of Earth Sciences II
BIO 1023	Plant and Humans*		1114	Elements of Physical Geography
BIO 1001	Biology Lab*		1013	Physical Science Survey
BIO 1033	Biological Science*		1011	Physical Science Lab I
BIO 1203	Plant Biology*		1023	Physical Science Survey
BIO 1123	Animal Biology*	PH	1021	Physical Science Lab II
BIO 1504	Principles of Zoology*		1063	Descriptive Astronomy
BIO 3304	General Microbiology*	PH	1113	General Physics I
CH 1043	Survey of Chemistry I	PH	1123	General Physics II
CH 1053	Survey of Chemistry II		1133	General Physics III
CH 1051	Experimental Chemistry (Lab)	PH	2213	Physics I
CH 1213	Chemistry I	PH	2223	Physics II
CH 1211	Investigations in Chemistry (Lab)	PH	2233	Physics III
CH 1223	Chemistry II	PO	3103	Genetics I*
CH 1221	Investigations in Chemistry II (Lab)	PSS	1313	Plant Science
EPP 2213	Introduction to Insects	PSS	3301	Soils Laboratory
GG 1111	Earth Sciences I (Lab)		3303	Soils
GG 1113	Survey of Earth Sciences I			Sciences; remaining Natural Sciences
	,			Physical Sciences
	Humanities (at least 6)			<b>,</b>
	Humanities (at least 6			
	History of Architecture I		1213	Early Western World
	History of Architecture II	HI	1223	Modern Western World
ARC 3323	History of Architecture III	HI	1313	East Asian Civilizations to 1300
EN 2203	Introduction to Literature		1323	East Asian Civilizations since 1300
EN 2213	English Literature		1103	Introduction to Philosophy
EN 2223	English Literature		1113	Introduction to Logic
EN 2243	American Literature		1123	Introduction to Ethics
EN 2253	American Literature		3023	History of Western Philosophy: Part I
EN 2273	World Literature		3033	History of Western Philosophy: Part II
EN 2283	World Literature		3153	Aesthetics
FL* 1113	Elementary Foreign Language		. 1103	Introduction to Religion
	Elementary Foreign Language		. 3213	World Religions: Part I
	143 Intermediate Foreign Language	REL	. 3223	World Religions: Part II
	Early U.S. History			
HI 1073	Modern U.S. History			
HI 1163	World History Before 1500			
HI 1173	World History Since 1500	* Fr	ench, Ge	erman, Greek, Japanese, Latin, Russian, and Spanish
	Fine Arts (3 hours	s)		
ARC 1013	Architectural Appreciation	_	1113	History and Appreciation of Music
	Art History I			History and Literature of Music I
	Art History II		2323	History and Literature of Music II
ART 1023 ART 1113	Art Appreciation		1123	History and Appreciation of Dance
CO 1503	Introduction to Theater		2343	Floral Design
ID 3643	History of Interiors		2413	History and Appreciation of Arterafts
LA 1803	Landscape Appreciation	1 1/1	2413	Thistory and Appreciation of Afteraris
LA 1603	1 11			
	Social/Behavioral Sciences	6 (6 hc	ours)	
AEC 2713	Introduction to Agricultural Economics	FO	4113	Forest Resource Economics
AN 1103	Introduction to Anthropology	GR	1123	Introduction to World Geography
AN 1143	Introduction to Cultural Anthropology		2013	Cultural Geography
AN 1343	Introduction to Biological Anthropology	PS	1113	American Government
AN 1543	Introduction to Archaeology	PS	1313	Introduction to International Relations
CO 1223	Introduction to Communication Theory	PS	1513	Comparative Government
CO 1403	Introduction to Mass Media		1013	General Psychology
EC 1033	Economics of Social Issues	PSY	3073	Psychology of Interpersonal Relations
EC 2113	Principles of Macroeconomics		1003	Introduction to Sociology
EC 2123	Principles of Microeconomics		1103	Contemporary Social Problems
EPY 2513	Human Growth and Development		1203	Marriage and Family
EPY 3503	Prin. of Educational Psychology			•
EPY 3543	Psychology of Adolescence			

- 3. Other Degree Requirements. The announcements of the various colleges and schools specify the additional requirements for the bachelor's degree in the various departments and programs.
- **4. Second Baccalaureate Degree Requirements**. In order for a student to qualify for a second baccalaureate degree, requirements for the second degree must be certified by the appropriate dean as having been met and must include 30 hours in courses numbered 3000 or above, in residence beyond the requirements for the first degree.
- **5.** 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 advisors 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 General Business, 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 Student/Faculty Web 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, as always, 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.

6. 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 secure a registration access code from the Registrar's Office. 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.

- 7. Student Course Load. The normal load for an undergraduate student in a regular semester is 15-18 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.) (AOP 12.15)
- 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:

	Regular Fall-Spring Semesters		Summer School term		
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 3sem.hrs.	
"Regular"Load	15-18 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.
- **8.** 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.
- 9. 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 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 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. 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.

- 10. 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.
- 11. 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 University core 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.

- 12. Assessment. Students may be required to undergo testing for the purpose of assessing institutional effectiveness.
- 13. 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.
- 14. 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, 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. Army veterans, Army National Guard, and Army Reservists may request an AARTS (Army/American Council on Education Registry Transcript) transcript by mailing the request to AARTS Operations Center, 415 McPherson Avenue, Fort Leavenworth, KS 66027-1373. Sailor/Marine veterans, and members of Navy and Marine National Guard, and Reserve units may request a SMART (Sailor/Marine American Council on Education Registry Transcript) transcript by mailing the request to NETPDTC, Navy College Center, Code N27, 6490 Saufley Field Road, Pensacola, FL 32509-5204. Also, transcript request forms are available in the Veteran's Assistance Office, 176 Garner Hall.

Air Force veterans, National Guard and Reservists may request a Community College of the Air Force transcript by mailing the request to CCAF/RRRA, Simler Hall, Suite 128, 130 Maxwell Blvd., Maxwell AFB, AL 36112-6613. 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. This annual notice will be published in the University's Bulletin. 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 identified in Academic Operating Policy and Procedure 12.13 Academic Record. It also includes email addresses. Participation in recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, the most recent previous educational agency or institution attended, and other similar information is considered directory information.

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 Registrar's Office in writing to deny the release of this information. 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:

- 1. 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.
- 5. 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.
- 6. 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 correspondence courses (a maximum of 20% of the total degree hours can be correspondence courses). Evaluated military service credits are classified as extension work. 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.

### 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.

			OIT RELATED COURSE
1. ART	BCOKL	HOURS CKED	TI KELAILD COOKSE
General studio credit	3	3	ART 1213
2. BIOLOGICAL SCIENCE	4	3	BIO 1123
2. BIOLOGICI E BOILL (OL	5	6	BIO 1123 and BIO 1023
3. CHEMISTRY	3	3	CH 1213
3. CHEMISTRI	4 or 5	6	CH 1213 CH 1213 and CH 1223
4. COMPUTER SCIENCE	4 01 3	O	C11 1213 and C11 1223
A Exam	4 or 5	3	CSE 1233
AB Exam	3	3	CSE 1233
TID Exam	4 or 5	3	CSE 1233
5. ECONOMICS	4 01 3	3	CSE 1233
Macroeconomics	4 or 5	3	EC 2113
Microeconomics	4 or 5	3	EC 2123
6. ENGLISH	1 01 3	5	20 2123
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	4 01 3	O	E1 (1103 and 1113
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	4 01 3	12	111 1113,1123, 2133, 2143
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		12	110 1113,1123, 2133, 2143
Comparative	4 or 5	3	PS 1513
United States	4 or 5	3	PS 1113
10. HISTORY	4 01 3	3	13 1113
American	3	3	HI 1063
American	4 or 5	6	HI 1063 and HI 1073
European	3	3	HI 1213
Europeun	4 or 5	6	HI 1213 and HI 1223
11. LATIN	4 01 3	O	111 1213 and 111 1223
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	4 01 3	12	1 1113,1123, 2133, 2143
AB Exam	3,4 or 5	3	MA 1713
BC Exam	3	3	MA 1713
202	4 or 5	6	MA 1713 and MA 1723
Statistics	4 or 5	3	ST 2113
13. PHYSICS (no lab credit)	. 01 0		512110
B Exam	3 or 4	3	PH 1113
	5	6	PH 1113 and PH 1123 or PH 2213
CI Exam	3	3	PH 1113
OI Emmi	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	. 0. 0	-	- ~
Language Level 3	3	9	FLS 1113,1123, 2133
Language Level 3	4 or 5	12	FLS 1113,1123, 2133 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
Eliciator Ector 5	. 0. 0		- 20 1110,1120, 2100, 2110

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

Advanced Placement credit earned by approved testing may be applied to Honors College credentials if the student successfully completes an MSU honors course in the same subject matter, i.e., both credits for testing and for graded courses may apply to Honors College Phases I and II. (For example: AP credit for Composition I and Honors Composition II or AP credit for Calculus I and Honors Calculus II would yield six hours for each subject area.)

**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. **Under no circumstances will any credit earned by advanced standing examinations count toward graduation if the student already has credit for the course or its equivalent on his or her high school record.** 

c. College-Level Examination Program (CLEP). A total of not more than 25 percent of any curriculum may be earned by 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. 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	Principles of Marketing	ACC 2013	Principles of Financial Accounting
EC 2	2113	Principles of Macroeconomics	BL 2413	The Legal Environment of Business
EC 2	2123	Principles of Microeconomics	BIS 1012	Business Computer Systems
HI	1213	Early Western World	FLF 1113	French I
HI	1223	Modern Western World	FLF 1123	French II
HI	1063	Early U.S. History	FLF 2133	French III
HI	1073	Modern U.S. History	FLF 2143	French IV
MA	1313	College Algebra	FLG 1113	German I
MA	1713,	1723 Calculus I, II	FLG 1123	German II
EPY 2	2513	Human Growth and Development	FLG 2133	German III
EPY 3	3503	Principles of Educational Psychology	FLG 2143	German IV
CH	1213	Fundamentals of Chemistry	FLS 1113	Spanish I
CH	1223	Fundamentals of Chemistry	FLS 1123	Spanish II
PS	1113	American Government	FLS 2133	Spanish III
SO	1003	Introduction to Sociology	FLS 2143	Spanish IV

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 (IB). 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 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. Advance standing 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
A	Excellent	4
В	Good	3
C	Satisfactory	2
D	Poor	1
F	Failure	0
I	Incomplete	0
S	Satisfactory	_
U	Unsatisfactory	_
W	Withdrawn Without Penalty	_

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.

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 becuase 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. 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.
- 6. 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.
- 7. 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. The following regulations, in addition to those above, apply to all students receiving U.S. Dept. Veterans Affairs benefits:
  - 1. A student must maintain an acceptable cumulative GPA to be in good standing. If the cumulative average falls below the acceptable level, the student will be placed on "first probation." During the probation semester, the student must improve his cumulative GPA or benefits will be suspended at the end of the semester. However, if the cumulative GPA improves but, an acceptable level is still not achieved a "second probation" semester will be allowed. Should the standards of progress not be achieved at the end of the second probation semester, benefits will be suspended and students will not receive further benefits until approved by the VA.

#### ACCEPTABLE STANDARDS of PROGRESS

Semester	Cumulative GPA
1	1.00
2	1.50
3	1.75
4	2.00

A student must maintain at least a 2.00 cumulative GPA after the fourth semester or he/she will be placed on first probation and follow the order of procedure as outlined above.

- 2. Based on VA rules and regulations, students receiving VA educational benefits will receive benefits for courses that apply toward a degree program only. **NOTE**: Any change in student status, such as drops/adds, major changes or withdrawals from the University, must be reported to the VA Supervisor located in the Center for America's Veterans.
- **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 2004 for courses taken during or after fall semester 2003, an undergraduate student will be permitted to retake up to two (2) courses, not to exceed six (6) credit undergraduate semester hours, in which the student made a grade of D or F, with the original grade remaining on the transcript but not counted towards the student's 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 on both the midterm (where applicable) and final grade reports submitted to the Registrar. 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

A student desiring a definite room reservation for the fall semester must submit a completed housing application and a nonrefundable \$50 application fee to the Department of Housing and Residence Life. Reservations must be made in the full name of the student as it appears on the application for admission or readmission. A nine-month housing contract must be signed and returned to the Department of Housing and Residence Life once an assignment is offered and accepted.

Students wishing to request one another as roommates should request each other on the housing application. Students wishing to request to room together AFTER submitting a housing application MUST request each other in writing. Requests may be submitted via mail, fax, e-mail or in person. Mutual requests received by April 1 have priority.

Freshman and transfer students may submit housing applications after August 1, 2006, for the 2007-2008 academic year. Assignment of transfer students and currently enrolled off-campus students will not be made until after assignment of returning residence hall students has been completed at the end of spring semester, and into summer, as space is available. Freshman and transfer students will receive their assignments in late Spring 2007. Priority is given to applications submitted by April 1, 2007.

MSU students **cannot** cancel their housing contract and room assignment after August 1, 2007 for Fall 2007. The residence hall contract is for both semesters (nine months) if the student is enrolled in school. The residence halls open several days before the first day of classes.

Requests for private rooms will be accepted and honored as space for assignments 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 rates.

All room changes must be approved by the residence director. A student who makes an unauthorized change must pay a \$25 penalty and move back to the assigned space. The assigned occupants are financially responsible for all property in the room, including doors and windows.

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) pay the private room rate if private rooms are an option. 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

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 2,051,615 volumes and over 18,103 journal/serial titles, including 6,945 electronic subscriptions. The Libraries regularly receive many of the publications of leading universities and scholarly societies. The Library, already a 95 percent Government Documents Depository, is also a United Nations Depository.

The Libraries have significantly increased electronic access to bibliographic and full text information held locally as well as at remote sites. Through Galaxy and/or the Libraries' Web page, patrons have access to a wide variety of over 148 databases, many of which provide full-text articles from journals not owned by the Libraries. The Access Services Electronic Reserves program further supports teaching and research. Membership in a number of consortiums within the state and region extends the collection.

Expedited electronic document delivery services in support of research materials and journal articles not available in the Libraries' immediate collections are obtained via Infotrieve in support of graduate students, researchers and faculty. Initial work in partnership with the University's Engineering Research Center, has begun toward the development of the University's Geospatial Digital Library.

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, and Chip Pickering as well as papers of Wiley Carter and Wayne Weidie, aides to Senator Thad Cochran and Representative Gene Taylor respectively. The Center is working with the Stennis Institute of Government and the Stennis Center for Public Policy to produce newsletters, seminars and other programs to promote research and interest in all levels of government. Other notable papers within the department include those of Norma Fields, Eugene Butler, Norman Bradley, Bill Monor, Sid Salter, Mark Bolton and John Grisham.

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.

The Library computer lab contains approximately eighty-five Pentium IV 1.6 gigahertz PC's with 17-inch color monitors, and five G4 IMac computers. 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

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lab also offers two laser printers and a color laser printer. As the University's newest and largest computer lab, the Computer Commons is open until 2:00 a.m., Sunday through Thursday and closes at 8:00 p.m. on Friday and 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 eight computers with CD-ROM players, four computers with flatbed scanners that can be used for scanning documents, pictures, photographs, etc., two typewriters, five 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 Macintosh computers. The IMC also provides small listening areas with TVs and VCRs for groups to view videos for classes.

The Libraries, a charter member of the Southern Library Network (SOLINET), 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 Starbucks Café. The second floor stocks all course-required textbooks, trade and Reference books, and a complete stock of school supplies. The bookstore also carries computer hardware and accessories and software packages are available at substantial educational discounts.

Students can visit the bookstore web site at msstate.bkstore.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 books all year long.

The bookstore is open Monday through Friday from 7:30 a.m. to 9 p.m., Saturday 10 a.m. to 9 p.m., and Sunday 10 a.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 msstate.bkstore.com for more information.

#### C. UNIVERSITY DINING SERVICES

The University operates 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 the newly remodeled Perry Cafeteria, the Union Food Court, the Pegasus Dining Room in the Wise Center, the newly renovated State Fountain, Gooch's, McArthur Court in McArthur Hall, and Food for Thought in Mitchell Library, as well as a full service Catering Department.

MSU's historic **Perry Cafeteria**, located in the heart of campus, offers a varied breakfast menu, from omelets and pancakes to hearty southern-style fare. For lunch, students will find hot food lines serving homestyle meals, a salad bar, a deli bar, a potato bar and a pizza bar. Chargrilled entrees and a pasta line are featured daily. Satisfy that craving for something sweet with MSU ice cream or MSU baked pies, cakes or cobblers. For dinner, students may feast on "all you can eat" buffet.

The Union Food Court features Chick-fil-A®, Wendy's®, Subway®, and the Great Wall of China® as alternative choices for students.

One of the best kept secrets on MSU's campus is the **Pegasus Dining Room** at the Wise Center. Great food is enhanced by a cheerful dining room and patio area. The Pegasus serves a made to order breakfast from the grill, hot homestyle lunches, salad bar, and a soup kettle. The student plate is a daily feature at the Pegasus.

The **State Fountain** is always a favorite stop for MSU ice cream, milk shakes and sundaes. Students are drawn into the Fountain early each morning by the tempting trays of MSU pastries, fresh baked breads and steaming mugs of **Starbucks®** coffee. The pleasant greenhouse atmosphere is a wonderful place to relax and take a well deserved study break with cookies or a slice of cheesecake. When the occasion calls for a gift, the Fountain offers cakes, pies, balloons, customized baskets and its special MSU cookie tins delivered on campus or anywhere in the continental United States. Parents may phone in orders for birthday cakes, special occasions, or the **Bully Birthday Special**.

The residence hall area location of **Gooch's** makes it a popular stop for students . Located next to University Parking Services, Gooch's offers Stone Willy's pizza, an assortment of short order items, soft drinks, and snacks. An "After hours packaged meal" is available for those on the meal plan who miss the evening meal at the Perry Cafeteria. Enjoy viewing our mini Jumbo-tron while you eat.

Food for Thought, located in the Library, is a snack shop that offers a quick bite for students on the run. The shop offers soft drinks, sandwiches, snacks, and a lot of other items.

Dining Service's newest food location, **McArthur Court**, is located in McArthur Hall on Barr Avenue. It is convenient for those located on the west side of campus who need a snack, full breakfast or lunch. The shop offers a sandwich bar, a salad bar, a choice of two soups each day and a "build your own" potato bar, in addition to pastries, bagels and sausage biscuits for your "pick me up" breakfast. It is an ideal place to sit and study or to just take a break with a friend.

Students may pay for purchases at the above locations with cash, personal checks, MoneyMate, Dining Only, or Meal Plan.

MoneyMate. MoneyMate is a declining balance account that utilizes the student's ID card. MoneyMate is accepted at Dining Service locations, as well as many other locations on campus.

Dining Only works in conjunction with a student's MoneyMate account, earmarking a certain amount of MoneyMate funds for use in Dining Service locations.

Dining Service offers seven voluntary meal plans from which students may choose. The meal plans are discounted, so they cost less than if cash were used each time you eat. Meal plans are for one academic year (fall & spring) and are billed to student accounts at the beginning of each semester.

The "Lo the Turbo" plan offers \$4.50 daily allowance to use at any All Perry Club location from 7 a.m. to 4 p.m., Monday-Friday, for \$329.

The Bailey Howell offers five evening meals (all-you-can-eat) each week, Monday-Friday at the Cafeteria for \$484 per semester.\*

The **Palmeiro** is ideal for athletes or anyone with a huge appetite! It includes four "grand slam" all-you-can-eat evening meals, including an enhanced buffet on Thursday, plus a \$5.50 daily allowance restricted to Perry Cafeteria, for \$670.\*

The **Doubles** offers a daily allowance of \$4.50 per day, Monday-Friday at all Dining Service locations and dinner (all-you-can-eat) at the Cafeteria for \$771 per semester.\*

The **Johnie Cooks** offers a daily allowance of \$7.50 per day, Monday-Friday at all Dining Service locations as well as dinner (all-you-can-eat) at the Cafeteria for \$963 per semester.\*

Weekend Series! Add a weekend option to any of the three above meal plans. This option allows an additional \$5.00 per Saturday and Sunday for \$140.00 per semester.\*

The **Local Joe** is a seven-day-a-week meal plan. Start with a daily allowance of \$10.00 (Monday-Friday) at any Dining Service location and dinner (Monday-Friday) at the Cafeteria (all-you-can-eat). Then, on Saturday and Sunday spend up to \$15.00 per day for meals at any of our Dining Service locations. You get all of this for only \$1,770.00 per semester.\*

For information about Dining Services or meal plans, contact Dining Service, P. O. Box 6229, Mississippi State, MS 39762, (662) 325-2965.

\* Prices subject to change without notice. See www.msstate.edu/dept/dining for up-to-date information

#### D. JOHN C. LONGEST STUDENT HEALTH CENTER

The Longest Student Health Center is designed to provide comprehensive, accessible, high-quality and economic healthcare to students during college years. The Center is open during regular school sessions to all Mississippi State University students who pay 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. Medicare does not recognize the Center as an authorized provider and will pay only to the patient or physician. 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) 325-2431; or emailing health@saffairs.msstate.ed. Visit our Web page at: http://www.health.msstate.edu.

#### E. INTERNATIONAL SERVICES

International Services, a unit of the Division of Student Affairs, is charged with the responsibility of immigration matters as they relate to students and exchange visitors. This includes advising and providing information to students, research scholars, visiting professors, and MSU faculty and administrators about rules and regulations of the Department of Homeland Security, maintenance of lawful status, work authorization, and other matters which affect the international community at Mississippi State University. The Department of State's Exchange Visitor Program is administered in this office, providing DS 2019 documents for qualified J-1 visitors. Through liaison with the Holmes Cultural Diversity Center and others, cultural experiences for international participants are facilitated and encouraged. Semiannual orientation programs for new students are conducted by the IS. An IS-supported electronic mail bulletin provides current information regarding immigration regulations, university deadlines, campus and community activities, issues of importance on a national or international scale which affect some or all of MSU's international community, opportunities for employment, and other matters of interest to the subscribers. International Services is located in Montgomery Hall.

#### F. STUDENT COUNSELING AND TESTING SERVICES CENTER

Student Counseling and Testing Services (SCTS), located in Lee Hall, Room 103, offers a variety of services free to all full-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. The center also provides walk-in services for urgent concerns, as well as on-call services for serious crises 24 hours per day, seven days per week, when the University is open. SCTS also offers very brief crisis intervention and referral services to faculty and staff. If a counselor is needed after regular business hours, contact campus police at (662) 325-2121.

STAFF: SCTS staff is composed of competent professionals with extensive training in counseling psychology, social work, and counseling, who are experienced in facilitating personal growth and development. They respect the ability of each individual to make actualizing choices.

PERSONAL COUNSELING: Many university students have personal concerns which may interfere with their academic success. SCTS staff provides an atmosphere in which students may discuss problems with the assurance that all counseling information is confidential and would be released only with the student's written consent.

GROUP COUNSELING: SCTS provides a variety of small group experiences ranging from personal growth groups, to study skills groups, to vocational exploration workshops. Students who wish to improve communication or interpersonal skills may participate in growth groups where they can experiment with new types of behavior in a safe and accepting environment. For those students experiencing academic difficulty, study skills groups provide instruction and supervised activity designed to improve study skills and habits. Students can gain insight regarding their interests, abilities, and decision-making styles, as well as the world of work, while participating in vocational exploration workshops.

OUTREACH AND CONSULTATION: SCTS provides psycho-educational outreach to the MSU campus and local communities, as well as psychological consultation to students, faculty, and staff. See our Web site at www.msstate.edu/dept/cts for more information.

TESTING: SCTS serves as the University's testing center for national testing programs such as ACT, GRE, NTE, LSAT, GMAT, MCAT, and MAT. Applications for these tests, which are available at SCTS at 100 Lee Hall, should be completed and fees paid well in advance of the desired testing date. Other tests used in counseling are also administered at SCTS. These include personality tests, and tests of ability, and other instruments as needed to assist students.

COMPUTER-BASED TESTING: Student Counseling and Testing Services also administers the University's Computer Based Testing program located at 54 Magruder Street. Students and community members may call (662) 325-6610 to register for computerized applications of the CLEP, GMAT, GRE, Praxis, and TOEFL. See our Web site at www.msstate.edu/dept/cts/testing.

#### G. THE LEARNING CENTER

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.

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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.

#### H. THE CAREER CENTER

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 Career Day, 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.

#### I. 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 70 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 at 27 President's Circle or call (662) 325-2033.

#### J. INFORMATION TECHNOLOGY SERVICES

The Division of Information Technology Services (ITS) manages computing, networking, system development and telecommunications services for students and university departments. The mission of ITS is "to enhance learning, service and research through an advanced information technology environment."

#### www.its.msstate.edu

User Services. 117 Allen Hall. (662) 325-9311. User Services operates the Help Desk, which serves as the primary point of contact for students, faculty, and staff when requesting services or reporting problems to Information Technology Services. Additionally, User Training and Support provides Web development and maintenance services, conducts training sessions, short courses, and provides consulting services to campus information technology users while Desktop Services provides computer support to faculty and staff.

Information Technology Infrastructure. 117 Allen Hall. (662) 325-9311. 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 telephone system, card access system, fiber optic backbone, departmental and building networks, the campus wireless data network, wide area network connections (including Internet and Internet2), and large scale computer, server, and information resources. The primary data center in Allen Hall is the focal point for oversight of the campus network which encompasses over 165 campus buildings, numerous off-campus locations, and several thousand PC, Macintosh, and UNIX workstations. This facility also houses the Internet and Internet2 gateways, a dial-up modem pool, and several large-scale UNIX, Novell, and Windows servers used by academic, research, and administrative units of the University. ITI also maintains general-use Computer Labs in Butler Hall, Mitchell Memorial Library, and several of the Residence Halls. The Butler Hall and Mitchell Memorial Library facilities are open to all students, faculty, and staff, providing PC and Macintosh workstations with an array of applications software. The Residence Hall facilities are open only to students living in campus housing. All residence hall rooms are equipped with standard telephone lines and high-speed data network connections. Standard features on all residence hall lines include basic caller ID, voice mail, and call waiting. Long Distance service is also available to students, faculty, and staff at competitive rates. All residence halls also have complete or partial wireless data network coverage. This unit also operates the Campus Card Office and the University's declining-balance spending account system, MoneyMate.

Enterprise Information Systems. 117 Allen Hall. (662) 325-9311. Information Systems is responsible for application development, maintenance, and support of a broad array of systems that are utilized throughout the University by students, faculty and staff. Systems supported range from small 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 onCampus portal, the WebCT course management system, and the Xtender document management system. Primary database platforms include Oracle and Microsoft SQL Server. EIS is composed of the following units: Application Administration, Web Services, Business Systems, and Student Systems. General responsibilities include software design and development, software testing, system implementation, database administration and on-going maintenance and support.

#### K. 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 or call (662) 325-3335.

#### L. DISABILITY SUPPORT SERVICES

Disability Support Services verifies legitimacy of students who identify themselves as having disabilities. Students with disabilities who need academic accommodations must identify themselves to DSS, provide appropriate documentation of their disability, and make their requests known to the department. Documentation guidelines can be obtained from DSS. Disability Support Services staff reviews the documentation, assesses the needs of students with disabilities, and makes recommendations to the faculty and the University regarding the 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). For additional information or services visit Disability Support Services, Montgomery Hall or call (662) 325-3335.

### VI. STUDENT and CAMPUS LIFE

### A. COLVARD STUDENT UNION

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 films, speakers, concerts, holiday festivals, and College Bowl.

Currently the Colvard Student Union is undergoing a major renovation and expansion scheduled to be completed in Fall 2007. When completed the Union will make available to campus organizations a number of meeting and conference rooms, a ballroom, a small auditorium/theater, and an art gallery. A food court, a full-service bank, a cybercafé/coffee shop, a copy center, and a convenience store are also planned for the Union. In addition to the administrative offices for the Colvard Student Union staff, CAB, Music Makers, and the Maroon Volunteer Center, the Union will be home to major student leadership organizations, including the Student Association, Interfraternity Council (IFC), National Pan-Hellenic Council (NPHC) undergraduate council, and Panhellenic Council. Shared office space will be available for registered student organizations.

Union space and the Lee Hall Auditorium may be reserved by contacting the Union's Reservations Office.

#### 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 40 senators elected to represent the various colleges and schools, as well as areas of student residence.

The judicial branch of the SA includes the Judicial Board, which is made up of five students appointed by the SA president and approved by the senate. The Judicial Board rules in cases involving student discipline and other matters dealing with MSU students.

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 Herbert Hall during the Union renovation, call (662) 325-3917, or visit the Web site at www.sa.msstate.edu.

#### C. STUDENT PUBLICATIONS

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 Student Media Center.

The *Reveille*, the annual yearbook, is published each year by a selected student staff to provide for the participants a lasting record of life in the University. The Reveille offices are in the Student Media Center.

## D. STUDENT ORGANIZATIONS

Mississippi State University has more than 300 registered organizations, grouped as follows: Departmental/Academic (95), Fraternities (17), Sororities (11), Honoraries (42), International/Ethnic (17), Fine/Performing Arts (13), Political (4), Recreation/Hobby (32), Religious (29), Residence Life (17), Service (36), and Publications (4).

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, The *Reflector* (newspaper), and The *Reveille* (yearbook). 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

Eighteen 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 Nu, and Sigma Phi Epsilon.

Eleven 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, Sigma Gamma Rho, Zeta Phi Beta, and Zeta Tau Alpha.

Included among the 28 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, lota 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. PROFESSIONAL and HONORARY FRATERNITIES

More than 70 professional and honorary fraternities are active on the campus. They include: Alpha Epsilon Delta Pre-Med (Pre-Medical), Alpha Kappa Delta Sociological (Sociology), Alpha Lambda Delta (Freshman Scholastic), Alpha Pi Mu (Industrial Engineering), Assoc. of Economic Scholars, Beta Beta Beta Biological (Biology), Blue Key National Honor Fraternity (Activities), Cardinal Key (Leadership), Chi Sigma Iota (Counseling), Delta Pi Epsilon, Elder Statesmen (Upper Classmen), Eta Kappa Nu (Electrical Engineering), Gamma Beta Phi (Educational Service), Gamma Iota Sigma (Business), Gamma Sigma Delta, Golden Key (Student Leadership), Kappa Delta Pi (Education Honorary), Kappa Omicron Nu (Leadership) Home Economics), Kappa Pi (Home Economics), Lambda Pi Eta (Communication), Lambda Sigma, (Sophomore Collegians), Mortar Board (Leadership), Mu Kappa Tau (Marketing), Omicron Delta Kappa (Leadership), Phi Alpha Theta (History), Phi Delta Kappa (Educational), Phi Eta Sigma (Freshman Scholastics), Phi Kappa Phi (Scholastic Honorary), Phi Sigma Pi, Phi Theta Kappa Alumni (Transfer Students), Pi Delta Phi (French), Pi Omega Pi (Business Education), Pi Sigma Alpha (Government), Psi Chi (Psychology), Sigma Alpha Lambda, Sigma Gamma Epsilon (Earth Science), Sigma Gamma Tau (Aerospace Engineering), Sigma Tau Delta (English), Society of Scholars in Arts and Science, Tau Beta Pi (Engineering), Theta Tau (Professional), University Honors Council (General Scholarship), Upsilon Pi Epsilon (Computer Science).

#### G. LYCEUM, SPEAKERS FORUM, BLACKFRIARS

Numerous groups and agencies enrich the cultural life of the campus. Important among these are the Lyceum series, the Speakers Forum program, and Blackfriars Drama Society, which utilize the excellent theater and gallery in McComas Hall.

For many years, the Lyceum series has brought the community a select and varied program of musical, dramatic, dance, and other artistic offerings, including symphony orchestras, ballet companies, traveling theatrical companies, and noted individual artists and performers. The Lyceum is supported by student fees, season ticket sales, an allocation from the University, and private contributions and managed by the student-faculty Performing Arts Committee.

The Speakers Forum series, managed by a committee of the Campus Activities Board, brings to the campus speakers of current interest to students and faculty. The Speakers Forum Committee is made up entirely of students. Admission to the lectures is typically free to students.

The Blackfriars Drama Society, supported by the Department of Communication, usually presents at least two major plays each semester, as well as student-directed one-act plays. In addition, in the fall of each year Blackfriars plays host to the MSU Drama Festival.

#### H. 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 Education. These ensembles offer diverse performance opportunities both on and off-campus. 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 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 Band is 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 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.

The Women's Chorale is devoted to rehearsing and performing music for women's voices. This choir is an excellent opportunity for women seeking to improve their vocal and choral skills. Members of the ensemble are drawn from various disciplines at MSU.

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

#### I. 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 Director of Facilities Use for weddings, funerals, initiations, and group religious activities. Student religious groups are registered through 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 25 active student religious groups are registered with the Colvard Student Union.

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.

#### J. 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; eight 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.

#### K. 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 Larry O. Templeton, Director of Athletics.

Campus athletic facilities include Davis Wade Stadium at Scott Field (football stadium), with a current capacity of 55,080 and the Leo Seal M Club Center, the John H. Bryan Athletic Administration Building, a multi-purpose coliseum which seats 10, 200 for basketball, four practice football fields, a six-court tennis complex, an indoor tennis practice facility, a lighted baseball park with a capacity of 6,700, an all-weather running track, a soccer field, a softball field, an indoor practice facility for basketball and volleyball, and a physical fitness complex with a football field covered with astro turf, a weight room, a training room, a team meeting room, and a locker room.

## VII. TUITION and REQUIRED FEES FOR 2006-2007

Except for tuition and required fees for the College of Veterinary Medicine stated hereafter, the following fees apply to students enrolled full time during the fall or spring term.

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 subject to change without notice.

	Fall	Spring	
	Semester	Semester	Total
A. Tuition & Required Fees	\$2, 298.00	\$2, 298.00	\$4,596.00
B. On-Campus Housing (rates vary)	\$1,671.00	\$1,671.00	\$3,342.00
C. Non Resident Tuition:			
Additional fee for out-of-state students:	\$2,978.00	\$2,9780.00	\$5,956.00
Note: Final registration includes payment of f	oos Enrollment	is not completed	luntil face are paid

Note: Final registration includes payment of fees. Enrollment is not completed until fees are paid

#### Tuition and required fees (Hourly, Rounded)

Undergraduate (for 1-11 hours)

Resident \$191.67 per hour \$248.25 per hour Non-resident fee

Graduate (for 1-8 hours)

Resident \$255.56 per hour Non-resident fee \$331.00 per hour

A student will be considered full-time for tuition and fee purposes when registered for 12 or more hours undergraduate and 9 or more hours graduate. Part-time (on-campus) students registered for 1 to 11 hours undergraduate and 1 to 8 hours graduate will be charged at the per-credit-hour rate for tuition and required fees.

#### **Audit Charges**

There are no extra fees for auditing a course; tuition is the same whether a course is taken as an audit or for credit.

#### **International Student Charges**

All international students are assessed an Administrative Programming fee of \$100 each fall, spring, and summer term. Sponsored international students whose programs of study are administered through the International Services Office are assessed an additional Administrative Service Fee of \$200 each fall, spring, and summer term. Health insurance for international students will be assessed at the prevailing rate for the fall semester and for the spring/summer semester. All international students are required to pay the International Health Insurance Fee unless an acceptable, alternative policy can be proven and accepted by the International Services Office, preferably prior to registration. Health insurance charges will not be removed after the 10th class day.

### **Sponsored International Student Charges**

The International Services Office will administer the programs of study for international students who receive all or most of their financial support in the form of scholarships, grants, or awards from U.S. government agencies, foreign government agencies, private and/or international agencies, or foreign employers, and students whose financial support is administered by foreign embassies and third-party billed by Mississippi State University, assessing a fee of \$200 each fall, spring and summer term.

Mississippi State University employees who have appropriate approval may have tuition and required fees remitted for up to six (6) hours per semester with a maximum of 18 hours per calendar year. Employees are required to pay tuition and required fees for any additional hours taken during the enrollment period and other assessments to their student account. Students, faculty and staff are responsible for service fees incurred if tuition waiver approval is not finalized on a timely basis.

Senior citizens (65 or over) may take courses without paying tuition and required fees, although registration is on a space available basis and must be completed after classes begin.

#### Unpaid balances from previous 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 is cleared.

#### OTHER INFORMATION

#### **Student Activities**

All students, by payment of tuition and required fees, are eligible for use of facilities, participation in intramural sports, admission to intercollegiate athletic events, the student newspaper, student health services and other benefits.

Billing statements are available to students on or about the 15th of each and every month via the University's Web page. These statements contain a comprehensive summary of most charges to the students account by the University. It is the responsibility of the student to maintain a current billing addresses via the Web.

#### **Service Charges**

There is a 25-day grace period to make payment on billed charges. There will be a service charge at the rate of 1.5 percent assessed per month on any charges outstanding greater than 25 days from billing. As a rule, the regular monthly due date falls on the 9th of each month.

#### **Attorney and Collection Fees**

Students who do not pay their fees by the end of the term may be turned over to an outside collection agency for assistance in collecting. The prevailing collection cost rate will be added to the amount owed by the student to cover the collection agency cost. If an Attorney's services are needed to collect an unpaid balance, the student shall be responsible for payment of the attorneys' fees, plus all court and other collection cost incurred.

#### Course Participation Fees

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

#### **Schedule Change Fees**

Courses may not be added after the first 10 class days of a semester. Any change in class schedules between the 10th class day and two weeks before the end of a semester will incur a charge of \$50 per drop. Schedule changes made after initial registration and payment of fees may generate additional charges to students. Such additional charges are subject to the same payment schedules and penalties as the initial charges, and additional charges should be paid promptly to avoid service fees.

#### Other fees

Fees which may be incurred by students include Thesis/Dissertation Binding Fee, \$12; Microfilm Fee, Dissertation, \$55, Thesis, \$45; Copyright \$35; Student Identification Card Replacement Fee, \$10; and Spouse Identification Card, \$16 per semester (allows student spouse to attend campus events in same manner as student), and Professional Golf Management Fee, \$500.

#### **Housing Fees**

To live in a residence hall, students must sign a nine-month housing contract. Contact Housing and Residence Life for current rates of room rental. **PAYMENT and REFUNDS** 

Current tuition and required fees should be paid at the established monthly due date. Partial payments of an account balance are permitted during the semester/term. However, a monthly service fee (1.5 percent) will be assessed on charges unpaid by the due date (approximately 25 days from the billing date). All service charges may be avoided by paying the full account balance each month by the payment due date. If mailing your payment, please mail at least five (5) business days prior to the date to insure it is received and credited to your account by the payment due date.

You are responsible for payment of all tuition and fee charges unless you either CANCEL YOUR SCHEDULE OR WITHDRAW FROM SCHOOL. See refund schedule on the Web, click on Refund Policy for details of refund amounts at various stages of cancellation or withdrawal. Failure to take appropriate withdrawal action may result in significant payment obligations.

Accepted Forms of Payment: Personal or corporate checks, money orders, cashiers' checks, and credit cards (American Express, Discover, MasterCard, Visa). PLEASE PROVIDE YOUR NET ID WITH ALL PAYMENTS. Cash payments may be made only at cashier windows. DO NOT mail or place cash payments in drop boxes.

#### Payment of fees by students receiving financial aid or scholarships

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 of tuition and required fees. The remaining balance of scholarship and financial aid funds is available to be used for other educational expenses only after tuition and fees have been paid. A "Memo" balance of Financial Aid on your statement may not prevent service fees after the first billing for the term. Only timely filing of your Financial Aid will assure a timely disbursement to prevent service fees.

#### Refunds of tuition and fees

During the first 10 class days of an academic semester, courses dropped result in a 100 percent tuition and fees refund. No refunds are made for courses dropped after the 10th class day.

#### **Drop Policy For First And Second 5-Week Summer Terms**

Drops for first five week and second five week summer terms will be refunded at 100 percent during the first three class days. After the third class day, no refunds are made for individual courses dropped. The 10 week term will be refunded at 100 percent during the first five class days. A refund schedule for withdrawals may be obtained from the Registrar.

**Student Accounts**. A financial record for each student is kept in the Account Services Office in Garner Hall. The information is considered confidential; however, the records of students will be available for examination by authorized representatives of the Government.

## **COLLEGE of VETERINARY MEDICINE - 2006-2007**

To inquire about tuition and fee information, please contact the College of Veterinary Medicine at (662) 325-1129 or visit the Web site at www.cvm.msstate.edu.

The College of Veterinary Medicine shall require a \$500.00 deposit from all new entering students into the (DVM) program. This deposit will be due as described in the letters of invitation from the College and shall be applied to the regular tuition of the student and is not refundable.

#### **Overdue Accounts**

The administrative authorities of the University will withhold the transcripts and diplomas, degree certification, letters of good standing, and other certification of enrollment and deny readmission of any student who incurs 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. The respective university department or agency will notify the University Registrar when the indebtedness has been paid.

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.

**Student Obligation**: Students who do not pay their fees by the end of the term may be turned over to an outside collection agency for assistance in collecting. The prevailing collection cost rate will be added to the amount owed by the student to cover the collection agency cost. If an Attorney's services are needed to collect an unpaid balance, the student shall be responsible for payment of the attorneys' fees, plus all court and other collection cost incurred.

#### Use of Checks in Payment of University Fees and other Charges; Banking Facilities

Payment by Check. The University will accept checks in payment of amounts due to the University for University fees, residence hall or housing rentals, utility bills, and other University charges.

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. A student may be dropped from enrollment when a check offered to the University is not honored by the bank on which it is drawn.

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 maximum penalty allowed by law will be charged for any check returned by your bank for any reason. Returned checks are considered non-payment and will result in the voiding of scheduling and assessment of appropriate fees. 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.

Banking Facilities. Automated teller machines are located in the One Stop on East Lee Boulevard and on the ground floor of Colvard Union. These machines offer 24 hour banking services for students, faculty and staff. There are four banks located in downtown Starkville. These banks offer full banking services to all students of Mississippi State University.

#### **Information - Telephone Numbers (MSU Information 325-2323)**

#### **Web Instructions to Access Your Account:**

From the MSU main Web page, select on Campus; secure user access using your personal user i.d. and Net password; click on the Banner tab. From there you can:

- 1. Change your billing address or E-mail address.
- 2. View your current or prior billing statement.
- 3. View your current account detail.
- 4. Make a payment by credit card.
- 5. Access a remittance stub to make payment via U.S. mail
- 6. View your pending financial aid or scholarships

For assistance with Fees, Expenses, Scholarships and Financial Aid, you may use the following resources:

Account Services	325-2071
Admissions and Scholarships	325-2224
Student Financial Aid	325-2450
Registrar's Office	325-2022
Housing and Residence Life	325-3555
MoneyMate	325-3387
Sponsored Student Programs	325-8017
Telecommunications	325-2212

## 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 - 2006-2007

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 \$4,596.00
Books and Supplies \$950.00
Room and Board \$6,331.00
Personal And Transportation \$3,008.00

Total (Mississippi Resident) \$14,885.00

Non-Resident Total \$20,841.00 (Additional fees - \$5,956)

#### 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 2004-2005 year ranged from \$400 to a maximum of \$4,050. Depending on Congressional allocations, Pell Grant amounts may change each year.
- 2. Academic Competitiveness Grant (ACG) Basic eligibility includes, but is not limited to the following: For first and second year undergraduates, Pell Grant Recipients, U.S. citizens, enrolled in a degree program, enrolled full-time, demonstrated financial need and completed what the federal government defines as a Rigorous High School Program of Study. Second year students must also have a 3.0 or better college GPA on a 4.0 scale
- 3. Science and Math Access to Retain Talent (SMART) Grant Basic eligibility includes, but is not limited to the following: For third and fourth year undergraduate students, Pell Grant recipients, U.S. citizens, enrolled in a degree program, enrolled full-time, demonstrated financial need and majoring in one of the eligible science, math or foreign language academic majors as defined by the federal government. Recipients must have a 3.0 or better college GPA on a 4.0 scale.

- 4. Federal Work-Study A program of part-time employment for students who demonstrate financial need. Eligible students may work up to 18 hours per week during regular school sessions.
- Stafford (subsidized and unsubsidized) Student Loans Long-term loans may be provided by participating banks and/or other lending institutions 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. 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 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 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.
- 2. 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

- 1. Academic Scholarships These awards are provided by the University to recognize outstanding academic and personal achievement by students attending MSU. Scholarships are awarded on a competitive and funds available basis by the University Scholarship Committee.
- 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.
  - b. Non-resident Freshman Scholarship Non-resident freshmen who have an ACT composite score of 24 or above or a combined SAT score of 1090 or above, a 3.0 core high school grade point average, who have completed the online scholarship resume, and who are admitted by February 1, will receive a scholarship for 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 or more transferable semester hours, a 3.0 or higher cumulative grade point average, and who are admitted by May 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.
- 5. 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 annually. The supplemental Sumners Academic Excellence Scholarship recognizes outstanding achievement in current full time undergraduate and graduate students with an MSU grade point average of 3.5 or greater; all eligible applicants will be considered for the supplement.
- 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

- 1. 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: www.msstate.edu/dept/militaryscience/info. 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: www.ihl.state.ms.us, 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, ACG. SMART, 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 in paper form or 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 April 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 www.ihl.state.ms.us
- 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 April 1 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.
- Students currently enrolled at MSU are evaluated primarily on the basis of a submitted online scholarship resume and cumulative grade-point averages.
- 3. Transfer students are evaluated on the basis of a submitted on-line scholarship resume, cumulative grade point average, transferable hours and admission by the May 1 priority date.

- 4. Entering freshmen are evaluated on the basis of their ACT composite score, core high school grade point average, high school class standing, leadership attributes and admission by the February 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.
- 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.

A student may appeal by writing to: University Scholarship Appeals Committee, Office of Admissions and Scholarships, Box 6334, Mississippi State, MS 39762.

All appeals must be in writing and include the student's name, social security number, telephone number and all the facts and documentation upon which the appeal is based. The appeal must be received by Office of Admissions and Scholarships at least five (5) days prior to the last day to register during the spring and fall semester and prior to registration day for each summer session. The University Scholarship Appeals Committee has authority over all appeals and its decisions are final.

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

- 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 financial need as determined by the student's cost of attendance and federal financial need analysis report as derived from the FAFSA. 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 University 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 withdrew, 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 withdraws, drops all classes, or voids his/her schedule, etc., with an effective date prior to the first day of class for a semester or term did not establish eligibility for any aid funds that may have been disbursed for that semester or term. In either case, the student aid recipient 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 application process may be obtained from the Office of Admissions and Scholarships at www.admissions.msstate. edu/scholarships or 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.

#### OFFICE of DISTINGUISHED SCHOLARSHIPS

Mississippi State University provides the Office of Distinguished Scholarships to identify and assist well-qualified undergraduate students in becoming candidates for national and international awards such as the Rhodes Scholarship, the Goldwater Scholarship, the Marshall Scholarship, and the Truman Scholarship. The unit also assists students who are nominated for recognition in programs such as those sponsored by USA TODAY and the Rotary International.

e-mail: nmccarley@honors.msstate.edu

Web: www.msstate.edu/dept/Honors College

Prospective students are encouraged to investigate the Web sites of the major scholarship programs. For information on the opportunities:

Nancy McCarley, Director Office of Distinguished Scholarships P.O. Box EH Mississippi State, MS 39762 (662) 325-2522

#### GRADUATE ASSISTANTSHIPS

Research, teaching, and service assistantships are available on an annual or nine-month basis. Individual academic and nonacademic departments/units are responsible for awards, the duties and responsibilities, stipend rate, and work schedule. The minimum stipend rate is \$600 per month.

Application for an assistantship appointment must be submitted to the college, department, school, support unit, etc. where a position is available. A generic "Application for Graduate Assistantship" is provided on the Web by Office of the Graduate School, location: http://www.msstate.edu/dept/grad/forms.htm; however, any work area has the option to require application submission on a form specific to that area. Departments are responsible for establishment of application deadlines and review procedures pertinent to the assigned work area.

Individuals interested in any other form of financial aid (grant, loan, or scholarship) should contact the Department of Student Financial Aid and Scholarships, Box AB, Mississippi State, MS 39762-5507. That office also has information available on the MSU Web at http://www.msstate.edu/dept/sfa/.

A Graduate Assistant Handbook containing more detail about requirements and procedures applicable to these awards is available in the Office of the Graduate School, 116 Allen Hall. This handbook is available electronically, by accessing the following Web site: http://www.msstate.edu/dept/grad/publications.htm.

Required Course Load. Each student employed as a graduate assistant must maintain a full-time student status during enrollment periods throughout the employment duration.

Academic Performance. Students must demonstrate satisfactory progress in their specified program to retain an assistantship.

Matriculation Fee. When enrollment periods parallel an assistantship employment period, a graduate assistant will receive a student account credit of approximately 71 percent of assessed tuition and required fees plus 100 percent of assessed nonresident tuition fees. Student account charges in excess of the applied tuition exemption are the student's personal responsibility.

Graduate Research Assistantships. Graduate Research Assistants (GRAs) are employed by many of the University's academic, research, and administrative offices. This is an excellent opportunity to learn new techniques and methods, as well as expand knowledge by association with the research-oriented responsibilities.

Graduate Service Assistantships. Students who are employed to aid faculty and staff members with administration and operations within an office are classified as Graduate Service Assistants (GSAs). Many academic and nonacademic units offer these assignments with duties and work time variances depending on office needs.

Graduate Teaching Assistantships. Most academic areas offer teaching assistantships. Graduate Teaching Assistants (GTAs) normally serve in an instructional capacity and are selected on the basis of a student's past teaching experience or academic promise. All first time teaching assistants are required to attend the Teaching Assistant Workshop that is held annually by the Office of the Graduate School prior to the beginning of the fall semester.

#### Teaching Assistant Workshop

All first time graduate teaching assistants are required to attend the Teaching Assistant Workshop which is held annually prior to the beginning of the fall semester. The Workshop consists of two (2) segments.

Segment one - Required of all teaching assistants. This segment focuses on the role of a classroom instructor. Presentations may include topics such as the role of a GTA, syllabus development, effective teaching techniques, understanding sexual harassment, the impact of cultural diversity, ethics in the classroom, assessing academic achievement, and academic support services.

Segment two - Required of all teaching assistants whose native language is not English. This segment focuses on communication skills, cultural adjustment, and University orientation. It concludes with an English language proficiency test. The test consists of a five-minute student presentation to a panel of three judges. After each presentation, the judges engage the student in a dialog related to some aspect of the presentation in order to evaluate the student's language proficiency.

Students who are not successful in the language proficiency examination are invited to attend a special semester long class at no cost to them. This class further assists the students with their language deficiencies as diagnosed in the fall workshop. At the end of the semester, the students are again tested on their language skills.

Failure to complete segment one will render a student, international or domestic, ineligible for a teaching assistantship. Students whose native language is not English must satisfactorily complete both segments to be eligible for classroom instruction.

Minority Assistance Program. Some special funds usually exist to assist individuals who represent groups traditionally under-represented in a field of graduate study. An individual who represents such a group may make inquiry to the Office of the Graduate School, P.O. Box G, Mississippi State, MS 39762-5507.

## X. CONDUCT AND DISCIPLINE; TRAFFIC AND PARKING

#### 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.htm/ 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. PARKING, VEHICLE REGISTRATION, AND TRAFFIC REGULATIONS

Possession and use of motor vehicles on the campus are controlled under regulations approved by the Board of Trustees of Institutions of Higher Learning. These regulations require that any person who regularly or occasionally operates or parks a motor vehicle on the campus and streets of the University must register the vehicle at the beginning of each school year or as soon as it is brought on the campus, and must display on it, as instructed, a numbered identifying decal or hang tag.

Parking areas are designated and clearly marked for staff, residence-hall students, and commuter students.

The rules governing parking and traffic on campus may be viewed at www.msstate.edu/dept/audit/91307.html For questions regarding parking, please contact the Parking Services unit at (662) 325-2665 or (662) 325-2661. Parking Services is located in the Roberts Building.

## 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 generate support for Mississippi State University through the development and implementation of programs, activities and events for its alumni and friends.

The alumni of Mississippi State University have their permanent headquarters in the Hunter Henry Center on the campus. Housed there are over 130,000 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 and Mississippi State University Connection; planning and organizing numerous alumni meetings and special events; supporting various fund-raising programs for the University through the MSU Foundation's Fund for Excellence 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, including the Scholars' Recognition Program; 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.

Sixty-four alumni chapters are chartered in Mississippi and 21 in other states. In addition to a 43-member National Board of Directors and two standing committees, most chapters and societies have officers, committees, and boards of directors. This totals more than 1,800 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 page at www.msubulldogs.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 the incorporation of the foundation, alumni and friends have invested nearly \$500 million in Mississippi State University through the foundation. In the past five years, more than \$260 million of this money has been contributed. Also during the same period, the endowment has grown from \$154 million to over \$180 million.

## XII. EQUAL OPPORTUNITY STATEMENT

Mississippi State University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation or group affiliation, age, disability, or veteran status. This nondiscriminational 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; 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, 106 McArthur Hall, P.O. Box 6199, Mississippi State, MS 39762. (662) 325-2493. Campus mailstop 9609.

# College of Agriculture and Life Sciences

#### VANCE WATSON, Dean

#### Lynn L. Reinschmiedt, Associate Dean

Office: 105 Lloyd-Ricks 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 14 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 University Core Curriculum as published in this Bulletin. (See Listing of Approved Core 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

Land Surveying

Natural Resource and Environmental Management

Precision Agriculture/Ag Systems

Agribusiness

Agricultural, Food and Resource Economics

Food and Fiber Production Management

Food Marketing

Agricultural Policy and Law

Environmental and Resource Economics

Agricultural Information Science

Agricultural Science

Biochemistry

Bioinformatics

Forensic Science

Pre-Medicine

Pre-MBA

Pre-Pharmacy

Food Science, Nutrition and Health Promotion

Food/Nutrition

Food Safety/Pre-Veterinary Medicine

Food Processing/Business

Food Science

Human Sciences

Apparel, Textiles and Merchandising

Human Development and Family Studies

Gerontology Certificate

Integrated Pest Management

Landscape Architecture

Landscape Contracting and Management

Agronomy

Crop Science

Golf and Sports Turf Management Integrated Crop Management Seed Technology Soil Conservation Soil Science

Horticulture

Floriculture and Ornamental Horticulture Retail Floristry Management

Poultry Science

Business

Management

Manufacturing

Pre-Veterinary Medicine

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
WorldGeography/PoliticalScience

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.

### SHORT COURSES in AGRICULTURE and LIFE SCIENCES

Short courses ranging from three days to two weeks in duration are given when the need arises. The nature of the educational program and its length are determined by the needs of the particular groups served. Information regarding short-course programs may be secured from the dean or the head of the department offering the course.

#### 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 28-32 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. Brian Rude, Pre-Veterinary Advisor
4025 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. John Boyle, 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 and Technology
Dr. Wes Schilling, Pre-Veterinary Advisor
105 Herzer Dairy Science Building
Box 9805
Mississippi State MS 39762

Mississippi State, MS 39762 Phone: (662) 325-3200

Poultry Science Pre-Veterinary Medicine Program
Department of Poultry Science
Dr. Tim Chamblee, Pre-Veterinary Advisor
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

BCH 3613 Elem. Biochemistry

BIO 1504 Principles of Zoology

BIO 3304 General Microbiology

BIO 4403 Immunology

CH 1211 Invest in Chemistry I

CH 1213 Chemistry I

CH 1221 Invest in Chemistry II

CH 1223 Chemistry II

CH 4511 Organic Chemistry Lab

CH 4513 Organic ChemistryCO 1003 Fund of Public Speaking

EN 1103 English Composition

EN 1113 English Composition

Fine Arts Elective

Humanities (6 hrs)

MA 1313 College Algebra

Mathematics Requirement (3 hrs)

NTR 4115 Nutrition

PH 1113 General Physics I

PO 3103 Genetics

Social/Behavioral Science (6 hrs)

**Total Credit Hours: 67** 

Electives will be needed from requirements toward the student's alternate major to complete the minimum 124 hour degree. Those students with an alternate major in agriculture will choose electives from the following courses:

ADS	1114	Animal Science
AEC	2713	Intro to Food and Resource Econ
PSS	3303	Soils
PSS	3301	Soils Lab
PSS	1313	Plant Science
BIO	1203	Plant Biology
GA	1111	Survey of Agriculture
BIO	4103	Experimental Genetics
ADS	4613	Physiology of Reproduction
PO	4824	Poultry Physiology
VS	2014	Anatomy & Physiology of Farm Animals*
VS	1012	Intro to Veterinary Medical Careers

Strongly recommended.

#### Department of AGRICULTURAL ECONOMICS (AEC)

Major Advisor: Randy Little Office: 313-B Lloyd-Ricks

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. To formulate successful business policies, farm managers and agribusiness firm managers must fully comprehend the nature and influence of economic forces on prices, costs, product demand and production plans. The entire business complex surrounding the food and fiber sector must be managed in a manner consistent with reasonable returns to the factors of production and respond to consumer demands. Two majors, Agricultural, Food and Resource Economics and Agribusiness, are offered to provide an understanding of economic forces and business management principles as well as general knowledge of technical agriculture and related sciences. Students completing either curriculum would also 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.

#### AGRICULTURAL, FOOD AND RESOURCE ECONOMICS

The Agricultural, Food and Resource Economics (AFRE) major is designed to provide students flexibility in preparing for a wide variety of careers in the agricultural and natural resource-based industries. The major provides all students excellent functional training in applied economics and business while offering the flexibility for a student to specialize in specific areas. Potential career fields include, but are not limited to, agricultural and environmental law; natural resource and environmental policy analysis; economic consulting; agricultural production management; commodity and equities marketing; and food chain supply management to include processing, sales, and distribution. Also, students desiring postgraduate training will have a solid academic foundation for pursuing graduate degrees.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR EΝ 1163 Accelerated Comp I 1113 English Comp II OR EN ΕN 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

ST2113 Introduction to Statistics or an equivalent statistics course taught as a mathematics or statistics course

Science (7 h	ours)	
СН	1043	Survey of Chemistry I with CH 1051 lab OR a higher level chemistry course with lab
BIO	1123	
BIO	1203	
Humanities	(6 hours	s)
PHI	3013	
		another introductory Philosophy (PHI) course OR
2.1		Foreign Language Course
3 hor		Select from University Core
Fine Arts (3	hours)	
		Select from University Core
Social/Behar	vioral S	ciences (6 hours)
	2713	
		Principles of Microeconomics
	2113	Principles of Macroeconomics
Major Core		
	2013	Principles of Financial Accounting
	2023	Principles of Managerial Accounting
	2611	
	3113	
	3213	Introduction to Agribusiness Management International Trade in Agriculture
	3213	
	3413	Intro to Food Marketing
	3513	
AEC	4133	Analysis of Food Markets & Prices

#### Oral Communication Requirement

AEC 4413

AEC 4523

EC 3123

3 hours

6 hours

3113

CO 1003 Fundamentals of Public Speaking

Free Electives

#### 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 bulletin to determine the prerequisites for each course.

Public Problems of Agriculture

Farm Financial Management

Intermediate Macroeconomics

Intermediate Microeconomics

Restricted CALS Elective\*\*

\*\* Restricted CALS electives include: ABE 1863, Eng Tech in Ag; ADS 1114 Animal Science; AIS 3803 Leadership Development in Ag; PSS 1313 Plant Science; PSS 3303 Soils; EPP 3113 Intro to Plant Pathology; EPP 4154 Gen. Entomology; FNH 1103 Intro to Food Science; HS 4193 Social & Cultural Aspects of Food; PO 3313 Comm. Poultry Prod; PSS 3313 Intro Weed Science; and WF 1213 Wildlife and Fish Conservation

#### Choose one of the following concentrations:

#### **Food and Fiber Production Management Concentration**

Financial & Commodity Futures Marketing AEC 4123

AEC 4343 Advanced Farm Management

26 hours Restricted Electives\*

\* Students must select, with advisor approval, appropriate electives from departments within the Division of Agriculture, Forestry, and Veterinary Medicine. At least 21 hours must be 3000-level or

#### Total hours needed for major: 124

#### **Food Marketing Concentration**

AEC 4123 Financial & Commodity Futures Marketing

Agribusiness Firm Management AEC 4113 MKT 3013 Principles of Marketing

23 hours Restricted Electives\*

#### Total hours needed for major: 124

\* Choose from: AEC 4333 Econ of Aquaculture, AEC 4530 Agribusiness Mgt Intern, AEC 4713 Quant. Econ, AEC 4723 Model for Ag Econ, AEC 4733 Econometric Analysis in Ag Econ, CO 1223 Intro to Comm Theory, CO 1403 Intro to Mass Media, CO 3803 Prin of PR, EC 4223 Labor Law Employ Policy, FNH 4164 Quality Assurance of Food Products, FNH 4173 Food Packaging, FNH 4593 New Food Devel., HS 3303 Consumer Econ, HS 4193 Social & Cultural Aspects of Food, MKT 3213 Retailing, MKT 4123 Advertising

#### Agricultural Policy and Law Concentration

AEC 4233 Adv Topics in Environmental Economics

4423 Intro to Public Finance 1113 American Government PS 2703 Intro to Public Policy 20 hours Restricted Electives

#### Total hours needed for major: 124

\* Choose from: AEC 4123 Fin. & Commodity Futures Mktg, AEC 4333 Econ of Aquaculture, AEC 4530 Agribusiness Mgt Intern, AEC 4713 Quant. Econ, AEC 4723 Model for Ag Econ, AEC 4735 Econ, AEC 4723 Model for Ag Econ, AEC 4735 Econ, AEC 4723 Model for Ag Econ, AEC 4723 Model for Ag Econ, AEC 4723 Econ, AEC 4723 Model for Ag Econ, AEC 4723 Econ, AEC 4723 Model for Ag Econ, AEC 4735 Econ, AEC 4724 Econ, AEC 4724 Econ, AEC 4725 Econ, AEC 4724 Econ, AEC 4725 Eco

#### **Environmental and Resource Economics Concentration**

AEC 4233 Advanced Topics in Environmental Econ

AEC 4343 Advanced Farm Management

4263 Environmental Law EC 4423 Intro to Public Finance 20 hours Restricted Electives

#### Total hours needed for major: 124

\* Choose from: ABE 2263 Ag Survey & Drainage, ABE 2873 Land Surveying, ABE 3513 GPS & GIS in Ag and Eng., AEC 4333 Econ of Aquaculture, AEC 4530 Agribusiness Mgt Intern, AEC 4713 Quant. Econ, AEC 4723 Model for Ag Econ, AEC 4733 Econometric Analysis in Ag Econ, BIO 250 Envir. Quality, EC 3423 Gov't & Business, FO 3123 Forest Ecology and Global Envir., FO 4113 Forest Resource Econ, FO 4413 Nat. Resource Policy, PS 4743 Envir. Policy, SO 4173 Envir and Society, WF 1213 Intro to Wildlife & Fish Conserv, WF 4383 Wetlands Ecology & Mgt., WF 4463 Human Dimension of Fish & WIL Mgt. WE 4473 Wildlife & Fish-practices sion of Fish & WL Mgt, WF 4473 Wildlife & Fisheries Practices

#### **AGRIBUSINESS**

The Agribusiness (AGB) major provides training in business including accounting, management, marketing, finance and economics, along with training in the agricultural sciences. A student who plans to work in an off-farm agricultural profession can greatly enhance his/her training for a particular specialty by carefully choosing the courses in his/her area of interest. The program of study is designed to give the student considerable flexibility in his/her chosen field of study and to prepare him or her for career positions with all types of firms involved in getting food and fiber to the consumer.

#### **University Core**

English Composition (6 hours)

EN 1103 English Comp I OR EN 1163 Accelerated Comp I ΕN 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

2113 Introduction to Statistics or an equivalent statistics course taught as a mathematics or statistics course

Science (7 hours)

Survey of Chemistry I with CH 1051 lab OR CH 1043 a higher level chemistry course w/ lab

BIO 1123 Animal Biology OR

BIO 1203 Plant Biology

Humanities (6 hours)

Business Ethics OR PHI 3013

introductory Philosophy (PHI) course OR

Foreign Language course

3 hours Select from University Core

Fine Arts (3 hours)

Select from University Core

Social/Behavioral Sciences (6 hours)

AEC 2713 Intro to Food & Resource Econ OR Principles of Microeconomics 2123 2113 Principles of Macroeconomics

#### **Major Core**

ACC 2013 Principles of Financial Accounting ACC 2023 AEC 2611 AEC 3113 Principles of Managerial Accounting Seminar I Introduction to Quantitative Economics AEC 3133 AEC 3213 Introduction to Agribusiness Management International Trade in Agriculture AEC 3233 Introduction to Environmental Econ & Policy AEC 3413 AEC 4133 Intro to Food Marketing Analysis of Food Markets & Prices AEC 4413 Public Problems of Agriculture AEC 4113 Agribusiness Firm Management BL 2413 Legal Environment of Business EC 3113 Intermediate Macroeconomics EC Intermediate Microeconomics 3123 3123 FIN Financial Management MGT 3114 Principles of Management and Production Principles of Marketing MKT 3013 9 hours Ag Econ Electives\*\* 3 hours Ag Econ/College of Business Electives\*\*++ College of Business Electives\*\*+ 6 hours Restricted CALS Electives\*\* 6 hours

3 hours Communication or Computer Elective

4 hours Free Electives Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

AIS 3203 Introduction to Technical Writing

#### Total hours needed for major: 124

- Students should contact an advisor to verify the equivalency of a course.
- \*\* Restricted CALS electives include: ABE 1863, Eng Tech in Ag; ADS 1114 Animal Science; AIS 3803 Leadership Development in Ag; RSS 1313 Plant Science; PSS 3303 Soils; EPP 3113 Intro to Plant Pathology; EPP 4154 Gen. Entomology; FNH 1103 Intro to Food Science; HS 4193 Social Cultural Aspects of Food; PO 3313 Comm. Poultry Prod; PSS 3313 Intro Weed Science; and WF 1213 Wildlife and Fish Conservation
- \*\*\* 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.
- \*\*+ Choose any 3000 level or above courses from the College of Business and Industry. Up to two courses in any foreign language can count toward COBI electives. A foreign language course cannot simultaneously satisfy both COBI and humanities elective requirements.
- Choose any course from the Dept of Ag Econ, Choose any 3000 level or above courses from the College of Business and Industry. Up to two courses in any foreign language can count toward COBI electives. A foreign language course cannot simultaneously satisfy both COBI and humanities elective requirements.

#### Department of AGRICULTURAL and BIOLOGICAL ENGINEERING (ABE)

#### Agricultural Engineering Technology and Business (AETB)

Department Head: Dr. William Batchelor Office: 100 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 Department through the College of Agriculture and Life Sciences.

The AETB program provides the agricultural industry with men and women 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 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 five concentrations: (1) Aquacultural Systems, (2) Enterprise Management, (3) Precision Agriculture, (4) Gin Management & Technology, and (5) Natural Resources & Environment Management. These concentrations are achieved by completing 18 hours of specified emphasis electives as approved by an AETB advisor. In addition, a Land Surveying 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 Gin Management and Land Surveying concentrations include an intern program allowing students to apply educational concepts in real-world settings. The Precision Agriculture concentration provides courses in remote sensing, GPS, GIS, and surveying to enhance the student's abilities for careers involving spatial technologies.

All new students in AETB are required to have a laptop computer. Students should check with the ABE Department for equipment specifications prior to purchasing. Transfer credits with a grade of C or higher will be considered toward fulfillment of the degree requirement in the AETB curriculum. A maximum of seven 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), agri-chemical, agricultural lending, aquaculture, banking, cotton ginning, seed & grain processing, crop consulting, agricultural equipment manufacturers and sales, farm management, land surveying and food

Land Surveying. Individuals can become registered as a Land Surveyor in Mississippi by either (a) seven years combined surveying experience and testing or (b) academic training, three years of surveying experience (supervised by a registered land surveyor) and testing. The state board for Professional Engineers and Land Surveyors requires that an individual complete 62 hours of specific course work in order to meet the academic requirements for registration. These 62 hours include nine hours of Surveying, nine hours of Mathematics including Calculus I, eight hours of Physics, three hours of Graphics, six hours of Computer Applications, nine hours of English Composition/Writing and 18 hours of recommended electives. The following courses are needed to become a registered Land Surveyor in Mississippi and obtain a Bachelor of Science degree in Agricultural Engineering Technology and Business. In order to become a registered Land Surveyor in the state of Mississippi through academic training (see "b" above), one must: (1) complete the required course work (62 hrs.), (2) pass the Land Surveyor Intern examination (administered by the Mississippi Board of Professional Engineers and Land Surveyors), (3) successfully complete a three year internship, and (4) pass the Land Surveyor examination (administered by the Mississippi Board of Professional Engineers and Land Surveyors). Requirements for registration in other states can vary. The following sequence of courses allows the student to take the Land Surveyor Intern examination after completion of the Junior year. Employment opportunities for registered land surveyors in Mississippi include self-employment, an extensive number of land surveying or engineering firms, as well as local, state, and federal government agencies.

#### **University Core**

English Composition (6 hours) English Comp I OR ΕN 1103 ΕN 1163 Accelerated Comp I 1113 English Comp II OR 1173 Accelerated Comp II EΝ Mathematics (6 hours) MA 1313 College Algebra MA 1323 Trigonometry Science (9 hours) PH 1113 General Physics I PΗ 1123 General Physics II CH 1043 Survey of Chemistry I Humanities (6 hours)

3 hours Select from University Core 3 hours Select from University Core Fine Arts (3 hrs) Select from University Core 3 hours Social Science (6 hours) AEC 2713 Intro to Food and Resource Econ 3 hours Select from University Core **Major Core** ABE 1073 Agricultural Mechanics ABE 2063 Intro to Ag Engineering Tech Land Surveying ABE 2873 ABE 3513 GPS and GIS ABE 4263 Soil and Water Management Building Construction ABE 4383 Elec Applications ABE 4473 ABE 4961 Seminar EG 1143 **Graphic Communications** AETB Elective - choose one of the following: ABE 2173 Internal Combustion Engines ABE 4163 Machinery Mgt for Agro-Ecosystems Science Courses CH 1053 Survey of Chemistry II CH 1051 **Experimental Chemistry Business Courses** ACC 2013 Principles of Financial Accounting ACC 2023 Principles of Managerial Accounting 2413 Legal Environment of Business MGT 3513 Intro Human Resources Mgt Financial Elective - choose one of the following: INS 3413 Intro to Personal Finance Planning FIN 2003 Personal Money Management FIN 3113 Financial Systems Oral Communication Requirement CO 1003 Fundamentals of Public Speaking Writing Requirement AIS 3203 Intro to Tech Writing

Computer Literacy Requirement

ABE 1863

Satisfied by successful completion of EG 1143, ABE 3513 and ABE 4473.

#### Choose one of the following concentrations:

#### Aquaculture Systems - choose 18 hours\*

Engineering Tech in Ag

PSS 3303 Soils PSS 3301 Soils Lab ADS 1114 Animal Science OR BIO 1504 Principles of Zoology PSS 1313 Plant Science OR Plant Biology BIO 1203 Ag Business Management AEC 3133 Electives: choose 18 hours\* BIO 3524 Biology of Vertebrates CVM4134 Aquatic Animal Health Mgt WF 4183 Principles and Practices of Aquaculture WF 4372 Water Quality Management WF 4371 Water Quality Mgt Lab FNH 2664 Food Processing OR FNH 4613 Seafood Processing Aquatic Science Elective - consult advisor 3 hours

#### Total hours needed for major: 124

#### **Enterprise Management**

ABE 1863	Engineering Tech in Ag
PSS 3303	Soils
PSS 3301	Soils Lab
ADS 1114	Animal Science OR
BIO 1504	Principles of Zoology
PSS 1313	Plant Science OR
BIO 1203	Plant Biology
AEC 3133	Ag Business Management

#### Electives: choose 18 hours\*

- MA 1613 Calculus for Business and Life Sciences
- Intro to Statistics
- ST 2113 AEC 3213 International Trade in Ag
- AEC 3233 Intro to Environmental Economics
- Enterprise Mgt Elective consult advisor 3 hours 3 hours Enterprise Mgt Elective - consult advisor

#### Total hours needed for major: 124

#### **Precision Agriculture**

- ABE 1863 Engineering Tech in Ag
- PSS 3303 Soils
- PSS 3301 Soils Lab
- Animal Science OR ADS 1114
- BIO 1504 Principles of Zoology
- PSS 1313 Plant Science OR
- BIO 1203 Plant Biology AEC 3133 Ag Business Management

#### Electives: choose 18 hours\*

- Forest Photogrammetry FO 4312
- FO 4311 Forest Photogrammetry Lab
- Remote Sensing Applications FO 4452
- 4451 FO
- Remote Sensing Applications Lab GIS for Natural Resource Mgt 4472 FO
- GIS for Natural Resource Mgt Lab FO 4471
- GR 2313 Maps & Remote Sensing
- PSS 4373 Geospatial Agronomic Management
- Precision Ag Elective consult advisor 3 hours

#### Total hours needed for major: 124

#### Gin Management and Technology - choose 18 hours\*

- ABE 1863 Engineering Tech in Ag
- PSS 3303 Soils
- PSS 3301 Soils Lab
- Animal Science OR ADS 1114
- BIO 1504 Principles of Zoology
- PSS 1313 Plant Science OR
- Plant Biology BIO 1203
- AEC 3133 Ag Business Management

#### Electives: choose 18 hours\*

- Cotton Ginning Systems & Mgt Fiber and Oil Seed Crops ABE 4453
- PSS 4133
- PSS 4253 Seed and Grain Conditioning and Storage
- TKI 3043 Industrial Safety
- TKI 4113 Industrial Fluid Power
- TKI 4103 Industrial Control Systems
- ABE 3700 Internship in Gin Management & Tech

#### Total hours needed for major: 124

#### **Land Surveying Concentration**

- CE 2213 Surveying
- CE 4233 Control Survey
- CE 4243 Land Surveys
- MA 1713 Calculus I
- MGT 3323 Entrepreneurship OR
- BL 4243 Legal Aspects of Entrepreneurship
- Emphasis Electives 9 hours\*\*

# Restricted Electives - 5 hours\*\*\* Computer Applications - choose 6 hours from the following:

- AIS 2613 Intro to Decision Science
- AIS 4203 Applications of Computer Tech in AIS
- AIS 4303 Information Tech in Ag Learning Systems BIS 1012 Intro to Business Information Systems
- TKT 1273 Computer Applications
- FO 3102 & 3101 Computer Apps for Forest Resources

#### Natural Resource & Environmental Management

- ABE 1863 Engineering Tech in Ag
- PSS 3303 Soils
- PSS 3301 Soils Lab
- ADS 1114 Animal Science OR
- BIO 1504 Principles of Zoology PSS 1313 Plant Science OR
- Plant Biology BIO 1203
- AEC 3133 Ag Business Management

#### Electives: 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
- Water Resources GG 3613
- 4613 Physical Hydrogeology GG

#### Total hours needed for major: 124

- $^{\ast}$   $\,$  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.
- \*\*\* Any geology, CAD or statistics course, PSS 3303, TKB 3133, TKI 3043, WF 4253 or any 3000-4000 level course from FO, MGT, MKT or REM; One course must be a 3000-4000 level course.

#### Department of ANIMAL and DAIRY SCIENCES

Major Advisor: Associate Professor Brian Rude; Office: 4024 Wise Ctr

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, reproductive and lactational physiology, marketing, management, evaluation, product processing as related to farm animals. A student may pursue one of the two general concentra-tions within the curriculum. Students interested in a career in animal production and/or allied industries would choose the Production/Management concentration. Within the Production/Management concentration, a student may choose to emphasize in one of three species: Meat Animal, Dairy or Equine. Students pursuing admission to the College of Veterinary Medicine or the Graduate School would choose the Science concentration. The 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.

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.

#### **University Core**

English Composition (6 hours)

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

Mathematics (6 hours)

Select from University Core

Science (9 hours)

See Major Core

Humanities (6 hours)

Select from University Core

Fine Arts (3 hours)

Select from University Core

Social Sciences (6 hours)

Select from University Core

#### **Major Core**

- 7-8 hours Chemistry Sequence
- (CH 1043, 1053 & 1051 or CH 1211, 1213, 1221 & 1223)
- 4 hours Organic Chemistry & Lab
- (CH 2503 & 2501 or CH 4513 & 4511)
- Biochemistry BCH 3613 or BCH 4603 3 hours
- BIO 3304 General Microbiology
- BIO 1504 Principles of Zoology

ADS	1114	Animal Science
ADS 4		Nutrition
ADS 4		Animal Breeding
		2
ADS 4		Physiology of Reproduction
ADS 4	4611	Practices in Phy of Reproduction
ADS 4	4423	Animal Science Internship OR
ADS 3	3312	Livestock Management Practices
ADS 4	4221	Animal and Dairy Sciences Seminar
3 hour	`S	Capstone Elective Course
Oral Commun	nication	n Requirement
CO	1003	Fundamentals of Public Speaking
Writing Requi	irement	t
- 1		Intro to Tech Writing
Computer Lite	eracv	<u> </u>
TKT	-	Computer Applications or equivalent
11/1	1413	Computer Applications of equivalent

#### Choose one of the following concentrations:

### Production/Business Management Concentration (select species emphasis below)

(select species emphasis below)

```
Meat Animal Emphasis (25-28 hours)
   ADS 4213
               Nutrient Requirements & Form of Rations
   ADS 4412
               Livestock Sales I
   PSS 4103
               Forage & Pasture Crops
   ADS 4323
               Beef Cattle Science
   ADS 4113
               Swine Science
   ADS 3213
               Perf Analysis of Meat Animals
   ADS 4314
               Meats Processing
               1 Production Elective*
   2-4 hours
   2-3 hours
               1 Evaluation Elective **
Dairy Emphasis (29-31 hours)
   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 4814
               Dairy Farm Management
               Dairy Cattle Appraisal
   ADS 3813
   ADS 4623
               Physiology of Lactation
   4-7 hours
               2 Production Electives*
               1 Evaluation Elective**
   2-3 hours
Equine Emphasis (28-31 hours)
   ADS 2102
              Equine Conf & Performance Eval
   ADS 3232
               Horse Science
   ADS 4314
               Meats Process OR
   FNH 4164
               Quality Assur of Food Prod
   ADS 4213
               Nutrient Requirements & Form of Rations
   ADS 4412
               Livestock Sales I
   PSS 4103
               Forage & Pasture Crops
   ADS 4333
               Equine Exercise Physiology
               Horsemanship Elective: choose one
   2-3 hours
               ADS 1132 Western Equitation
               ADS 2212 Equine Behavior
               ADS 3233 Intro to Therapeutic Riding
```

In addition, for all Prod/Bus Concentrations, students must select:

Business electives\*\*\*

4-7 hours

2-3 hours

12-13 hours Approved courses listed below+

2 Production Electives\*

1 Evaluation Elective\*\*

Free electives

0-7 hours Free electives

#### Total hours needed for major: 124

- \* Production Electives: ADS 3232 Horse Science; ADS 4113 Swine Science; ADS 4222 Small Rum. & Diver. L'stock Prod; ADS 4323 Beef Cattle Science; ADS 4814 Dairy Farm Mgt;
- \*\* Evaluation Electives: ADS 2102 Equine Conformation, ADS 3142 Meats Judging I, ADS 3213 Perf Anal of Meat Animals, ADS 3813 Dairy Cattle Appraisal, ADS 4212 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 Concentration**

ADS 4314	Meats Processing OR
FNH 4164	Quality Assur of Food Prod
PO 3103	Genetics I
BIO 4413	Immunology
VS 3014	Anatomy & Physiology
PH 1113	General Physics I
ADS 4623	Physiology of Lactation
4-7 hours	2 Production Electives *
2-3 hours	1 Evaluation Elective **
Science Elective	es - choose two courses
BIO 4503	Vertebrate Histology
BIO 4504	Comparative Vertebrate Embryology
BIO 4514	Animal Physiology
BIO 4613	General Biochemistry
BIO 2102	Cell Biology
14!	

#### Free electives

4-12 hours

#### Total hours needed for major: 124

- \* Production Electives: ADS 3232 Horse Science; ADS 4113 Swine Science; ADS 4222 Sheep Science; ADS 4323 Beef Cattle Science; ADS 4814 Dairy Farm Mgt;
- \*\* Evaluation Electives: ADS 2102 Equine Conformation, ADS 3142 Meats Judging I, ADS 3213 Perf Anal of Meat Animals, ADS 3813 Dairy Cattle Appraisal, ADS 4212 Livestock Eval, FNH 2112 Food Products Eval.

### 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 B.S. degree in Animal and Dairy Sciences after successfully completing the first year of Veterinary Medicine are listed.

University Core 36 hours

Dept Core (eliminate Capstone & Seminar) 41-42 hours

Science Concentration - excl. Science & Free Elective 28-30 hours

To qualify for the B.S. 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.

# Department of BIOCHEMISTRY and MOLECULAR BIOLOGY (BCH)

Major Advisor: Professor John A. Boyle Office: 402 Dorman

Biochemistry and molecular biology are disciplines involved 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 Biochemistry and Molecular Biology aims to prepare students at Mississippi State in this exciting area.

The curriculum leads to a Bachelor of Science degree in biochemistry and molecular biology. The objective of this curriculum is to provide the student with a strong background in science as part of a liberal education and also to prepare the student for professional work and/or graduate study.

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.

#### **University Core**

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)

See major core

Humanities (6 hours)

Select from University Core

Fine Arts (3 hours)

Select from University Core

Social Sciences (6 hours)

Select from University Core

#### **Major Core**

CH	1213	Chemistry I
CH	1211	Investigations in Chemistry I
CH	1223	Chemistry II

Investigations in Chemistry II CH 1221

CH 2313 Intro to Analytical Chemistry

CH 4513 Organic Chemistry I

Organic Chemistry Lab Organic Chemistry II CH 4511

CH 4523

CH 4521 Organic Chemistry Lab

BCH 1001 Intro to Biochemistry

BCH 4603 General Biochemistry I

BCH 4414 Protein Methods

BCH 4613 General Biochemistry II

BCH 4623 Biochemistry of Special Tissues

BCH 4713 Molecular Biology

BCH 3901 Senior Seminar

BCH 4804 Molecular Biology Methods

BIO 1203

Plant Biology Principles of Zoology BIO 1504

General Microbiology BIO 3304

BIO 4114 Cell Physiology

PH 2213 Physics I\*

PH 2223 Physics II\*

Technical Electives \*\* 18 hours

10 hours General Electives

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

#### Total hours needed for major: 120

- \* PREMED, PREVET, and PREDENT majors are given the option of scheduling PH 1113 and PH 1123. In addition, PREMED majors must schedule a third semester of physics, either PH 1133 or PH 2233.
- \*\* Students desiring a B.S. degree without a concentration will be required to take 18 hours of technical electives to be selected in collaboration with an advisor. Technical electives serve to prepare students for different areas of specialization. In addition, these students will need 10 hours of general

#### PRE-MEDICINE CONCENTRATION

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 2103 Cell Biology BIO 3103 Genetics OR BIO 4133 **Human Genetics** BIO 4413 Immunology 1133 General Physics III OR PH

PH 2233 Physics III

6 hours Technical electives General electives 10 hours

#### PRE-PHARMACY CONCENTRATION

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

General Psychology OR PSY 1013 SO 1003 Introduction to Sociology EC 2113 Principles of Macroeconomics Principles of Microeconomics EC 2123 2113 Introduction to Statistics STBIO 2014 Human Physiology Technical electives 8 hours 10 hours General electives

#### **BIOINFORMATICS CONCENTRATION**

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 job 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.

CSE 1284 Introduction to Computer Programming CSE 1384 **Intermediate Computer Programming** CSE 2383 Data Structures and Analysis of Algorithms CSE 2813 Discrete Structures CSE 3833 Introduction to Analysis of Algorithms CSE 3813 Introduction to Formal Languages and Automata CSE 4633 Artificial Intelligence CSE 4623 Computational Biology 3123 Introduction to Statistical Inference ST

#### PRE-MBA CONCENTRATION

This concentration provides the student with a B.S. in Biochemistry incorporating a strong background in science and prepares 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 2113 Macroeconomics EC EC 2123 Microeconomics BQA 2113 Business Statistics I BOA 3123 **Business Statistics II** 

MGT 3114 Principles of Management and Production

MKT 3013 Principles of Marketing FIN 3123 Financial Management

#### FORENSIC SCIENCES CONCENTRATION

This concentration provides the student with a BS 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 Introduction to Sociology SO 1003 ST2113 Introduction to Statistics Deviant Behavior SO 3313 3603 Criminology SO COR 3103 Criminal Justice System PSY 4373 Forensic Psychology 3 hours Technical electives 10 hours General electives

#### PRE-VETERINARY MEDICINE CONCENTRATION

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

BIO 3103 Genetics BIO 4413 Immunology

VS 3014 Anatomy and Physiology 8 hours Technical electives 10 hours General electives

### 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.

University Core 30 hours 1213 CH Chemistry I CH 1211 Investigations in Chemistry CH 1223 Chemistry II 1221 Investigations in Chemistry CH CH 2313 Intro to Analytical Chemistry 4513 CH Organic Chemistry Organic Chemistry Lab CH 4511 CH 4523 Organic Chemistry CH 4521 Organic Chemistry Lab BCH 1001 Intro to Biochemistry 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 1504 Principles of Zoology BIO 4413 Immunology BIO 3304 General Microbiology PH 1113 General Physics I PH 1123 General Physics II VS 3014 Anatomy and Physiology BIO 3103 Genetics

#### 95 hours required plus successful completion of the first year 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 8003, Thesis 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 ENTOMOLOGY and PLANT PATHOLOGY (EPP)

Department Head: Clarence H. Collison Office: 106 Clay Lyle Entomology Complex

#### **ENTOMOLOGY**

Office: 103 Clay Lyle Entomology Complex

Entomology is the study of insects and the impact of insects on the health and economic well-being of mankind. The Clay Lyle Entomology Complex houses the staff and administrative offices of the department, and the laboratory and classroom facilities support a broad range of extension, research and teaching functions. Students have access to a wide range of entomological expertise. Most faculty have joint appointments

with the College of Agriculture and Life Sciences and the Mississippi Agricultural and Forestry Experiment Station and/or the Mississippi Cooperative Extension Service. The breadth of the department is also influenced by several USDA/ARS research laboratories located on campus and at Stoneville, Mississippi. A Master of Science in Agricultural Life Sciences with a concentration in Entomology and Plant Pathology and a Doctor of Philosophy degree in Life Sciences with a concentration in Entomology and Plant Pathology are offered (See the Graduate Bulletin for description of programs and requirements for advanced degrees.) Entomology jointly participates in the Integrated Pest Management degree program with Plant Pathology and Weed Science (see Integrated Pest Management).

#### **PLANT PATHOLOGY**

Office: 206 Dorman Hall

Plant pathology is the study of plant diseases, their causal agents and methods of control. Emphasis is placed on protection of environmental quality. A Master of Science in Agricultural Life Sciences with a concentration in Entomology and Plant Pathology and a Doctor of Philosophy degree in Life Sciences with a concentration in Entomology and Plant Pathology are offered (See the Graduate Bulletin for description of programs and requirements for advanced degrees.) Plant Pathology jointly participates in the Integrated Pest Management degree program with Entomology and Weed Science (See Integrated Pest Management).

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

Department Head: Professor William Benjy Mikel Office: 109 Herzer Building

The Food Science, Nutrition and Health Promotion (FNH) 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).

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, Chicago, IL 60606, (312) 899-0040, 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 Concentration
- Food Science
- · Food Safety
- Nutrition

#### **University Core**

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 University Core

Fine Arts (3 hours)

Select from University Core

Social Sciences (6 hours)

FPB/FS/PV Select from University Core (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 Methods and Materials in Food Sci, Nutrition

and Health Promotion

#### Choose one of the following concentrations:

#### Food Processing/Business Concentration (FPB)

Major Advisor: Assistant Professor Mark W. Schilling

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

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 Laboratory

PH 1113 General Physics I

MA 1313 College Algebra

ST 3123 Introduction to Stat. Inference

BIO 1203 Plant Biology

BIO 3304 General Microbiology

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 4153 Food Plant Management

FNH 4173 Food Packaging

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
6-7 hours	Food Processing Electives**
6 hours	FNH Electives ***
- 0 1	

6-8 hours Electives

#### Total needed for major: 124

- \*\* 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 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

#### **Food Science Concentration (FS)**

Major Advisor: Assistant Professor Mark W. 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
CH 1211	Investigations in Chemistry I
CH 1223 CH 1221	Chemistry II
CH 1221	Investigations in Chemistry II
CH 2503	Elementary Organic Chemistry
CH 2501	Elementary Organic Chemistry Laboratory
BCH 3613	Elementary Biochemistry
PH 1113	General Physics I
PH 1123	General Physics II
MA 1713	Calculus
MA 1723	
ST 3123	Introduction to Stat. Inference
BIO 1203	Plant Biology
BIO 1123	Animal Biology
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
FNH 4114	Analysis of Food Products
FNH 4164	Quality Assurance of Food Products
FNH 4153	Food Plant Management
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
3-4 hours	Food Processing Electives**
9 hours	FNH Electives***
4-5 hours	Electives

#### Total hours needed for major: 124

#### Food Safety Concentration (PV)

Major Advisor: Assistant Professor Mark W. Schilling

- 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
CH	1213	Chemistry I
CH	1211	Invest in Chemistry I
CH	1223	Chemistry II
CH	1221	Invest in Chemistry II
CH	4511	Organic Chemistry Lab I
CH	4513	Organic Chemistry I
BIO	1504	Principles of Zoology
BIO	2103	Cell Biology

BIO 3304	General Microbiology
BIO 4413	Immunology
BCH 3613	Elementary Biochemistry
PH 1113	General Physics I
PO 3103	Genetics
ACC 2013	Principals of Financial Accounting
FNH 3142	Meats Judging
FNH 4153	Food Plant Management OR
FNH 4173	Food Packaging
NTR 4115	Nutrition
FNH 4314	Meat Processing
FNH 2112	Food Products Evaluation
FNH 4114	Analysis of Food Products
FNH 4164	Quality Assurance of Food Products
FNH 4243	Composition and Chemical Reactions of Foods
FNH 4414	Microbiology of Foods
FNH 4241	Applied Food Chemistry
FNH 4593	New Food Product Development

13.61

#### Total hours needed through Junior year: 107

Students will receive a B.S. in Food Science, Nutrition and Health Promotion upon completion of their first year of school in Veterinary Medicine.

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 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

DIO 2204 G

- FNH 4333 Food Law
- 6 hours of electives for 3000- 4000 level FNH classes
- ST 3123 Intro to Statistical Inference
- 5 hours electives

#### **Nutrition Concentration (NTR)**

Major Advisors: Dietetics Education Director Michelle Lee,

Associate Professors Sylvia Byrd and Diane Tidwell
Assistant Professor Chiquita Briley, Assistant Extension Professor
Brent Fountain

- 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
     1221
           Investigations in Chemistry II
CH
CH 2503
           Elementary Organic Chemistry
CH 2501
           Elementary Organic Chemistry Lab
BCH 3613
           Elementary Biochemistry
MA 1313
           College Algebra
     2113
           Intro to Stats
BIO 1504
           Principles of Zoology
BIO 2014
           Human Physiology
BIO 3304
           General Microbiology
BIO 4133
           Human Genetics
PSY 1013
           Gen Psychology
SO
     1003
           Intro to Sociology OR
SO
     1103
           Contemp Social Problems
    2213
CO
           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*
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<sup>\*</sup> Fulfills Computer Literacy requirement.

<sup>\*</sup> Fulfills Computer Literacy requirement.

<sup>\*\*</sup> 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.

<sup>\*\*\*</sup> Choose three additional FNH 3-4000 level courses from the food processing electives: FNH 4573 Food Engineering Fundamentals, FNH 4583 Food Preservation Technology, or FNH 4393 Control and Prevention of Disease.

FNH 3274	Quantity Food Production & Service
FNH 3283	The Foodservice System
FNH 4213	Nutrition Public Policy & Promotion
FNH 4233	Medical Nutrition Therapy
FNH 4253	Human Nutrition I
FNH 4353	Nutrition Throughout the Life Cycle
FNH 4273	Nutritional Assessment
FNH 4283	Purch Food & Equip for Food Service System
FNH 4293	Human Nutrition II
FNH 3701	Nutrition Professional Development
9 hours	Electives

#### Total hours needed for major: 124

#### SCHOOL of HUMAN SCIENCES

Director: Professor Gary B. Jackson Office: 128 Lloyd Ricks Building

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 School currently has the largest enrollment in the CALS. 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) Curriculum

Major Advisor: Associate Professor Kirk Swortzel Office: 130 Lloyd Ricks

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. A minimum of 124 semester hours is required for this major. Students may choose to complete an emphasis in either Agricultural Science or Human Resource Management. These emphases are achieved by completing 16 hours of specified courses and five hours of electives as approved by an AIS advisor. Those students who elect to minor in communication instead of selecting one of the two concentrations can do so by taking 21 hours of specified courses.

The Agricultural Science emphasis is designed to provide skills for individuals seeking careers in production agriculture or secondary school education. The Human Resource Management emphasis is designed to provide skills for individuals seeking careers in business and industry and extension.

All students in Agricultural Information Science are required to have their own personal computer. Students should consult with the department for equipment specifications prior to purchasing.

Students desiring to receive certification to teach in secondary agriculture programs will need to complete certification requirements. This can be accomplished by completing a Master of Science Degree in Agricultural and Extension Education, Teacher Certification Concentration. To enroll in this program, individuals must possess a bachelor's degree in an agriculture area and meet requirements for regular admission to the Master of Science degree program. The minimum GPA requirement is 2.75 on a 4.0 scale during the last two years (approximately 60 hours) of undergraduate academic work or a 3.0 minimum on 24 hours of graduate level courses. Individuals must apply to Teacher Education. Individuals must present an ACT score of 21 (SAT equivalent of 860) with no sub score below 18 or minimum score on the Pre-Professional Skills Test (PPST) to meet teacher certification standards in Mississippi. The minimum scores are 170 on Reaching, 172 on Writing, and 169 on Mathematics; or on the Computer Based Test (CBT), 316 on Reading, 318 on Writing, and 314 on Mathematics. Applicants to teacher education must complete the "Verification of Work Experience with Children and Youth" and provide two letters of recommendation.

Exit requirements include a 3.0 GPA, mastery on an oral comprehensive examination administered by the Graduate Committee and submission of the required score on the Praxis II - Principles of Learning and Teaching (PLT) - to the Mississippi State University College of Education and to the Mississippi Department of Education to obtain licensure.

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 constituents' 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.

#### **University Core**

English Composition (6 hours)

English Comp I OR ΕN 1103 Accelerated Comp I EN 1163 EΝ

1113 English Comp II OR ΕN 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1313 College Algebra

ST 2113 Intro to Statistics

Science (9 hours)

BIO 1123 Animal Biology BIO 1203 Plant Biology

CH 1043 Survey of Chemistry I

Humanities (6 hours)

PHI 1103 Introduction to Philosophy OR

PHI 1113 Intro to Logic

HI elective Select from University Core

Fine Arts (3 hours)

Select from University Core

Social Sciences (6 hours)

AEC 2713 PSY 1013 Intro to Food and Resource Econ

General Psychology

**Major Core** 

AIS 2613 Intro to Info and Dec Science in Agrisci

AIS 3003 Information Interpretation

AIS 3333 Professional Presentations

AIS 3500 Internship

<sup>\*</sup> Fulfills Computer Literacy requirement.

AIS 380	3 Leadership Development		
AIS 410			
AIS 430			
AIS 440			
AIS 442	1 6		
ADS 111			
CH 105	1 Experimental Chemistry Lab		
CH 10:			
EPP 22	3 Intro to Insects		
FNH 110	3 Intro to Food Sci, Nutrition and Health		
PSS 13	3 Plant Science		
7 hours	Agriculture Electives (see advisor)		
6 hours	Free Electives		
Oral Communica	tion Requirement		
	3 Fund of Public Speaking		
Writing Requirement			
0 1	3 Intro to Technical Writing in Agricomm		
Computer Literacy			
AIS 420	3 App of Computer Info Systems		
Agricultural Science Emphasis			
ABE 186	3 Eng. Technology in Ag		
	3 Genetics I		
PSS 242	3 Plant Materials I OR		
PSS 434	3 Greenhouse Management		

#### **Human Resources Management Emphasis**

PSS 3301

PSS 3133

5 hours

3303

**PSS** 

AEC 3133 Intro Agribusiness Management
AEC 3233 Intro Environmental Economics Policy
MGT 3114 Principles of Management Production
MGT 3513 Intro Human Resource Management
MGT 4533 Adv Human Resource Management
Agriculture or Management Electives

Agriculture Science Electives

Soils Laboratory

Weed Science

Total hours needed for major: 124

#### Agricultural Science (AGS) Curriculum

Major Advisor: Associate Professor Kirk Swortzel Office: 130 Lloyd Ricks

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 33 hours of science and 58 hours of agricultural science. Thirty hours will be agricultural science electives, which must be taken from two academic departments within the College of Agriculture and Life Sciences. The student must select agricultural science electives that are closely related and compliment each other. By selecting electives from two academic departments, a student can develop two specialization areas, such as integrated pest management and agronomy or agricultural economics and animal science. A minimum of 16 agricultural science electives must be 4000 level courses or above, and a maximum of 4 hours may be selected from 1000 level courses.

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.

#### **University Core**

```
English Composition (6 hours)
      EN
            1103 English Comp I OR
      ΕN
            1163
                   Accelerated Comp I
      EN
            1113
                   English Comp II OR
      EN
           1173
                  Accelerated Comp II
Mathematics (6 hours)
      MA 1313
                  College Algebra
      3 hours
                   Select from University Core
Science (9 hours)
      BIO 1203
                  Plant Biology
      BIO 1123
                   Animal Biology
      CH 1043
                  Survey of Chemistry I
Humanities (6 hours)
      HI elective Select from University Core
      HI elective Select from University Core
Fine Arts (3 hours)
      Select from University Core
Social Science (6 hours)
      AEC 2713
                  Intro to Food and Resource Econ
           1113
      PS
                  American Government
Major Core
      ABE 1863
                  Eng Tech Agriculture
       ADS 1114
                   Animal Science
      BIO 2213
                   Survey Plant Kingdom
      CH
            1051
                   Exp Chemistry Lab
      CH
            1053
                   Survey of Chemistry II
            2501
                   Elem Organic Chemistry Lab
      CH
      CH
            2503
                   Elem Organic Chemistry
      EPP 2213
                   Intro to Insects
      EPP
            3113
                   Plant Pathology
      PO 3103
                   Genetics
      PSS 1313
                  Plant Science
      PSS
            3133
                   Weed Science
      PSS 3301
                   Soils Lab
      PSS 3303
                   Soils
       3 hours
                   Physics Elective - see advisor
      33 hours
                   Ag Science Elect. in two CALS depts - see advisor
      6 hours
                   Free electives
Oral Communication Requirement
      CO 1003 Fundamentals of Public Speaking
Writing Requirement
```

AIS 4203 App of Computer Info Systems

Computer Literacy

AIS 3203 Intro to Technical Writing in Agricomm

## Total hours needed for major: 124

#### **Human Sciences (HS) Curriculum**

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 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.

Transfer credits with grade of C or higher will be considered toward fulfillment of degree requirements in Human Sciences.

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

#### **University Core**

Ullivei	Sity C	Jule			
English Composition (6 hours)					
	EN 1103		English Comp I OR		
		163	Accelerated Comp I		
		113	English Comp II OR		
	EN 1		Accelerated Comp II		
Mather		(6 hou			
	ATM		MA 1313 College Algebra		
	ATM		BQA 2113 Business Stats OR		
	ID		ST 2113 Intro to Stats		
	ID HDF	C	MA 1323 Trigonometry		
a ·		-	Select from University Core		
Science (9 hours)					
	HDF	-	See Concentration Requirements		
ATM/ID			CH 1043 + 6 hrs from University Core		
Humanities (6 hours)					
ATM			3 hours Foreign Lang + 3 hours from Univ. Core		
	ID/HDFS		Select from University Core		
Fine A	rts				
	Select from University Core				
Social Sciences (6 hours)					
*		1013	General Psychology		
3 hrs			See Concentration		
Major	Major Core				
1.14.301	HS	1701	Survey of Human Sciences		
		2293			
			Consumer Economics		
	HS	4702			

#### Choose one of the following concentrations:

HS 4853 The Family: A Transactional Approach

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

Associate Professors Wanda Cheek and Phyllis Bell Miller

This concentration is designed to provide students with an understanding of the fashion and textile industries, consumer behavior, product quality, and business principles. Students concentrate in one of two areas: Merchandising or Apparel Production and Design. Merchandising combines an overview of the fashion industry, consumer behavior, and product knowledge with an understanding of business principles. Apparel Production and Design emphasizes the total design and production process from inception to finished product and its ultimate sale to the consumer. Apparel, Textiles, and Merchandising students are required to have a laptop computer during the freshman year, selected from a range of models recommended by the School of Human Sciences.

```
HS 1533
ACC 2013
            Apparel Design I
            Principles of Financial Accounting
ACC 2023
            Principles of Managerial Accounting
EC
     2113
            Principles of Macroeconomics*
            Principles of Microeconomics
EC
     2123
HS
     1523
            Visual Design in Dress
HS
     2553
            Fashion Merchandising
     3593
HS
            Merchandising & Promotion Strategies
HS
     2593
            Apparel/Sewn Prod Analysis & Evaluation
     3553
HS
            Fashion Retailing
     2524
HS
            Textiles for Apparel
HS
     3573
            Historic Costume
            Visual Merchandising
HS
     3563
            The Legal Environment of Business
RI.
     2413
MKT 3013
            Principles of Marketing
            Principles of Management and Prod
MGT 3114
    4513
            Social-Psych Aspects of Clothing
HS
HS
     4701
            Internship Placement Seminar
     1711
            Professional Protocol
HS
            Apparel, Textiles & Merch. Internship
     4763
HS
HS
     4533
            Merch. Planning and Buying OR
            Apparel Design II
HS
     4343
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Oral Communication Requirement
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CO 1003 Fundamentals of Public Speaking

Writing Requirement

See advisor for approved courses

Computer Literacy

HS 4733 Computer-Aided Design for Human Sciences

#### Restricted Electives - choose 9 credit hours from one area

Apparel Production and Design Area 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

HS 4424 Teach Methods in Ag & Human Sciences

#### Merchandising Area

HS 4583 Entrepreneurship for Human Sciences

HS 4710 Study Tour

FIN 3123 Financial Management 3913 Prin of International Business  $^{\mathrm{IB}}$ MKT 3933 International Marketing

MGT 3513 Intro to Human Resource Mgt

MKT 3213

Retailing Personal Selling MKT 4113 MKT 4123

Advertising Consumer Analysis & Behavior MKT 4413

MKT 4213 Internet Marketing MKT 4613 Services Marketing MKT 4533 Marketing Research PHI 3013 Business Ethics

Teach Methods in Ag & Human Sciences HS 4424

#### Total hours needed for major: 124

Meets University Core requirement.

MINORS: A minor in Apparel, Textiles and Merchandising is available, requiring: HS 2593, HS 2524, HS 2553, HS 4513. In addition, nine credits are to be elected from HS 1523, HS 1711, HS 4563, HS 3563, HS 3573, HS 3553, HS 4583, HS 1533, HS 3593, HS 4733, HS 4710.

#### **Human Development & Family Studies (HDFS)** Concentration

Professor Jan Cooper Taylor; Associate Professors Sheri Worthy and Wanda Cheek; Assistant Professor Joe Wilmoth

This program offers an interdisciplinary lifespan approach to the study of children, youth and families. It encompasses specialty areas in preschool teaching, childcare, administration, youth studies, family services, child life, consumer economics, human sciences teacher education and extension. 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 which focus on enabling children and families to function effectively in today's complex society.

Specific course work is required to specialize in each area or to meet class A teacher licensure requirement 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 ser-

All teacher education programs at Mississippi State University are NCATE accredited. Students must conform to the policies on teacher education, as explained under "Teacher Licensure" elsewhere in this catalog. Additional endorsement is available in these occupational areas: clothing, apparel and textiles; child care guidance; and institutional food and administration. Approved work experience is required to obtain this special endorsement.

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

SO 1003 Introduction to Sociology\* BIO 1004 Anatomy & Physiology Science with Laboratory\* 6 hrs

Psych & Ed Exceptional Children & Youth EDX 3213

COE 4013		Facilitative Skills Development		
EPY 3543		Psychology of Adolescence*		
PS	Y 3413	Human Sexual Behavior		
HS	1802	Professional Seminar		
HS	2803	Pre-natal and Infant Development		
HS	2813	Child Development I		
HS	3813	Child Development II		
PE	3213	Emergency Health Care OR		
PE	1223	Personal Health		
HS	2603	Interior Design Fundamentals		
HS	4403	Intro to Gerontology		
HS	4424	Teach Methods in Ag & Human Sciences		
HS	4313	Family Resource Management		
HS	4803	Art of Parenting		
HS	4823	Dev & Adm of Child Svc Programs		
HS	4333	Families, Legislation, & Public Policy		
HS	4750	Internship		
12	hrs	Restricted Electives (see below - consult advisor)		
5-8	hrs	Electives		
Oral Comi	Oral Communication Requirement			

Satisfied by successful completion of HS 4424

#### Writing Requirement

AIS 3203 Intro to Tech Writing OR EDF 3413 Writing for Thinking

#### Computer Literacy

Satisfied by successful completion of HS 3303

#### Restricted Electives - choose 12 hours from one area

#### Child Studies (Preschool/Child Life)

EDE 3233 Teach Literature at Elem & Mid. Levels HS 3803 Child Care Procedures 3823 Designing Child Care Programs HS 4834 The Hospitalized Child (Child Life) HS

HS 2283 Child Health and Nutrition

#### **Youth Studies**

COE 4023 Intro to Counseling EDE 3223 Middle Grade Education EDX 4423 Teaching the Disadvantaged Child HS 3673 Environments for Special Needs AIS 4403 Development of Youth Programs SW 4613 Child Welfare Services

#### Family Studies

3673 Environments for Special Needs HS 4813 Adult Development: The Middle Years HS Family Interaction HS 4843 HS 4863 Consumer Aspects of Aging

#### Total hours needed for major: 121-124

Satisfies University Core.

HS

HS

HS HS 2603

4333

4313

4462

#### Family & Consumer Sciences Education Emphasis

CH 1043 Survey of Chemistry I\*

CH	1043	Survey of Chemistry 1
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
<b>EPY</b>	3253	Evaluating Learning
<b>EPY</b>	3543	Psychology of Adolescence*
EDS	3411	Practicum in Secondary Ed
EDS	4873	Seminar in Managing Secondary Class
PE	1223	Personal Health
PSY	3413	Human Sexual Behavior
HS	2593	Apparel/Sewn Product Analysis & Evaluation
HS	1533	Apparel Design I
HS	2203	Science of Food Preparation
HS	2524	Textiles for Apparel
HS	2813	Child Development I
HS	2283	Child Health and Nutrition
HS	4424	Teaching Methods in Ag & Human Sciences
HS	4803	Art of Parenting

Interior Design Fundamentals

Families, Legislation & Policy

Family Resource Management

Curriculum in Human Sciences

4886 Teaching Internship in Vocat. Human Sci. 4896 Teaching Internship in Vocat. Human Sci

Oral Communication Requirement

Satisfied by successful completion of HS 4424

Writing Requirement

AIS 3203 Intro to Tech Writing OR EDF 3413 Writing for Thinking

Computer Literacy (3 hours)

Satisfied by successful completion of HS 3303

#### Total hours needed for major: 122

Satisfies University Core

A minor in Human Development and Family Studies is available. Requirements are: HS 2803, HS 2813, HS 3803, HS 4803, HS 4853. In addition, six credits are to be elected from HS 4403, HS 4843, HS 3813, HS 3823, HS 4863, HS 2283, and HS 4333.

A minor in Consumer Economics is available. Requirements are: HS 3303, HS 3673, HS 4313, HS 4333. In addition, nine credits are to be elected from HS 4323, HS 4853, HS 4863 and HS 4403.

#### **Gerontology Certificate**

#### Associate Professor Sheri Lokken Worthy

The Gerontology Certificate provides the student with current factual and theoretical data along with practicum 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 certificate in gerontology.

This area of study is open to students from all colleges within the University. The Gerontology 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. Graduate students are required to complete a readings or independent study course in addition to the 15 hours of gerontology course work.

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

Select three of the following:

ABE 4513 Dynamics of Aging COE 4713 Issues in Aging Intro to Gerontology HS 4403 HS 4813 Adult Development HS 4863 Consumer Aspects of Aging PSY 4983 Psychology of Aging 4413 Aging and Retirement in American Society SO

SW 4623 Social Work with the Aged

Select at least two of the following: (may include courses from above list)

SW 2323 Social Welfare Policy

HS 3673 Environments for Special Needs Nutrition Throughout the Life Cycle HS 4353 Families, Legislation, and Public Policy 4333 HS

#### Graduate Certificate Requirements (minimum 18 hours)

Select three of the following:

Dynamics of Aging ABE 6513 PSY 6983 Psychology of Aging Aging & Retirement in American Society SO 6413 HS 6403 Intro to Gerontology HS Consumer Aspects of Aging 6863 PE 8153 Wellness and Aging Take at least two of the following-may include courses from above:

Adult Development 6813 HS

HS 6353 Nutrition Throughout the Life Cycle

Community Nutrition HS 8243

Families, Legislation, and Public Policy 6333 HS

COE 8813 Counseling the Elderly COE 6713

Issues in Aging Developmental Psychology PSY 8313

3 hrs Required: Independent study/readings course

#### **INTEGRATED PEST MANAGEMENT (IPM)**

An Interdisciplinary Curriculum Including Entomology, Plant Pathology and Weed Science

Major Advisor: Assistant Professor Fred R. Musser Office: 123 Clay Lyle Bldg

Integrated Pest Management (IPM) is an interdisciplinary program 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. The Bachelor of Science degree in Integrated Pest Management is offered with concentrations in agricultural resources, environmental resources, urban resources, applied precision agriculture and agricultural business. Effective management of pest problems requires a broad base of knowledge in the pest disciplines and practical field experience. The undergraduate Integrated Pest Management major 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 co-op work experiences. Curricula are designed to meet the needs of students who wish to pursue advanced degrees (M.A., M.S., Ph.D.) 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 APM, 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 industries such as agricultural chemical, seed or biotechnology companies; 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.

Co-op Work: IPM students must complete a minimum 12 months or three semesters of co-op work with approved co-op sponsors in industry, private consulting firms/individuals, or governmental agencies. Typically the three co-op semesters include at least two different organizations with different job responsibilities. One of the three co-op semesters enrolled by the student must be a non-summer semester. A 2.50 cumulative GPA on all MSU work is required to participate in the IPM Co-op Program.

#### **University Core**

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 3123 Introduction to Statistical Inference

Sciences (9 hours)

See major courses

Humanities (6 hours)

Select from University Core

Fine Arts (3 hours)

Select from University Core

Social Sciences

AEC 2713 Intro to Food and Resource Econ 3 hours Select from University Core

**Major Core** 

APM 4021 Senior Seminar
BIO 1203 Plant Biology
BIO 1504 Principles of Zoology
BIO 4213 General Plant Ecology
BIO 4214 General Plant Physiology
CH 1051 Experimental Chemistry
CH 1043 Survey of Chemistry I

Survey of Chemistry II CH 1053 CH 2503 Elementary Organic Chemistry CO 2213 Small Group Communication EPP 3113 Intro to Plant Pathology EPP 4154 General Entomology EPP 4163 Plant Disease Management EPP 4263 Principles of Insect Pest Management PO 3103 Genetics I **PSS** 3301 Soils Lab 3303 PSS Soils **PSS** 3133 Intro to Weed Science **PSS** 4313 Soil Fertility & Fertilizers Weed Biology and Ecology PSS 4633 PSS 4813 Herbicide Technology 11 hours Unrestricted Electives (See advisor) Oral Communication Requirement CO 1003 Fundamentals of Public Speaking Writing Requirement AIS 3203 Intro to Technical Writing Computer Literacy - choose one AIS 4203 Applications of Computer Tech to AIS and Ed AEC 1223 Comp Applications for Ag & Life Scientists Co-op Experience CP 2103 First Work Semester CP 2203 Second Work Semester 3303 Third Work Semester CP

#### Choose 17 hours from one of the following concentrations:

#### **Agricultural Resources Concentration**

AEC 3133 Intro to Agribusiness Management BIO 3304 General Microbiology EPP 4214 Diseases of Crops EPP 4234 Field Crop Insects EPP 4543 Tox. And Ins. Chemistry PSS 4103 Forage and Pasture Crops PSS 4123 Grain Crops PSS 4133 Fiber and Oilseed Crops PSS 4314 Soil Microbiology **PSS** 4323 Soil Classification PSS 4333 Soil Conservation PSS 4343 Greenhouse Management **PSS** 4373 Geospatial Agronomic Mgt. PSS 4453 Vegetable Production

#### **Agricultural Business Concentration**

ACC 2013 Principles of Financial Accounting AEC 3113 AEC 3133 AEC 3213 Intro to Quantitative Economics Intro to Agribusiness Management International Trade in Agriculture AEC 3413 AEC 3513 Principles of Agricultural Marketing Economics of Food/Fiber Production AEC 4123 Commodity Futures Marketing EPP 4214 Diseases of Crops EPP 4234 Field Crop Insects MGT 3513 Intro to Human Resource Management PSS 4123 Grain Crops PSS 4133 Fiber and Oilseed Crops PSS 4333 Soil Conservation 4343 Greenhouse Management **PSS** PSS 4363 Nursery Management PSS 4373 Geospatial Agronomic Mgt. **PSS** 4414 Turf Management Vegetable Production PSS 4453

#### **Applied Precision Agriculture Concentration**

EPP 4214 Diseases of Crops
EPP 4234 Field Crop Insects
FO 4311/4313 Spatial Technology in Nat. Res. Mgt.
FO 4451/4452 Remote Sensing Applications
GR 2313 Maps and Remote Sensing

GR	3303	Survey of Geospatial Technologies
GR	3311	Geospatial Applications
GR	3313	Intro to Geodatabases
GR	4303	Principles of GIS
GR	4323	Cartographic Sciences
PSS	4123	Grain Crops
PSS	4133	Fiber and Oilseed Crops
PSS	4323	Soil Classification
PSS	4333	Soil Conservation
PSS	4373	Geospatial Agronomic Mgt.
PSS	4411	Remote Sensing Seminar
WF	4253	GIS & GPS in Wildlife/Fisheries Mgt.

#### **Environmental Resources Concentration**

AEC	3233	Intro to Environmental Econ. & Policy
BIO	3304	General Microbiology
BIO	4203	Taxonomy of Spermatophytes
<b>ENS</b>	2102	Intro to Environmental Sciences
EPP	3124	Forest Pest Management
EPP	4244	Aquatic Entomology
EPP	4543	Tox. And Insecticide Chemistry
FO 4	311/431	13 Spatial Technology in Nat. Res. Mgt.
PSS	2423	Plant Materials I
PSS	4103	Forage and Pasture Crops
PSS	4314	Soil Microbiology
PSS	4323	Soil Classification
PSS	4333	Soil Conservation
WF	4153	Prin. of Wildlife Conservation and Mgt.
WF	4253	GIS & GPS in Wildlife/Fisheries Mgt.
WF	4371/4	372 Water Quality Management

#### **Urban Resources Concentration**

PIO 2204 Caparal Microbiology

ыо	3304	General Microbiology
BIO	4203	Taxonomy of Spermatophytes
EPP	3423	Ornamental and Turfgrass Insects
EPP	3522	Turfgrass Diseases
EPP	4223	Pest Control
EPP	4543	Tox. And Insecticide Chemistry
LA	2433	Landscape Systems & Plant Communities
PSS	2423	Plant Materials I
PSS	3473	Plant Materials II
PSS	4314	Soil Microbiology
PSS	4333	Soil Conservation
PSS	4343	Greenhouse Management
PSS	4353	Arborculture & Landscape Maintenance
PSS	4363	Nursery Management
PSS	4414	Turf Management
PSS	4453	Vegetable Production

Total hours needed for major: 124

#### Department of LANDSCAPE ARCHITECTURE (LA)

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

#### **Landscape Architecture Curriculum**

Landscape Architecture is a design profession, concerned with the harmonious relationship of man and his environment.

Thus, a student of this discipline learns how to apply the design process to discover how physical installations or activities of man can be placed upon the land in a fashion that accommodates man, functionally and aesthetically, and compliments the environment.

The Landscape Architecture program at Mississippi State University is accredited by the American Society of Landscape Architects. Upon completing curriculum requirements, a student receives a Bachelor of Landscape Architecture (B.L.A) degree. A Master's degree in Landscape Architecture (M.L.A.) is also available. For more information, refer to the Graduate Bulletin.

There are career opportunities for landscape architects with private firms and in governmental agencies. The scope of this profession includes, but is not limited to: site planning for housing developments, shopping centers, malls, civic centers, industrial parks, campuses, motels, resort areas, country clubs, golf courses, and municipal, state, regional and national parks.

In addition to completing the specified courses of the curriculum, all students are required to participate in at least one major department-sponsored field trip. A field trip fee will be assessed to specific courses. Students are expected to consult with their academic advisor in choosing electives.

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.

All students admitted to Mississippi State University may be enrolled in the first year of the program. After completion of 30 hours of course work at MSU or another university or community college, students must have achieved a minimum 2.50 grade point average (GPA), on a 4.0 scale, and must maintain at least a GPA of 2.50 to continue enrollment in the curriculum. A student who does not satisfy this requirement will not be allowed to enroll in LA prefix courses beyond the freshman (1000) level until his or her overall cumulative GPA reaches 2.50 or better.\*

Landscape Architecture requires that a grade of "C" or better is required to fulfill a curriculum requirement.\*

The department reserves the right to retain student work for the purpose of records, exhibition, instruction, industry review, etc. In addition to 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.

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University Core
English Composition (6 hours)
            1103
                   English Comp I OR
       ΕN
       EN
            1163
                   Accelerated Comp I
       ΕN
            1113
                   English Comp II OR
           1173 Accelerated Comp II
Mathematics (6 to 9 hours)
       Select from University Core
Science (6 to 9 hours)
       Select from University Core
Humanities (6 hours)
       Select from University Core
Fine Arts (3 hours)
       ART 1113
                   Art Appreciation OR
       ARC 1013
                   Arch Appreciation
Social Sciences (6 hours)
       EC 2113
                   Principles of Macroeconomics
       3 hours
                   Select from University Core
Major Core
       ART 1123
                   Art Design I
                   Intro to Landscape Architecture
       LA
            1153
            2253
                   Plant Design Fund in Landscape Arch
       LA.
            2323
                   Presentation Methods and Media
       LA
       PSS
            2423
                   Plant Materials I
            2423
       LA
                   History of Landscape Arch
            2453
                   Site Inventory and Analysis
       LA
            2433
                   Landscape Systems
       LA
            3555
                   Design Studio I
       LA.
            3544
                   Construction I
       LA
            3303
                   Soils OR Geology (GG) Course
       PSS
            3655
                   Design Studio II
       LA.
            3644
                   Construction II
       LA
                   Urban Planning Theory
       LA
            3623
       LA
            3652
                   Case Studies
       LA
            4244
                   Construction III
            4344
                   Construction IV
       LA
                   Appl of GIS in LA
            4523
       LA.
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Oral Communication Requirement

4755

4855

4844

CO 1003 Fundamentals of Public Speaking

Design Sustainable Comm

Design Studio III

Capstone Studio

Writing Requirement

4 hours

LA

LA

LA

LA 4723 Professional Practice

Electives

Computer Literacy

LA 1223 Use of Computer in Landscape Arch

Total hours needed for major: 124

#### Landscape Contracting and Management Curriculum

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 Associated Landscape Contractors of America, 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.

All students admitted to Mississippi State University may be enrolled in the first year of the program. After completion of 30 hours of course work at MSU or another university or community college, students must have achieved a minimum 2.50 grade point average (GPA), on a 4.0 scale, and must maintain at least a GPA of 2.50 to continue enrollment in the curriculum. A student who does not satisfy this requirement will not be allowed to enroll in LA prefix courses beyond the freshman (1000) level until his or her overall cumulative GPA reaches 2.50 or better.\*

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 curriculum 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

As published in the Department of Landscape Architecture policy manual.

#### **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I\* OR

Accelerated Comp I ΕN 1163

EN 1113 English Comp II\* OR

ΕN 1173 Accelerated Comp II

Mathematics (6 hours)

ST 3123 Intro to Statistical Inference\*\*\*

3 hrs Select from University Core

Science (10 hours)\*:

BIO 1203 Plant Biology with Lab

CH 1043 Survey of Chemistry I PSS 3033 Soils

PSS 3031 Soils Lab

Humanities (6 hours)

FLS 1113 Spanish I

FLS 1123 Spanish II

Fine Arts (3 hours)

Select from University Core

Social Sciences (6 hours)

2113 Principles of Macroeconomics

EC 2123 Principles of Microeconomics

**Major Core** 

LA 1701 Intro to Landscape Contracting

Landscape Contracting Internship I LA 1711

2323 Presentation Methods & Media LA

1153 Intro to Landscape Arch LA

2701 Landscape Contracting Seminar I

PSS 2423 Plant Materials I

PSS 3474 Plant Materials II

4353 Arboriculture & Landscape Maintenance ACC 2013 Principles of Financial Accounting

2711 Landscape Contracting Internship II LA

3713 Landscape Contracting I I.A

3544 Landscape Construction I with Lab LA

3701 Landscape Contracting Seminar II

**PSS** 3133 Intro to Weed Science

ACC 2023 Prin of Managerial Accounting

LA 2334 Plant Specs for Small Properties

LA 4724 Landscape Contracting II

3721 Landscape Contracting Field Trip I L.A Ornamental & Turfgrass Insects EPP 3423

MGT 3114 Prin of Management & Prod

Landscape Contracting Internship III LA 3711

4701 Landscape Contracting Seminar III

**PSS** 4414 Turfgrass Management MKT 3013 Principles of Marketing

Landscape Contracting IV LA 4744

4721 Landscape Contracting Field Trip II

3223 Law of Commercial Transactions BL.

MGT 3513 Intro Human Resource Management

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

LA 4733 Landscape Contracting III

Computer Literacy

LA 1223 Use of Computer in Landscape Arch

#### Total hours needed for major: 124

If a student makes below "B" in English Comp I or II, MGT 3213 Organization of Communica-

at least two science courses must include a lab to comply with University Core.

MA 1313 College Algebra is a prerequisite for ST 3123 Intro to Statistical Inference.

### Department of PLANT and SOIL SCIENCES (PSS)

Department Head: Michael Collins 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, 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 various concentration areas such as Agricultural and Environmental Soil Sciences (AGN), Golf and Sports Turf Management (AGN), Integrated Crop Management (AGN), Floriculture and Ornamental Horticulture (HO), and Retail Floristry Manage-

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 (AGN)

#### **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR

EΝ 1163 Accelerated Comp I

English Comp II OR EN 1113

EN 1173 Accelerated Comp II

Mathematics (6 to 9 hours)

MA 1313 College Algebra

3 hours Select from University Core or see Concentrations

Science (6 to 9 hours)

See major core/concentration

Humanities (6 hours)

See major core/concentration or University Core list

Fine Arts (3 hours)

See major core/concentration or University Core list

Social Science (6 hours)

See major core/concentration or University Core list

#### **Major Core**

Plant Biology\* BIO 1203

General Plant Physiology BIO 4214

3301 Soils Laboratory PSS

PSS 3303 Soils

PSS 4313 Soil Fertility and Fertilizers

#### Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Satisfies University Core

#### Choose one of the following concentrations:

#### Agricultural and Environmental Soil Sciences Concentration

Professors Jac J. Varco and William Kingery Associate Professor Michael Cox

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.

> 1123 Intro to World Geography GR

Trigonometry\* MA 1323

MA 1713 Calculus I

ST 3123 Intro to Statistical Inference

AEC 2713 Intro to Food & Resource Econ\*

BIO 3304 General Microbiology

Investigations in Chemistry I\* CH 1211

Chemistry I\* CH 1213

Investigations in Chemistry II\* 1221 CH

1223 Chemistry II\* CH

CH 2314 Analytical Chemistry I

4513 Organic Chemistry I CH

4523 Organic Chemistry II CH

GG 1111 Earth Science Lab

GG 1113 Survey of Earth Science I

PH 1113 General Physics I

PΗ 1123 General Physics II

PSS 4314 Soil Microbiology

PSS 4603 Soil Chemistry

PSS 4323 Soil Classifications

PSS 4333 Soil Conservation and Land Use

19 hours Restricted Electives\*\*

#### Computer Science Requirement

Applications of Computer Tech of AIS & Ed OR AIS 4203

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 University Core
- See advisor or department office for a list of approved courses

#### **Golf and Sports Turf Management Concentration**

Major Advisor: Associate Professor Barry Stewart Assistant Professor Greg Munshaw

The 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 QPA 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.

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ACC 2013 Principles of Financial Accounting
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ABE 2873 Land Surveying

Machinery Mgt for Agro-Ecosystems Survey of Chemistry I\* ABE 4163

CH 1043

Survey of Chemistry II\* CH 1053

CH 1051 Experimental Chemistry (lab for CH 1053)\*

CH 2503 Elementary Organic Chemistry

2501 Elementary Organic Chemistry Lab CH

EC 2113 Principles of Macroeconomics3

EPP 3113 Introductory Plant Pathology

EPP 3423 Ornamental & Turfgrass Insects

EPP 4523 Turfgrass Diseases

FLS 1113 Spanish I\*

Spanish II\* FLS 1123

LA 3603 Design of Golf Environment

LA 4344 Landscape Arch Construction IV

MGT 3513 Intro to Human Resource Mgt PE 3213 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 Maint

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 Second Work Semester 2203

CP 3303 Third Work Semester

9 hours Restricted Electives\*\*

#### 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 University Core
- See advisor or department office for a list of approved courses.

#### **Integrated Crop Management Concentration**

Major Advisors: Professor Frank B. Matta Associate Professors Brian Baldwin, 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. Biotechnological and traditional 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 Intro to Agribusiness Mgt

Intro to Agribusiness Mgt

AEC 3413 Intro to Food Marketing

BCH 3613 Elementary Biochemistry

BIO 3304 General Microbiology CH 1043 Survey of Chemistry I* CH 1053 Survey of Chemistry II* CH 1051 Experimental Chemistry (CH 1053) CH 2503 Elementary Organic Chemistry CH 2501 Elementary Organic Chemistry EPP 2213 Introduction to Insects EPP 3113 Introduction Plant Pathology PO 3103 Genetics I PSS 1313 Plant Science PSS 3133 Intro Weed Science 24 hours Restricted Electives** 9 hours Unrestricted Electives  Computer Science Requirement AIS 4203 Applications of Computer Tech of AIS & Ed OR					
		1223	Computer Applications for Ag and Life Scientists		
Writing	·	uiremen			
	AIS 3		Intro to Tech Writing in Agricomm nours needed for major: 122		
* Sa	tisfies U	niversity C			
faculty ad	lvisor fo	r restricted	tment office for a list of approved courses. Consult with the appropriate d course selection emphasizing the following program areas: Crop Sciction, Vegetable Crop Production, Fruit Science, and Golf and Sports Turf		
HORTICULTURE (HO) University Core					
			(6 h o.u.o)		
Eligiisi	EN EN EN	*	Accelerated Comp I		
Mather	natics	(6 hour	rs)		
	MA 1313 College Algebra 3 hours See concentration				
Science (9 hours)					
	BIO CH CH CH	1203 1043 1051 1053	Plant Biology Survey of Chemistry I Experimental Chemistry Survey of Chemistry II		
Human	,	6 hours			
Floriculture - See concentration Retail Floristry - Select from University Core					
Fine A			Eleval Dagian		
Social/			Floral Design ciences (6 hours)		
	oricult		ciences (o nours)		
AEC 2713 3 hours Retail Floristry		2713 ars oristry	Intro to Ag Economics Select from University Core		
	EC	2713 2123 1013 2113	Intro to Food & Resource Econ OR Microeconomics General Psychology Macroeconomics		
Major	Core				
v	ACC MKT PSS PSS	2013 3013 1313 2423	Principles of Financial Accounting Principles of Marketing Plant Science Plant Materials I Interior Plant Design & Maint		

PSS 3313

PSS 3473

PSS 3511

3923

PSS

Writing Requirement

Interior Plant Design & Maint

Plant Materials II

Plant Propagation

AIS 3203 Intro to Tech Writing Agricomm

Seminar

#### Floriculture and Ornamental Horticulture Concentration

Major Advisors: Associate Professor Richard L. Harkess; Assistant Professor Brian Trader

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, marketing, and utilizing flowers, flowering and foliage plants, and woody ornamental landscape 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, and technical product research and sales.

```
BIO 1213
                  Survey of Plant and Fungi Kingdom
                  Taxonomy of Spermatophytes
      BIO 4203
      BIO 4214
                  General Plant Physiology
      CH 2501
                  Elementary Organic Chemistry Lab
      CH
           2503
                  Elementary Organic Chemistry
      EPP
           3113
                  Introductory Plant Pathology
      EPP 3423
                  Ornamental and Turfgrass Insects
      FLS 1113
                  Spanish I*
      FLS
           1123
                  Spanish II*
      MA 2113
                  Intro to Statistics OR
      ST
           2113
                  Intro to Statistics
      PO
           3103
                  Genetics
      PSS
           3301
                  Soils Laboratory
           3303
      PSS
                  Soils
      PSS
           3433
                  Horticulture Internship
      PSS
           4343
                  Greenhouse Management
      PSS
           4363
                  Nursery Management
      PSS
           4444
                  Plant Tissue Culture
      PSS 4613
                  Floriculture Crop Programming
      15 hours
                  Restricted Electives*
Oral Communication Requirement
```

Satisfied by successful completion of PSS 4363 and PSS 3511

Computer Literacy Requirement

Satisfied by successful completion of PSS 4613

#### Total hours needed for major: 120

- Satisfies University Core
- See advisor or department office for a list of approved courses.

#### **Retail Floristry Management Concentration**

Major Advisors: Assoc. Professor DelPrince and Instructor McDougald

Retail Floristry Management (RFM) blends business, horticultural science, and design disciplines to prepare graduates for careers in the floral industry. Career concentrations include floral designing, store management, shop ownership, freelance designing, product development, display work, and consulting. RFM students may to work in and manage a professional flower shop owned by the department on campus.

Internship Requirements (PSS 3413): RFM 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
ART 1113
            Principles of Managerial Accounting
            Art Appreciation
ART 1123
            Design I
BL
     2413
            The Legal Environment of Business
EPP
     2213
            Intro to Insects*
FIN 3113
            Financial Systems
HS
     2613
            Introduction to Interior Environment
     2334
LA
            Plant Spec for Small Properties
PS
     1113
            American Government
PSS
     2351
            Techniques in Flower Shop Mgt
     3023
            Retail Floristry Operation and Mgt
PSS
            Advanced Floral Design I
PSS
     3343
PSS
            Retail Floristry Internship
     3413
PSS 3443
            Advanced Floral Design II
3 hours
            Math course from University Core
6 hours
            Select from Art Electives list**
6 hours
            Select from Restricted Electives list**
```

Oral Communication Requirement

CO 1003 Fund of Public Speaking

Computer Literacy Requirement - choose one

AEC 1223 Comp Applications for Ag & Life Sci AIS 4203 Appl Computer Tech AIS and Ed 1012 Intro to Business Information Systems TKT 1273 Computer Applications

#### Total hours needed for major: 124

- Satisfies University Core
- See advisor or department office for a list of approved courses.

#### Department of POULTRY SCIENCE (PO)

Major Advisor: Associate Professor Timothy N. Chamblee Office: 103 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 20,000 Mississippians and has approximately 3,000 poultry farming operations throughout the state. Poultry is the number one farm revenue commodity in Mississippi.

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:

- -Business
- -Management
- -Manufacturing
- -Pre-Veterinary Medicine

Only grades of C or higher will be accepted for PO and VS courses.

#### **University Core**

English Composition (6 hours)

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

Mathematics (6 hours)

MA 1313 College Algebra

MA/ST 3 hours (see major/concentration)

Science (9 hours)

See major/concentration

Humanities (6 hours)

Select from University Core

Fine Arts (3 hours)

Select from University Core

Social Sciences (6 hours)

AEC 2713 Intro to Food & Resource Econ

1113 American Government

#### **Major Core**

ACC 2013 Principles of Financial Accounting AEC 3133 Intro to Agribusiness Management MGT 3513 Intro to Human Resource Mgt PO 3011 Seminar PO 3021 Seminar РО 3103 Genetics PO 3313 Commercial Poultry Production PO 3323 Poultry Judging Microbiology of Food Animal Production РО 3834 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 4513 Poultry Processing PO 4523 Commercial Broiler Processing Tech PO 4833 Avian Anatomy 4843 Avian Physiology PO VS 2033 Diseases of Poultry Poultry Production Internship PO 3353

3363 Poultry Processing Internship

Oral Communication Requirement

Satisfied by successful completion of PO 3021, 4031, and 4041

Writing Requirement

PO

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:

#### **Management Concentration**

The management concentration is appropriate for students interested in entering into a personal poultry operation, in service and sales work with large poultry enterprises, in federal, state or local government employment, and in many employment opportunities in the allied fields relating to poultry.

ACC 2023 Principles of Managerial Accounting AEC 3233 AEC 3413 Intro to Envir. Econ and Policy Intro to Food Marketing BIO 1123 Animal Biology Plant Biology BIO 1203 2413 Legal Environment of Business BL. CH 1043 Survey of Chemistry I CH 1053 Survey of Chemistry II Advanced Poultry Judging PO 3333 PSS 3303 Soils 2113 Introduction to Statistics

#### Total hours needed for major: 120

#### **Business Concentration**

The rapid growth in poultry production in Mississippi has created a large demand for graduates with good backgrounds in poultry and strong supporting work in business. The business concentration satisfies all the requirements for a minor in Agribusiness. Thus, this concentration offers lucrative employment opportunities to the poultry science major.

ACC 2023 Principles of Managerial Accounting AEC 3413 AEC 3113 Principles of Ag Marketing Intro to Quantitative Econ. AEC 3213 International Trade in Ag Agribusiness Firm Mgt AEC 4113 2413 Legal Environment of Business BI. CH 1043 Survey of Chemistry I 1051 Experimental Chemistry Lab CH 1053 Survey of Chemistry II CH EC 2113 Principles of Macroeconomics MA 1613 Calculus for Business and Life Sciences PO 3333 Advanced Poultry Judging

### Total hours needed for major: 121

#### **Manufacturing Concentration**

The future growth of the poultry industry is closely associated with advancements in manufacturing technology. There is a large demand for well trained poultry scientists with this capability. This concentration elective offers rapid career advancement for the poultry science major and prepares the student for future graduate work.

> BCH 3613 Elementary Biochemistry BIO 1123 Animal Biology CH 1211 Investigations in Chemistry I CH 1213 Chemistry I CH 1221 Investigations in Chemistry II CH 1223 Chemistry II CH 4513 Organic Chemistry I Organic Chemistry II CH 4523

FNH 4164	Quality Assurance of Food Products
	Composition and Chemical Reactions of Foods
FNH 4414	Microbiology of Foods
ST 3123	Intro to Statistical Inference

#### Total hours needed for major: 121

#### **Pre-Veterinary Concentration**

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.

AEC	3413	Principles of Ag. Marketing
BCH	I 3613	Elementary Biochemistry
BIO	1504	Principles of Zoology
BIO	4413	Immunology
BL	2413	Legal Environment of Business
CH	1211	Investigations in Chemistry I
CH	1221	Investigations in Chemistry II
CH	1213	Chemistry I
CH	1223	Chemistry II
CH	4511	Organic Chemistry I Lab
CH	4513	Organic Chemistry I
PH	1113	General Physics I
ST	3123	Intro to Statistical Inference

#### Total hours needed for major: 121

#### INTERDISCIPLINARY CURRICULUMS

#### ANIMAL PHYSIOLOGY PROGRAM AN INTERDISCIPLINARY CURRICULUM

The graduate program in physiology is an interdisciplinary curriculum which utilizes the staff members and facilities available in the various participating departments. The student is offered the opportunity to work toward the M.S. degree and/or the Ph.D. in Physiology.

A student wishing to do graduate work in Physiology must be in an appropriate department, usually that of the major professor, and will be expected to complete graduate work in the same fashion as any other graduate student, even though his program is interdepartmental. Listed below are the faculty members who administer the Physiology program, and their departments. Students planning a major or minor in Physiology should use the PHY prefix for each course. Courses contributing to a major in Physiology are listed alphabetically under the symbol PHY in the Description of Courses section (Part III) of this catalog.

ie Description of Courses section (Furt 1	ii) or tills cutulog.
Animal Physiology Committee	Department
Peter Ryan, Coordinator	Animal and Dairy Sci
A. Jerald Ainsworth	College of Vet Med
J. A. Boyle	BCH and Mol Biology
Randal K. Buddington	Biological Sciences
Howard Chambers	Entomology
Janice E. Chambers	College of Vet Med
Timothy N. Chamblee	Poultry Science
Angelica Chapa	Animal and Dairy Sci
Terry E. Kiser	Animal and Dairy Sci
Christopher D. McDaniel	Poultry Science
Erdogan Memili	Animal and Dairy Sci
G. W. Morgan	Poultry Science
Molly Nicodemus	Animal and Dairy Sci
E. David Peebles	Poultry Science
Terry R. Smith	Animal and Dairy Sci
J. Paul Thaxton	Poultry Science
Rhoda Vann	Animal and Dairy Sci
Scott Willard	Animal and Dairy Sci
TD1 ' 1 1 1' ' ' 1	

Thesis research and dissertation credit will be scheduled in the department of the major professor.

## GENETICS AN INTERDISCIPLINARY CURRICULUM

An opportunity is offered to a student who wishes to work toward the M.S. degree in Genetics.\* The Genetics program is an interdisciplinary curriculum which utilizes the staff and facilities available in the various participating departments and colleges. A wide array of plant and animal material is available for genetic investigation. Listed below are the faculty members who administer the Genetics program and their departments.

The student's complete program will be formulated in the department of his/her choice. Students planning a major or minor in Genetics should use the GNS prefix for each course. A Bachelor of Science in the biological or physical sciences will be considered a prerequisite for receiving graduate credit for the courses listed in the catalog. Courses contributing to the major in Genetics are listed alphabetically under the symbol GNS in the Description of Courses section (Part III) of this catalog.

•	the Bescription of Courses section	(1 till 111) of tills cutting.
	<b>Genetics Committee</b>	Department
	B. S. Baldwin	Plant & Soil Sciences
	M. A. Caprio	Entomology
	W. J. Diehl	Biological Sciences
	L.A. Hanson	Veterinary Medicine
	J. N. Jenkins	Plant & Soil Sciences
	Din-Pow Ma	BCH and Mol Bio
	J. C. McCarty	Plant & Soil Sciences
	Erdogan Memili	Animal & Dairy Sciences
	G. T. Pharr	Veterinary Medicine
	E. David Peebles (coordinator)	Poultry Science
	N. A. Reichert	Plant & Soil Sciences
	T. P. Wallace	Plant & Soil Sciences
	W. P. Williams	Plant & Soil Sciences
	D. A. Wise	Biological Sciences
	*The Ph.D. program has been	suspended. Students should check

### with the Coordinator before making plans.

#### **GRADUATE BULLETIN**

For more information on graduate programs in agriculture, see the Graduate Bulletin. A copy may be secured by writing to Office of the Graduate School, Mississippi State, MS 39762.

# College of Architecture, Art, and Design

#### JAMES L. WEST, Dean

#### Jane Britt Greenwood, Associate Dean

Office: 240 Giles Hall

Telephone: (662) 325-2202; Fax Number: (662) 325-8872 Mailing Address: Box AQ, Mississippi State, MS 39762 Web site: www.caad.msstate.edu

#### SCHOOL OF ARCHITECTURE

#### **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. While course work is comprehensive in scope, providing the students with an awareness of the diversity and complexity of today's professional world, each course has its own important role in developing the unique knowledge and abilities required of architects in a modern world.

The School of Architecture at Mississippi State University is the professional program for the State of Mississippi and is the only program in the state which 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.

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 two types of degrees: the Bachelor of Architecture and the Masters of Architecture. A program may be granted a six-year, a three-year, or a two-year term of accreditation, depending on its degree of conformance with established educational standards. The five-year Bachelor of Architecture program at Mississippi State has been continuously accredited since its inception and in 2004 was reaccredited for another six-year term.

#### CURRICULUM

The curriculum is divided into three parts: the first year is defined as the pre-professional program; the second, third, and fourth years compose the professional core; the fifth year provides the transition to professional practice. The curriculum is composed of four areas of study representing: (1) History/Theory, (2) Management, (3) Design, (4) Technology:

- History/Theory composed of architectural history and philosophy, current architectural ideas and directions.
- Management representing the tools necessary to direct the processes of architecture, areas of economics, real estate, finance, promotion, land development, law, and office practice.
- 3. Design concerned with the understanding of form, shape, and space responsive to human needs and programs, together with development of architectural communication skills.
- 4. Technology providing basic knowledge in physical systems of structures, materials, construction and service systems of plumbing, electrical, heating and air conditioning.

The fifth year is a unique experience and is located in downtown Jackson, Miss. It offers the student an opportunity to develop depth and expertise. The city provides a major resource for design activities and acts as a laboratory for continued study. Professionals involved in all areas of the built environment contribute to teaching, and weekly field trips are scheduled to building and manufacturing sites. Research and design projects are focused on the city. This unique experience provides a transition from the academic foundation to the professional realities of architecture.

At the completion of the fifth year, students receive the professional degree of Bachelor of Architecture.

#### **ADMISSIONS**

Admission to the School of Architecture is limited and highly competitive. Prospective students should communicate with the School of Architecture to request current information, and if possible, arrange for a building tour and admissions advisement.

The School of Architecture admits applicants under one of three categories of admission. All three require completing a general application to the University; followed by the submission of a separate Supplementary Application Form and other supporting materials required by the School of Architecture. The three categories of admissions are as follows:

- 1. **Full Admission** with the opportunity to begin freshman architectural design studio in the fall term. This category is only open to new freshman with very strong abilities. Since selection of the majority of this group will be announced by March, initial application should be made by January 15th. A limited number of places will be held for late applicants with exceptional abilities.
- 2. **Pre-Architecture** admission is generally granted to students acceptable to the University but who applied late or have not qualified for "full admission" to the School of Architecture. Pre-architecture students are enrolled in the School of Architecture and complete all required freshman courses except freshman architectural design studios. At such time as all required freshman courses are completed, and if the overall MSU GPA is a minimum 2.5, pre-architecture students may apply to take freshman design studios in the summer term. Entrance to design studios is highly competitive, on a space available basis, and is not automatic. All transfer students from other disciplines or other colleges or universities are considered "pre-architecture" students. Admission to summer design studios requires a special application process which must be initiated prior to February 15 and requires submission of a portfolio. Admission to the summer studio is highly selective.
- 3. Accelerated Studies admission is a special category for incoming students who hold four-year undergraduate degrees in other fields. Application must be made prior to February 15 and is similar to the prearchitecture application process for summer design studios. The "accelerated studies" program begins with admission to summer design studios and requires 35 consecutive months to complete the professional degree. Demonstrated abilities in mathematics, physics, and freehand drawing are required, and admission is highly selective.

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. Transfers from other architecture schools are not encouraged. No transfer credit will be given for courses listed as technical, vocational, or architectural. A student may receive six hours of Reserve Officers' Training Corps (ROTC) credit.

4. International Undergraduate Students must submit an acceptable score on the Test of English as a Foreign Language (TOEFL). The Mississippi State University minimum is 525, and the School of Architecture minimum is 550. TOEFL scores must be no more than two years old and must be official and verifiable. Completion of intensive English training or English Composition courses at a U.S. college does not waive the TOEFL requirement. Only students who are citizens of Australia, Bahamas, Belize, Canada, England, Guyana, New Zealand, Trinidad and Tobago, and Ghana and The Gambia are automatically exempt from this requirement. Citizens of South Africa, Botswana, Lesotho, and Swaziland are only exempt if English is listed as the first language on the Senior Certificate. For further information regarding both international admissions and TOEFL requirements, please contact the Mississippi State University Office of Admissions and Scholarships at (662) 325-2224.

Prospective students are urged to contact the Director of Undergraduate Admissions of the School of Architecture to discuss individual program development through the curriculum. Students intending to spend one year at a community college should seek academic advice from the School of Architecture prior to beginning the community college.

The School of Architecture also offers a Master of Science in Architecture degree with a specialization in computer graphics visualization. The degree program is appropriate for 1) students from various design fields who can demonstrate a high level of creative accomplishment, experience with digital media, and an ability to master computer programming; or 2) students with a mastery of computer programming, including such languages as C++, Autolisp, and Java, and substantial course work or experience in a design field; or 3) students with specialized backgrounds in such fields as archaeology and anthropology who wish to use design visualization as a means of scientific inquiry. The Master's program is not a professional degree and does not lead to Architectural registration. Interested students should consult the Director of the Graduate Program.

#### **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 architecture 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 can expect to purchase a laptop computer in their second year and must adhere to and follow hardware and software specifications identified by the School at that time.

A number of small 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 2.00 cumulative quality point average to remain in design courses. At the end of the first year, a student must have completed all required courses in order to enter the second year, and at the end of the fourth 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 in order 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.

#### **ACCELERATED STUDIES**

A special program is available for graduates of other disciplines. The Accelerated Studies candidate must apply to the School of Architecture prior to February 15 and, if accepted, may expect to begin studies in the summer term and to complete the program in three years, including work during the summer terms (see admissions, paragraph #3).

#### **CARL SMALL TOWN CENTER**

From its inception the School has made small town problems and the solutions to these problems one of its foremost concerns. The Carl Small Town Center was created in 1979 to formalize this commitment. The Center seeks to initiate theoretical and applied research and to serve as a national focus for the collection, storage, dissemination, and application of information pertinent to small town issues.

For further information, contact the Director of the Carl Small Town Center at (662) 325-2207.

#### **JACKSON COMMUNITY DESIGN CENTER**

The Jackson Community Design Center is a laboratory professional design office whose mission is to support the revitalization of Jackson's urban living and working environments. The Design Center provides research, design, planning, and technical assistance to individuals and associations working to make a viable, safe and healthy urban environment. The Design Center undertakes large and small scale projects that serve the community at large and benefit individuals who are socially, economically, or physically disadvantaged. The Design Center conducts public educational programs and sponsors visiting lectures and other Continuing Education Programs.

For further information, contact the Director of the Jackson Community Design Center at 601-354-6480.

#### **Curriculum in Architecture**

Major Advisor: Jane Britt Greenwood Office: 240 Giles Hall

#### **University Core**

English Composition (6 hours)

1103 English Comp I or EΝ

ΕN 1163 Accelerated Comp I

EN 1113 English Comp II or

ΕN 1173 Accelerated Comp II

#### 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

PH 1123 General Physics II

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 University Core

Social Sciences (6 hours)

See University Core

#### **Major Core**

ART 1213 Drawing I

ART 1223 Drawing II\*\*\*

ARC 1003 ARC 1536 Concept and Form

Architecture Design I-A\*\*

ARC 1546 Architectural Design I-B\*\*

ARC 2536 ARC 2546 Architectural Design II-A

Architectural Design II-B

ARC 2723 Materials

History of Architecture III

ARC 3323 ARC 3536 Architectural Design III-A

ARC 3546 Architectural Design III-B

ARC 3713 ARC 3723 Assemblages

Active Building Systems

ARC 3904 Architectural Structures I

ARC 3914 ARC 4313 Structures II with lab

Architectural Theory ARC 4536 Architectural Design IV-A

Architectural Design IV-B

ARC 4546 ARC 4733 Site Planning for Architects

Philosophy of Architecture Legal Aspects of Architecture

ARC 5353 ARC 5383 ARC 5443 Thesis Programming

Architectural Practice

Architectural Design V-A

ARC 5493 ARC 5576 ARC 5589

Architectural Thesis V-B

ARC 5623 Theory of Urban Design

9 hours Approved Electives\*\*

#### 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

- Prospective students with composite ACT of 24 in Mathematics are excused from College Alge-Prospective students with composite ACI of 24 in Mathematics are excused from College Alga-bra. Those with a "B" or better in a full semester high school trigonometry course may be excused from College Trigonometry. Others should take these courses at MSU or a community college in the summer prior to beginning studies in Architecture. Math placement tests are available from the Computer Based Testing Center at (662) 325-6610.
- Pre-architecture, transfer students, and accelerated-studies students take ARC 1536 and ARC 1546 in the summer following completion of all freshman required courses. Special application must be made by February 15 prior to summer design. Admission is highly selective and on a space available basis.
- This course is required if a student receives a grade of C or lower in ART 1213 Drawing I.
- \*\*\*\* The new curriculum requires a student to take three (3) electives between his/her second and fourth year. At least one must be an architectural elective. The remaining electives must be selected from the current School of Architecture Approved Electives List.

#### Department of ART (ART)

Major Advisors: Kay DeMarsche Office: 102 Freeman

#### Mission

The Department of Art's primary undergraduate responsibilities include educating professional artists with concentrations in Ceramics, Drawing, Graphic Design, Painting, Photography, Printmaking, and Sculpture; 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.

#### Concentrations

In the Bachelor of Fine Arts degree, a student may choose an concentration from the following: Ceramics, Drawing, Graphic Design, Painting, Photography, Printmaking, or Sculpture.

Art major students must earn a grade of C or higher in each studio and art history course in the B.F.A. program. (A grade of D or F would require a repeat of the course until a C or higher is attained.) Art major students must earn a grade of B or higher in each studio concentration course, or retake the course until a grade of B or higher is attained. (These requirements also apply to all transfer courses submitted for consideration.)

#### **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 in order 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

Only Art majors who are interested in the Graphic Design concentration 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. A grade of "C" or better must be achieved in each of these courses before students are allowed to participate in the review.

The Foundation Portfolio Review will result in an "accept" or "deny" into the Graphic Design concentration. The student who is accepted (by faculty evaluation) 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 next Foundation Portfolio 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 Fine Arts concentration in order to pursue a B.F.A. degree in Art at MSU.

The Foundation Portfolio Review is held in December of each year. Only the top students will be selected into the Graphic Design concentration due to enrollment demand and limits in resources and classroom space. The usual acceptance rate is 60-70 percent of those applying.

#### **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; and ART 4083 Senior Honors Research/ART 4093 Senior Honors Thesis for students in the other concentration areas.

### 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. These range from \$10 to \$100 per course and are automatically included in tuition.

#### 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

#### **University and College Core**

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 University Core

3 hours See University Core

Math (6-9 hours)

MA 1313 College Algebra

3 hours See University Core

Fine Arts (3 hours)

See Art History and Theory Program

Social Sciences (6 hours)

See University Core

Natural Sciences (6-9 hours)

See University Core

Writing Requirement

3 hours Art History elective

Oral Communication Requirement

Satisfied by successful completion of ART 4640, 4083 or 4093

#### **Graphic Design Concentration**

### Foundation Program (21 hours)

ARC 1003 Concept and Form

ART 1123 Design I

ART 1123 Design II

ART 1153 Design II

ART 1213 Drawing I

ART 1223 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 (18 hours)

ART 2013 Painting Survey
ART 2213 Life Drawing I
ART 2303 Printmaking Survey
ART 2403 Sculpture Survey
ART 2103 Photography Survey

ART 2813 Intermediate Computing for Designers

#### 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.
ART 3163 History of Graphic Design

Art History Elective - may be used for Writing Req Art History Elective - may be used for Writing Req.

#### Art Studio Program (18 hours)

ART 3313 Graphic Design I
ART 3323 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

#### **Concentration Studio Electives (12 hours)**

Must be selected from list or by consent of Concentration Director.

ART 3443 Illustration ART 3873 Digital Photography

ART 3913 Intro to Print Production

ART 4113 Typography II

ART 4413 Advertising Design II

ART 4523 Internship in Graphic Design ART 4713 Advanced Print Production

ART 4813 Multimedia I

ART 4823 Multimedia II

ART 4863 Advanced Studio- Computer Art

Art Studio Electives (6 hours)

#### Total hours needed for major: 123

#### **All Other Concentrations**

(Ceramics, Drawing, Painting, Photography, Printmaking, or Sculpture) Student should check prerequisites for courses. Consult advisor.

#### Foundation Program (21 hours)

ARC 1003 Concept and Form 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 Art History Elective - may be used for Writing Req. Art History Elective - may be used for Writing Req. Art History Elective - may be used for Writing Req.

#### **Concentration Program (30 hours)**

Seven approved Art studio courses in concentration area plus the following:

Total hours needed for major: 123

ART 3803 Gallery Management
ART 4083 Senior Honors Research
ART 4093 Senior Honors Thesis
(Senior exhibit required.)

Art Studio Electives (6 hours)

#### Interior Design (ID)

Program Director: Beth Miller Major Advisors: Associate Professor Margaret S. Bateman and Instructor Robin Carroll

Office: 121 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 (formerly FIDER).

#### Portfolio Review

Each student is required to participate in two portfolio reviews.

The first will occur between the second and third year in order 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 in order to request a review. Students must have a cumulative GPA of 2.5 or higher and a 2.5 in the courses. 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 Fortune 100 Interior Design Firms across the United States.

#### **Financial Requirements**

Costs for an interior design education are somewhat higher than in other disciplines. In addition to standard costs of fees, tuition, room 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 personal laptop computer by the fall of the second year. Specifications for minimum hardware and software requirements can be found on the college web site at www.caad.msstate.edu.

#### 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 added to tuition to ensure that all students are able to take part in these essential learning opportunities.

#### **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR

1163 Accelerated Comp I English Comp II OR EN 1113

EN 1173 Accelerated Comp II

Math (6 hours)

MA 1313 College Algebra

Trigonometry OR MA 1323

MA 1463 Finite Mathematics

Natural Sciences (9 hours, 6 hours with lab) CH 1043 General Chemistry I

6 hours See University Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

ID 3643 History of Interiors I

Social Sciences (6 hours)\*\*

PSY 1013 General Psychology

1033 Economics of Social Issues OR EC

Principles of Macroeconomics OR EC 2113

2123 EC Principles of Microeconomics

#### **Major Core**

ARC 1003 Concept and Form

ART 1123 ART 1133 Design I

Design II

ART 1213 Drawing I

ART 2103 Photography I OR

3403 Intro to Photography as Communication CO

HS 2664 Textiles for Interiors

ID 1683 Interior Design Graphics

ID 1694 ID Studio I

2203 ID Rendering

ID 2615 ID Studio II

Int Materials, Treatments & Resources ID 2633

ID 3D CAD Modeling in Interior Design 3363

ID 3603 Digital Design for Interiors

ID 3611 Portfolio Presentation

ID Studio III ID 3614

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

4654 ID Studio VI ID

Prof Procedures & Practices for Interior Des ID 4663

ID 4693 Furniture Design

4753 Interior Design Internship ID

4733 Computer-Aided Design HS

3 hours Free Elective

Oral Communication Requirement

Satisfied by successful completion of ID 3653

Writing Requirement

Satisfied by successful completion of ID 3673

Computer Literacy Requirement

Satisfied by successful completion of HS 4733

Total hours needed for major: 124

# College of Arts and Sciences

# PHILIP B. OLDHAM, Dean Gary Myers, Associate Dean

Elaine Reed, Academic Coordinator Email: ereed@deanas.msstate.edu Office: 208 Allen Hall; Telephone: (662) 325-2646 Mailing Address: Box AS, Mississippi State, MS 39762

#### **GENERAL INFORMATION**

The College of Arts and 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 and 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 and 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, anthropology, biological sciences, chemistry, communication, English, foreign languages, geography, geology, geoscience, history, interdisciplinary studies, 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 women's studies. Information concerning these offerings can be found in this section of the catalog.

#### **MISSION**

The educational mission of the College of Arts and 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 preparation 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 and 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 and 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 in fine arts, computer literacy, and a junior/senior level writing course. The B.A. and B.S.W. curriculum requires 12 additional semester credit hours each in humanities and social sciences. The requirements for all four 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. 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 and 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 University Core requirements which can be found in the front pages of this Bulletin. However, majors in the College of Arts and Sciences must be aware that there are numerous courses on the University Core 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;
- 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 and 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 and Sciences.

#### **GRADUATION REQUIREMENTS in the COLLEGE**

Arts and 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 and Sciences need to be aware of a number of special requirements having to do with graduation.

- (1) Senior 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 and 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.

#### **ENGLISH and FOREIGN LANGUAGES REQUIREMENTS**

The English and foreign language requirements apply to all Arts and 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 and 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 and 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 University Core 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 listed on the same line, separated by "or" cannot be taken in combination. Students will not receive credit in Arts & Sciences for two courses which are listed on the same line.

Also, Honors classes satisfy requirements and students who qualify are encouraged to take the Honors sections.

#### **Basic Skills**

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

#### Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

(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)

Architectural Appreciation ARC 1013 ARC 2313 History of Architecture I History of Architecture II ARC 3313 History of Architecture III ARC 3323 ART 1013 Art History I ART 1023 Art History II Art Appreciation OR ART 1113 ART 3143 Italian Renaissance in Art History CO 1503 Intro to Theatre MU 2213 History and Literature of Music I MU 2323 History and Literature of Music II MU 1113 Music Appreciation PE 1123 History and Appreciation of Dance

#### Humanities (EN, 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 English Literature II ΕN 2223 EN 2243 American Literature I 2253 ΕN American Literature II ΕN 2273 World Literature I EN 2283 World Literature II HI 1063 Early U.S. History Modern U.S. History HI 1073 1163 World History Before 1500 HI HI 1173 World History Since 1500 Problems in Modern World Civilization HI 1183 НІ 1213 Early Western World Modern Western World HI 1223 1313 East Asian Civilizations to 1300 HI НІ

1323 East Asina Civilizations since 1300

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

PHI 3023 History of Western Philosophy: Part I PHI 3033 History of Western Philosophy: Part II

PHI 3013 **Business Ethics** 

PHI 3153 Aesthetics

#### 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.

AN 1103 Intro to Anthropology OR Intro To Biological Anthropology Intro Cultural Anthropology AN 1343 AN 1143 AN 1543 Intro Archaeology CO 1223 Intro to Communication Theory OR CO 1403 Intro to Mass Media EC 2113 Principles of Macroeconomics OR Principles of Microeconomics EC 2123 Intro to World Geography GR 1123 GR 2013 Cultural Geography

GR 3113 Conservation of Natural Resources 4123 Urban Geography GR GR 4203 Geography of North America American Government PS 1113 PS 1313 Intro to International Relations PS 1513 Comparative Government 2713 Politics of the American Bureaucracy PS PSY 1013 General Psychology **PSY** 2513 Psychology of Adjustment Psychology of Interpersonal Relations 3073 PSY SO 1003 Intro to Sociology

SO 1103 Contemporary Social Problems

Marriage and Family SO 1203

#### Computer Literacy

One 3 hour course required. Consult advisor.

#### **Mathematics & Statistics**

Either 2 courses required or one MA course at the level of MA 1463 or higher.

MA 1313 College Algebra OR Quantitative Reasoning MA 1303 MA 1323 Trigonometry

Calculus for Business and Life Sciences I MA 1613

MA 1713 Calculus I

1623 Calculus for Business and Life Science II MA

1723 Calculus II MA MA 2733 Calculus III 2743 Calculus IV MA

MA 3113 Introduction to Linear Algebra

2113 Introduction to Statistics ST

3123 STIntroduction 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.

> BIO 1004 Anatomy and Physiology BIO 1033 Biological Sciences OR Plants and Humans OR BIO 1023

Animal Biology Plant Biology OR BIO 1123 BIO 1203

BIO 1023 Plants and Humans BIO 1504

Principles of Zoology OR BIO 1123 Animal Biology

BIO 3103 Genetics I or equivalent BIO 3304

Parasitology Survey of Chemistry I OR 1043 CH

CH 1213 Chemistry I

CH 1053 Survey of Chemistry II OR

CH 1223 Chemistry II

1051 CH **Experimental Chemistry** CH 1211 Investigations in Chemistry I CH 1221 Investigations in Chemistry II

Intro to Insects 2213 **EPP** GG 1111 Earth Science I Lab

GG 1113 Survey of Earth Science I Earth Science II Lab GG 1121

GG 1123 Survey of Earth Science II

Elements of Physical Geography GR 1114

Physics Laboratory PH 1041

PH 1042 Physics of Sound and Music Physical Laboratory I PH 1011

Descriptive Astronomy PH 1063 PH 1021 Physical Science Lab 2

Physical Science Survey I PH 1013 Physical Science Survey II General Physics I OR PH 1023

PH 1113

PH 2213 Physics I

General Physics II PH 1123

2223 PH Physics II

PH 1133 General Physics III

PΗ 2233 Physics III

3301 PSS Soils Laboratory

PSS 3303 Soils

#### Junior/Senior Writing

3 hours Consult advisor for selections.

#### ANTHROPOLOGY (AN)

See the Department of SOCIOLOGY, ANTHROPOLOGY, and SOCIAL WORK

#### **ARCHAEOLOGY**

See the Department of SOCIOLOGY, ANTHROPOLOGY, and SOCIAL WORK

### **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 biological sciences is available to outstanding students. A description of the program and application materials may be obtained from the department office.

#### **BIOLOGICAL SCIENCES (BIO)**

Major Advisors: Professor Walter Diehl; Office: 104 Harned Hall Associate Professor Giselle Munn; Office: 323 Harned Hall

#### **University and College Core**

English Composition (6 hours)

1103 English Comp I OR Accelerated Comp I EN 1163 EN English Comp II OR 1113 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 (23 hours)

BIO 1203 Plant Biology BIO 1504 Principles of Zoology BIO 3304 General Microbiology BIO 4133 Human Genetics BIO 2103 Cell Biology

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Oral Communication Requirement
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CO 1003 Fundamentals of Public Speaking

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\*

BIO 4114 Cellular Physiology BIO 4413 Immunology BIO 4433 Prin Virology BIO 4504 Embryology BIO 4503 Histology

General Biochemistry BCH 4603

BCH 4613 General Biochemistry

Area 2: Anatomy and Physiology\*

BIO 4204 Plant Anatomy

General Plant Physiology BIO 4214 BIO 3504 Comparative Anatomy

BIO 4514 Animal Physiology

Area 3: Organisms\*

BIO 2213 Survey of Plants & Fungi

BIO 3303 Parasitology

Taxonomy of Spermatophytes BIO 4203

BIO 4223 Freshwater Algae

BIO 3524 Biology of Vertebrates

BIO 4513 Ichthyology BIO 4523 Mammalogy

BIO 4543 Ornithology

Area 4: Ecology and Evolution\*

BIO 3104 Ecology

BIO 4113 **Evolutionary Biology** 

BIO 4213 Plant Ecology

Life Science Elective (10 hours)\* consult advisor

Physical Science Core (20 hours)

Chemistry I CH 1213

1223 CH Chemistry II

CH 1211 Investigations in Chemistry I

1221 Investigations in Chemistry II CH

4513 Organic Chemistry I CH

CH 4523 Organic Chemistry II

General Physics I PH 1113

1123 General Physics II OR PH

PH 1133 General Physics III

General Electives (14 hours)

#### Total hours need for major: 124

\* Hours in excess of 24 hours from area courses may be deducted from elective hours. Life Science electives may be taken in other Departments but must be courses for respective "majors". See

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 2004, BIO 2014, BIO 4713/6713

#### Minor in Biological Sciences (28 hours)

CH 1213 Chemistry I Chemistry II CH 1223

CH 1211 Investigations in Chemistry I CH 1221 Investigations in Chemistry II

Biology Core (less BIO 3013 and CO 1003) 17 hours

4 hours One course from Area 4 above

#### **MICROBIOLOGY (MIC)**

Major Advisor: Professor Karen Coats Office: 113 Harned Hall

#### **University and College Core**

English Composition (6 hours)

1103 English Comp I OR EN EN 1163 Accelerated Comp I

ΕN 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

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 BIO 4413 Immunology Virology BIO 4433 BIO 4443 **Bacterial Genetics** 

BIO 4442 Bacterial Genetics Lab BIO 4463 **Bacterial Physiology** 8 hours Microbiology Electives

Oral Communication Requirement

Fundamentals of Public Speaking CO 1003

Writing Requirement

BIO 3013 Writing for Biologists

Computer Literacy Requirement

Satisfied by Successful completion of BIO 3013 and BIO 4442.

#### **Departmental Core**

BIO 1203 Plant Biology BIO 1504 Principles of Zoology BIO 2103 Cell Biology Additional department requirements Chemistry I CH 1213

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 4511 CH

Organic Chemistry Laboratory I CH 4521 Organic Chemistry Laboratory II

PH 1113 General Physics I PH 1123 General Physics II OR General Physics III PH 1133

BCH 3613 Elementary Biochemistry OR BCH 4603 General Biochemistry AND

BCH 4613 General Biochemistry

General Electives

#### 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 MDT or BCH are also acceptable. BIO 2004 (Human Anatomy), and BIO 2014 (Human Physiology), BIO 3504 (Comparative Anatomy) and BIO 4502 (Toxicology) are also acceptable. 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 16 hours of general electives are required. For career track, BCH 3613 may be substituted for BCH 4603/4613, and 19 hours of general electives are required.

Students desiring a minor must take General Micro, Bacterial Cultivation, Pathogenic Micro, and elective microbiology courses to total no less than 19 total hours of microbiology course work.

#### **MEDICAL TECHNOLOGY (MEDT)\*\***

Major Advisor: Associate Professor Carol Williams Office: 102 Harned Biology Building

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.

#### University and College Core

English Composition (6 hours)

ΕN 1103 English Comp I OR Accelerated Comp I EN 1163 EN 1113 English Comp II OR EΝ Accelerated Comp II 1173

Foreign Language (6 hours)

2 semesters one Foreign Language (see advisor)

Humanities (6 hours)

Literature - see A&S requirements 3 hours 3 hours History - see A&S requirements

Mathematics (6 hours)

MA 1313 College Algebra Trigonometry OR MA 1323

ST3123 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 1504 Principles of Zoology BIO 1301 Perspectives in Med Tech BIO 3304 General Microbiology Parasitology BIO 3303

BIO 4304 Quantitative Methods I Pathogenic Microbiology BIO 4405

BIO 4303 Bioinstrumentation

BIO 4314 Quantitative Methods II

BIO 4413 Immunology

BIO 4636 Clinical Chemistry Serology/Immunology BIO 4614

BIO 4626 Hematology BIO 4602 Urinalysis

Special Topics BIO 4612 BIO 4624 Immunohematology

BIO 4606 Clinical Microbiology

BCH 3613 Biochemistry CH 1213 Chemistry I

1211 CH Chemistry Lab

1223 Chemistry II CH CH 1221 Chemistry Lab

4513 Organic Čhemistry I CH 4523 Organic Chemistry II CH

7 hours General and Science Electives Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

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 a number of hospitals in the area. The following act as program consultants.

Gary Benson, MD, Director, Mississippi Baptist Medical Center, Jackson, MS 39202

Jennifer Knight, MHS, CLS, MT, Program Director, Mississippi Baptist Medical Center, Jackson, MS 39202

Ishak Enggano, MD, Director, North Mississippi Medical Center, Tupelo, MS 38801

Lee Montgomery, MT(ASCP), Program Director, North Mississippi Medical Center, Tupelo, MS 38801

David Head, MD, Director, Vanderbilt University, Nashville, TN

Maralie G. Exton, MT(ASCP), PhD, Program Coordinator, Vanderbilt University, Nashville, TN 37235

James Williams, MD, Director, University of Southern Miss., Hattiesburg, MS

Jane Hudson, MT (ASCP), Ph.D., Program Director, University of Southern Miss., Hattiesburg, MS.

#### **BROADCASTING**

See Department of COMMUNICATION

#### Department of CHEMISTRY (CH)

Major Advisors: Professors Svein Saebo, Bill Wilson and David Wipf Assistant Professor John Young 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, three undergraduate degree programs are offered to provide the needed flexibility for majors. These degrees are the B.S. (ACS), 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 B.S. (ACS) program. The B.S. (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.

The B.S. (non ACS) program has more flexibility than the B.S. (ACS) program and the choices of electives are based upon the career choice. Chemistry advisors can help students choose the proper electives

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 (A.C.S. Certification)

#### **University and College Core**

English Composition (6 hours)

1103 English Comp I OR

ΕN Accelerated Comp I 1163

EΝ 1113 English Comp II OR

ΕN 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 History - see A&S requirements 3 hours

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

#### **Major Core**

Student should check for prerequisites for all courses. See advisor.

Professional Chemistry: Paths CH 1141

Chemistry I CH 1213

CH 1211 Investigations in CH I

1223 Chemistry II

CH Investigations in CH II CH 1221

CH 2141 Professional Chemistry: Tools

2314 Analytical Chemistry I CH

3141 CH Professional Chemistry: Literature

CH 3213 Inorganic Chemistry

CH 4141 Professional Chemistry: Research

4212 Advanced Inorganic Lab CH CH 4213

Advanced Inorganic Chemistry CH 4351 Analytical Chemistry Lab II

CH 4353 Analytical Chemistry II

CH 4413 Physical Chemistry I

CH 4411 Physical Chem Lab I CH 4423

Physical Chemistry II Physical Chem Lab II 4421 CH

CH 4513 Organic Chemistry I

Organic Chemistry Lab I CH 4511

Organic Chemistry II CH 4523

CH 4521 Organic Chemistry Lab II 4603 Undergraduate Research CH

Senior Seminar CH 4711

General Biochemistry I BCH 4603

Chemistry Electives\* 3 hours

2213 PH Physics I

2223 PH Physics II

2233 Physics III PΗ

MA 2733 Calculus 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, 4351 and 4711.

Technical Electives (12 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 courses 3000-level and above.

#### B.S. in Chemistry (without A.C.S. Certification)

#### **University and College Core**

English Composition (6 hours)

1103 English Comp I OR ΕN 1163 Accelerated Comp I English Comp II OR EN 1113

Accelerated Comp II ΕN 1173

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 1313 College Algebra MA 1713 Calculus I

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

#### **Major Core**

Student should check for prerequisites for all courses. See advisor.

Professional Chemistry: Paths CH 1141

CH 1213 Chemistry I

CH 1211 Investigations in CH I

CH 1223 Chemistry II

Investigations in CH II 1221 CH

CH 2141 Professional Chemistry: Tools

CH 2314 Analytical Chemistry I

Professional Chemistry: Literature Professional Chemistry: Research CH 3141

CH 4141

CH 4213 Advanced Inorganic Chemistry

Analytical Chemistry Lab II Analytical Chemistry II 4351 CH

CH 4353

CH 4413 Physical Chemistry I

Physical Chemistry Lab I Physical Chemistry II CH 4411

CH 4423 CH

4513 Organic Chemistry I Organic Chem Lab I CH 4511

Organic Chemistry II 4523 CH

Organic Chem Lab II CH 4521

Undergraduate Research CH 4603

Senior Seminar CH 4711

3 hours Chemistry Elective\*

MA 1723 Calculus II

PH 2213 Physics I

2223 PH Physics II

2233 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, 4351 and 4711.

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 courses 3000-level and above.

#### B.S. in Chemistry (Pre-Medical)

#### **University and College Core**

English Composition (6 hours)

1103 English Comp I OR ΕN Accelerated Comp I 1163

English Comp II OR EΝ 1113

Accelerated Comp II ΕN 1173

#### Foreign Language (6 hours)

2 semesters one Foreign Language (see advisor)

#### Humanities (6 hours)

3 hours English Literature - see A&S requirements

3 hours History - see A&S requirements

#### Mathematics (6 hours)

MA 1313 College Algebra

MA 1713 Calculus I

Fine Arts (3 hours)

See A&S requirements

Natural Sciences (9-12 hours)

See Major Core - Consult Advisor for specifics

Social Sciences (6 hours)

PSY 1013 General Psychology

3 hours chosen from A&S requirements

#### **Major Core**

Student should check for prerequisites for all courses. See advisor.

Professional Chemistry: Paths CH 1141

CH 1213 Chemistry I

CH 1211 Investigations in CH I

1223 CH Chemistry II

CH 1221

Investigations in CH II CH 2141 Professional Chemistry: Tools

CH 2314 Analytical Chemistry I

CH 3141 Professional Chemistry: Literature

Professional Chemistry: Research CH 4141

CH 4213 Advanced Inorganic Chemistry

Analytical Chemistry II Analytical Chem Lab II CH 4353

CH 4351

CH 4413 Physical Chemistry I

Physical Chem Lab I Physical Chemistry II CH 4411

CH 4423 CH 4513 Organic Chemistry I

Organic Chem Lab I Organic Chemistry II CH 4511

CH 4523

Organic Chem Lab II CH 4521

Undergraduate Research 4603 CH

Senior Seminar CH 4711

Chemistry Elective\* 3 hours

General Biochemistry I BCH 4603 General Biochemistry II BCH 4613

MA 1723 Calculus II

PH 2213 Physics I

PH 2223 Physics II 2233

PH Physics III Oral Communication Requirement

Satisfied by 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.

Technical Elective (21 hours)

BIO 1504 Principles of Zoology

BIO 3103 Genetics I

BIO 3304 General Microbiology Comparative Anatomy

BIO 3504 3-4 hours BIO elective

Advisor approved course

Number of credit hours needed to bring the total of credit hours to 124. Consult advisor. (BIO 4514 & BIO 4413 are recommended)

#### Total hours needed for major: 124

Advisor approved chemistry courses 3000-level and above.

#### **B.A.** in Chemistry

#### **University and College Core**

English Composition (6 hours)

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

Foreign Language (9 hours)

3 semesters one Foreign Language (see advisor)

#### Humanities (18 hours)

Literature - see University Core 3 hours 3 hours History - see University Čore Philosophy - see A&S Core 3 hours

Electives (Must be from 2 different areas) 9 hours

See A&S Core

#### Math (6 hours)

MA 1313 College Algebra MA 1713 Calculus I

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

Social Sciences Electives - See advisor\* 12 hours

#### **Major Core**

Student should check for prerequisites for all courses. See advisor.

Professional Chemistry: Paths CH 1141

1213 Chemistry I CH

CH 1211 Investigations in Chemistry I

1223 Chemistry II CH

CH 1221

Investigations in Chemistry II Professional Chemistry: Tools CH 2141

CH 2314 Analytical Chemistry I

3141 Professional Chemistry: Literature CH

CH 3213 Inorganic Chemistry OR

CH 4213 Adv Inorganic Chemistry CH 4141 Professional Chemistry: Research

Organic Chemistry I CH 4513

CH 4511 Organic Chem Lab I

CH 4523 Organic Chemistry II

Organic Chem Lab II 4521 CH

CH 4711 Senior Seminar

Chemistry Electives - See advisor\*\* 7 hours

MA 1723 Calculus II

PH 1113 General Physics I OR

PH 2213 Physics I

General Physics II OR PH 1123

PH 2223 Physics II

1133 General Physics III OR PH

PH 2233 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.

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

### **Department of COMMUNICATION (CO)**

Major Advisor: Khristi Edmonds 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. Minors are available in all areas. 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 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, 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 advisor, Khristi Edmonds, 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 Pe 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. The Turner Catledge Scholarships, the Hank Flick Outstanding Service Scholarships, the Helen and Joe Phillips Scholarship, the Earl Love Guyton Scholarships, and the Founders Scholarships are offered annually to outstanding majors. In addition, Theatre students may apply for the Blackfriars Scholarships or the Paula Mabry Scholarship. The Aggie G. Weems Scholarship in Journalism is also provided for Journalism concentration students. 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 and the Public Relations Association of Mississippi provide pre-professional experience and contacts for students of public relations. Blackfriars is available to students of Theatre. The Society of Professional Journalists services students of Journalism and Broadcasting. The Student Broadcasting Association services students in the Broadcasting concentration; this group is directly involved in the production of several television programs. The Communication Student Council, comprised of one officer and one representative of each student group, provides coordination and leadership within the departmental student body.

#### **Programs of Study**

Students who major in Communication select from several areas of emphasis: 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; 15 hours of the professional core (which must be completed at Mississippi State University); and 18 hours of additional specified work in the area of emphasis. 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 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.

#### **University and College Core**

English Composition (6 hours)

English Comp I OR ΕN 1103 Accelerated Comp I EN 1163 EN 1113 English Comp II OR

EN 1173 Accelerated Comp II

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Foreign Language (9 hours)

3 semesters one Foreign Language (see advisor)

Humanities (18 hours)

English Literature - see University Core 3 hours

History - see University Core 3 hours

3 hours Philosophy Elective - see University Core

9 hours Humanities Elective\*

Math (6 hours)

MA 1313 College Algebra

MA 1323 Trigonometry OR

ST 2113 Statistics

Fine Arts (3 hours)

CO 1503 Intro to Theatre (required unless student has completed acceptable Fine Arts course prior to declaring CO major other than Theatre)

Natural Sciences (9-12 hours)

3-4 hours Physical Science w/Lab\*\* 3-4 hours Life Science w/Lab\*\*\*

Natural Science Elective\*\*\*\* 3-4 hours

Social Sciences (18 hours)\*+

PSY 1013 General Psychology SO 1003 Intro. to Sociology World Geography GR 1123

1223 Intro. to Communication Theory CO

CO 1403 Intro. to Mass Media\*++

6 hours Electives

#### **Major Core**

Student should check for prerequisites for all courses. Consult advisor or course descriptions in catalog.

CO 1003 Fund. of Public Speaking

CO 1223 Intro. to Communication Theory OR

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 32 hours A&S UD requirement.
- CH, GG, or PH; see University Core.
- BIO, EPP, or PO; see University Core.
- Not required to be selected from core listing.
- 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 32 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 of the following concentrations:

#### **Broadcasting Concentration**

CO 1423 History of the 3Mass Media Intro. to Newswriting and Reporting CO 2413

CO2333 TV Production

News Writing for Electronic Media CO 3313

3833 CO

Interviewing Advanced Television Production 3333 CO

TV Practicum CO 4373

CO 4313 Mass Media Law

CO 4323 Mass Media and Society

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**

CO2253 Interpersonal Communication

2213 CO Small Group Communication

CO 4203 Nonverbal Communication

CO 4223 Advanced Communication Theory

4253 Elements of Persuasion CO

CO 4243 Rhetorical Theory

CO 4323 Mass Media and Society OR

4313 CO Mass Media Law

CO 4213 Political Communication 12 hours

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**

CO 1423 History of the Mass Media

CO 2413 Intro. to Newswriting and Reporting

News Editing CO 2423

CO 3403 Intro. to Photography as Communication

3423 Feature Writing CO

CO4313 Mass Media Law

CO 3443 Advanced Newswriting

CO 4403 Journalism Ethics

Upper Division CO Electives - see advisor 9 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.

#### **Public Relations Concentration**

CO	3803	Principles of Public Relations
CO	2413	Intro. to Newswriting and Reporting
CO	2213	Small Group Communication
CO	2333	TV Production OR
CO	3403	Intro. to Photography as Communication
CO	2343	Writing for Radio, TV and Film OR
CO	3423	Feature Writing OR
CO	3313	News Writing for Electronic Media
CO	3833	Interviewing
CO	3813	Public Relations Case Problems
CO	3823	Public Relations Copy and Layout
CO	4813	Public Relations in Organizations
CO	4253	Elements of Persuasion
CO	4313	Mass Media Law OR
CO	4323	Mass Media and Society

## Total hours needed for major: 124

May need to be taken at Upper Division level to meet A&S UD requirement.

10-13 hours General Electives\*

#### **Theatre Concentration**

CO	2013	Voice and Articulation
CO	2613	Intro. to Oral Interpretation
CO	2503	Acting
CO	2524	Stagecraft & Lighting
CO	4504	History of Theatre
CO	2544	Makeup and Costume
CO	4524	Directing
CO	4573	Theatre Management
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.

## **COMMUNICATION STUDIES**

See Department of COMMUNICATION

## **CRIMINAL JUSTICE and CORRECTIONS (COR)**

See Department of SOCIOLOGY, ANTHROPOLOGY, and SOCIAL WORK

## **ECONOMICS (EC)**

Major Advisor: Charles Campbell; Office: 312 McCool Hall Minor Advisor: Rebecca Campbell; 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 and 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 and Sciences and University common and core 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.

#### **University and College Core**

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 University Core
3 hours	History - see University Core
9 hours	Humanities Elective*

3 hours Philosophy Elective - see University Core

## Math (6 hours)

MA 1613 Calculus for Business & Life Science I

ST2113 Stats for Behavioral Sciences

Fine Arts (3 hours)

See A&S Core Requirements 3 hours

## Natural Sciences (9-12 hours)

Physical Science w/Lab\*\* 3-4 hours Biological Science w/Lab\*\*\* 3-4 hours

3-4 hours Natural Science Elective\*\*\*\*

#### Social Sciences (18 hours)# 3 hours Met in major requirement

Jilouis		wice 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**

or C	OIC		
E	C	2113	Principles of Macroeconomics
Е	C	2123	Principles of Microeconomics
Е	C	3113	Intermediate Macroeconomics
Е	C	3123	Intermediate Microeconomics
Е	C	4643	Economic Forecasting & Analysis
1	2 ho	urs	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

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 University Core.
- BIO, EPP, or PO; see University Core.
- Consult advisor.
- Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor

## Department of ENGLISH (EN)

Major Advisors: Professor Richard Raymond (Head) Professor Richard Patteson (M.A. program) Associate Professor Kelly Marsh (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 the distinguished literary journal, *The Mississippi Quarterly*. Additionally, the department operates the university Writing Center (200 Lee Hall) 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 George B. Nutt Scholarship to a freshman declaring an English major or to a sophomore or junior English major; 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; 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 sponsors writing contests and publishes The Jabberwock Review, a student-edited collection of literature and art.

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 2213, 2223, 2243, 2253, and 3414, 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

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

No more than one experimental course may be counted toward fulfillment of the English elective requirements. For students who have taken accelerated or honors composition, EN 2203 does not count toward the requirements for the major.

English majors must take HI 3743, History of England, in fulfilling the Arts and Sciences B.A. common curriculum requirements.

- 1. English majors must maintain at least a 2.5 QPA in all upper-division 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 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.

## **University and College Core**

English Composition (6 hours)

1103 ΕN English Comp I OR ΕN 1163 Accelerated Comp I

ΕN 1113 English Comp II OR Accelerated Comp II EN 1173

Foreign Language (9 hours)

3 semesters one Foreign Language (see advisor)

Humanities (9 hours)

3 hours Philosophy Elective - see advisor

6 hours History Sequence - choose one of the following:

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 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\* Biological Science w/Lab\*\* 3-4 hours

Natural Science Elective\*\*\* 3-4 hours

Social Sciences (18 hours)\*\*\*\*

6 hours see A&S requirements 12 hours Social Sciences Electives

**Major Core** 

3 hours Fourth semester in chosen Foreign Lang

3743 History of England HI ΕN 2213 English Literature I 2223 English Literature II EN 2243 American Literature I EN

2253 American Literature II EN

ΕN 3414 **Advanced Composition** 

Upper Division Requirements (15 hours)

Pre-1660 English Lit Elective 3 hours Post-1660 English Lit Elective 3 hours

3 hours American Lit Elective

3 hours American or contemporary Lit Elective

English Lit Elective 3 hours

English Vocational Elective (3 hours)

ΕN 4323 Lit Criticism

EN 4403 Linguistics EN 3303

Creative Writing 4223 Legal Writing EN

Elective (3 hours)

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

General Electives (17 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 University Core.
- BIO, EPP, or PO: see University Core.
- \*\*\* Consult advisor

Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Eco-

## **Department of FOREIGN LANGUAGES (FL)**

Major Advisor: Professor Edmond Emplaincourt (Head) 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 10 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 six courses in the primary language at the 3000-level, or higher, is required.)

- 1. University Core Requirements
- 2. Bachelor of Arts Common Requirements
- 3. FL 3203, FL 3313, FL 4013, or approved substitute(s).
- 4. 30 semester hours in the primary language (French, German, Latin, Russian, Spanish). The normal sequence is FLF/G/S I, II, III, IV, Advanced FLF/G/S I, Advanced FLF/G/S II, Survey FLF/G/S II, Survey FLF/G/S II, and 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.

Foreign Language majors interested in following this recommended course of study should notify the Department Head 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

#### **University and College Core**

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)

3 hours
3 hours
History - see University/A&S Core
3 hours
Philosophy Elective - see advisor
Humanities Electives \*

Math (6 hours)

MA 1313 College Algebra MA 1323 Trigonometry or

ST 2113 Stats for Beh Sci or higher math

Fine Arts (3 hours)

See A&S Requirements

Natural Sciences (9-12)

3-4 hours
3-4 hours
3-4 hours
3-4 hours
3-4 hours
3-4 hours
Natural Science W/Lab\*\*\*
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

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FL 2143 Foreign Language IV
FLF/FLG 3114 or FLS 3111 & FLS 3113
FLF/FLG 3124 or FLS 3121 & FLS 3233
FL 3203 Intro to Hist and Appl Linguistics*++
FL 4013 Major Themes of Movements*++
FLF/FLG/FLS 3513
FLF/FLG/FLS 3523
Second Language 1113
Second Language 1123
Second Language 2133
Second Language 2143
6 hours FL Electives (3000 or 4000 level)
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Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

FL 3313 Composition

Computer Literacy

CSE 1213 Programming with Fortran OR TKT 1273 Computer Applications

General Elective (3 hours)

Consult advisor

## Total hours needed for major: 123

- \* Must be from 2 different area. See A&S Requirements.
- \*\* CH, GG, or PH; see University Core.
- \*\*\* BIO, EPP, or PO; see University Core.
- \*\*\*\* Consult advisor.
- $^{*+}$   $\,$  Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics 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 General Business Administration

International Business Academic Program
Office: 308 McCool Hall

## Major Advisors, Business Administration:

Professors Capella and Taylor; Associate Professor Addy; Assistant Professor Rezek

#### Major Advisors, Foreign Languages:

Professor Emplaincourt; Associate Professors Jordan and Robbins-Herring; Assistant Professors Lestrade and Rice 300 Lee Hall

The International Business Program provides students an academic background and work experience to help ensure success in the market-place. Students receive a double degree at graduation reflecting the dual concentration in Arts & Sciences: B.A. (language and cultural proficiency); and in Business: B.B.A. (with an international focus + a specific discipline such as Marketing or Finance). This is in addition to the first two years of study developing abilities in writing, math, sciences, and computer literacy.

The hallmark of this program is a work internship, an outside the country work experience of a full summer or one semester duration (generally taken the last of the 4th year or beginning of the 5th year). This work is ideally reflective of the student's specific business discipline and language proficiency area. The student who selects to separate the work and abroad experience must petition the IB committee 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. An International Business Co-Op Work program offers 3 semesters paid international work experience in concert with pursuing the academic degrees.

The total number of semester credit hours (SCH) will be 154 for most students. The program has five main components:

- a core of basic skills, including courses in writing, mathematics, sciences, and communication (30 SCH, or 10 courses);
- a core of humanities and social science courses selected to fit the special needs of international business majors, emphasizing both the history and culture of other societies and the ways

these societies relate to our own (27 SCH, or 9 courses);

- intensive training to develop proficiency in one foreign language and its associated cultures and literatures (37 SCH or 11 courses):
- 4. a thorough grounding in business techniques and practices, including 33 SCH of general business courses, 12-16 SCH of International Business courses, and 12 SCH in one of six functional/discipline emphases in business (accounting, banking and finance, management information systems, economics, management, marketing\*, or risk management, insurance and financial planning\*) (57 SCH, or 19 courses);
- 5. a one-semester internship program with an international business (3 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 Industry and the College of Arts & Sciences. This includes having no Ds in upper level business courses or in upper level Foreign Language courses. International Business students must have an overall and previous semester GPA of 2.5 to be eligible for internship and study abroad

\* Information Systems, Insurance & Marketing functional emphasis areas will need an additional 3 credits in their program

#### **International Business**

## **University and College Core**

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 (6 hours)

Life Science and Lab (BIO prefix)

Physical Science and Lab (CH, GG, OR PH prefix)

## Math/Science Elective (3 hours)

ST 2113 Statistics for the Beh Sciences OR

ST 3123 Intro to Statistical Inferences

#### Humanities (6 hours)

EN 2273 World Literature I OR

EN 2283 World Literature II

HI 1173 World History Since 1500 OR

HI 1223 Modern Western World

## Fine Arts (3 hours)

## Choose from the following:

ARC 1013 Architectural Appreciation

ARC 2313 History of Architecture I

ART 1013 Art History I

ART 1023 Art History II

ART 1113 Art Appreciation

ART 3143 Italian Renaissance Art History

MU 1113 History and Appreciation of Music

CO 1053 Introduction to Theatre

PE 1123 History and Appreciation of Dance

## Social/Behavioral Sciences (6 hours)

GR 1123 Introduction to World Geography

AN 1143 Introduction to Cultural Anthropology

## College of Arts and Sciences Core

PHI 3013 Business Ethics

PS 1313 Intro to International Relations OR

PS 1513 Comparative Government

HI 3000+ Upper-level History Elective (see advisor)

SO 3000+ Upper-level Social Science Elective (see advisor)

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 Sur of French/German/Spanish Lit

Foreign Language Elective - (see FL advisor for options)

## College of Business and Industry 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 BIS 3233 Intro to Management Info Systems

FIN 3123 Financial Management

MKT 3013 Principles of Marketing

MGT 3114 Principles of Management and Production

GB 4853 Business Policy

#### Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

## Computer Literacy Requirement

BIS 1012 Intro to Business Information Systems OR

CSE 1013 Basic Computer Concepts and Apps

#### Writing Requirement

MGT 3213 Organizational Communications

#### **Major Core**

International Business Electives- 9-12 hours

ACC 4053 International Accounting

BL 4273 International Business Law

EC 3513 Economic Systems of the World

EC 4323 International Economic Relations

FIN 4923 International Financial Management

IB 3913 Principles of International BusinessIB 3933 International Marketing

MGT 4613 Cross Cultural Management

3 hours Transportation Course - See advisor

(BIS & INS majors 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 Business Advisor for Options.

IB 3900 Internship Work

IB 4903 Internship Work/ Academic Report

2 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

## **GENERAL LIBERAL ARTS (GLA)**

Advisor: Mark Goodman Office: 106 McComas

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 12 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.

## **University and College Core**

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 (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
3-4 hours
3-4 hours
3-4 hours
Natural Science w/Lab\*\*
Natural Science Elective\*\*\*

Social Sciences (18 hours)\*\*\*\*

6 hours See A&S requirements 12 hours Social Sciences Electives

## **Major Core**

Consult advisor.

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

8 or more hours to equal 124

#### Total hours needed for major: 124

- \* CH, GG, or PH; see University Core.
- \*\* BIO, EPP, or PO; see University Core
- \*\*\* Consult advisor.

\*\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor.

## **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 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.
- A minimum of 60 credit hours in science, of which at least 30 must be in one science, is required.

- 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.

#### **University and College Core**

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 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 GG 1111 Earth Science I Lab

CH 1211 Invest in Chemistry I Lab

CH 1213 Chemistry I

CH 1221 Invest in Chemistry II Lab

CH 1223 Chemistry II

CH 4511 Organic Čhemistry I Lab CH 4513 Organic Chemistry I

CH 4521 Organic Chemistry II Lab

CH 4523 Organic Chemistry II

PH 1113 General Physics I

PH 1123 General Physics II

BIO 1504 Prin of Zoology

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

GE 3513 Technical Writing

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. and M.S. 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 advanced 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. Students in the professional geology concentration are required to take the Association of State Board of Geologists (Fundamentals of Geology) 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 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.

Four scholarships are available to students majoring in Geoscience, namely the F.F. Mellen, the Gordon W. Gulmon, the Sistrunk Endowed, and the Dunn Memorial Scholarships. The Mellen Scholarship provides financial assistance to those enrolled in field geology camp during the summer. The Gulmon, the Dunn Memorial, and the Sistrunk Endowed 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.

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 three distance learning programs listed below. Each program utilizes DVDs 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.

#### **GEOSCIENCES Core**

## **University and College Core**

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 University Core 3 hours History - see University Core

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

3 hours see University/A&S Core requirements

For Broadcast Meteorology

GR 1123 World Geography

CO 1403 Mass Media

### **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**

## Mathematics

MA 1713 Calculus I

MA 1723 Calculus II

#### Natural Sciences

PH

CH 1213 Chemistry I

CH 1211 Investigations in CH I

CH 1223 Chemistry II

CH 1221 Investigations in CH II

PH 1113 Physics I

PH 1123 Physics II

GG 4233 Applied Geophysics

## Concentration Requirements

1133

GG 1121 Earth Sciences II Lab

GG 1123 Survey of Earth Sciences II

Physics III OR

GG 3133 Intro to Environmental Geology

GG 3613 Water Resources\*

GG 4114 Mineralogy

GG 4123 Petrology

GG 4201 Practicum in Paleontology	GR 2313 Maps and Remote Sensing
GG 4304 Principles of Sed. Dep I	GR 4103 Geography of Tourism
GG 4413 Structural Geology	GR 4203 Geography of North America
GG 4333 Geowriting**	GR 4303 Principles of GIS
GG 4443 Prin of Sed Dep II GG 4503 Geomorphology	6 hours 4000 level departmental courses Choose four of the following:
GR 2313 Maps and Remote Sensing	_
GR 3113 Conservation of Natural Resources	GG 1133 Planetary Geology GG 3133 Intro to Environmental Geology
ST 3123 Intro to Statistical Inference OR	GG 3603 Intro to Oceanography
GR 4633 Statistical Climatology*	GG 3613 Water Resources**
6 hours Summer Field Camp***	GG 4523 Coastal Environments
Choose one of the following:	GR 1603 Intro to Meteorology
GG 4203 Principles of Paleobiology	GR 3113 Conservation of Natural Resources GR 4813 Natural Hazards
GG 4113 Micropaleontology GG 4133 Principles of Paleoecology	GR 4813 Natural Hazarus
Choose two of the following:	Choose one of the following:
GG 1133 Planetary Geology	GR 4213 Geography of Latin America
GG 3603 Intro to Oceanography	GR 4223 Geography of Europe
GG 4523 Coastal Environments	GR 4233 Geography of Asia
GR 1603 Intro to Meteorology	GR 4243 Geography of Russia
Choose three of the following:	GR 4253 Geography of Africa
GG 4063 Dev of Fossil Fuel Resources GG 4153 Engineering Geology	GR 4263 Geography of the South GR 4273 Geography of Mississippi
GG 4433 Subsurface Methods	
GG 4613 Physical Hydrogeology	General Electives 36 hours Consult Advisor
GG 4623 Chemical Hydrogeology	36 hours Consult Advisor
GR 4303 Principles of GIS	
General Electives - 3 hours	Total hours needed for major: 124
Total hours needed for major: 124	* Fulfills Computer Literacy Requirement.
· ·	** Fulfills Computer Literacy Requirement and Writing Requirement.
Fulfills Computer Literacy Requirement.      Fulfills Computer Literacy Requirement and Writing Requirement.	
*** From an approved university. See advisor.	Broadcast Meteorology Concentration
	Mathematics
	MA 1713 Calculus I
<b>Environmental Geoscience Concentration</b>	MA 1723 Calculus II
Mathematica	Natural Sciences
Mathematics	CH 1043 Survey of Chemistry I
MA 1313 College Algebra MA 1323 Trigonometry	PH 1113 General Physics I w/ lab
ē :	PH 1123 General Physics II w/ lab
Natural Sciences 6-9 hours Science with lab (CH, PH, BIO)	Concentration Requirements
3 hours Science with lab (CH, PH, BIO)	GG 3613 Water Resources* GR 1603 Intro to Meteorology
Concentration Requirements	GR 1603 Intro to Meteorology GR 4402 Weather Analysis I
GG 3603 Intro to Oceanography	GR 4412 Weather Analysis II
GG 3613 Water Resources*	GR 4422 Weather Forecasting I
GG 4333 Geowriting**	GR 4432 Weather Forecasting II
GR 1603 Intro to Meteorology	GR 4613 Applied Climatology
GR 4633 Statistical Climatology*	GR 4623 Physical Meteorology GR 4633 Statistical Climatology*
18 hours 4000 level departmental courses Choose one of the following:	GR 4633 Statistical Climatology* GR 4733 Synoptic Meteorology
	GR 4753 Synoptic Meteorology GR 4753 Satellite and Radar Meteorology
GG 1133 Planetary Geology GG 3133 Intro to Environmental Geology	GR 4813 Natural Hazards
GG 4523 Coastal Environments	GR 4823 Dynamic Meteorology I
GR 2313 Maps and Remote Sensing	GR 4933 Dynamic Meteorology II
GR 3113 Conservation of Natural Resources	GR 4963 Mesoscale Meteorology GR 4502 Pract in Broadcast Meteorology I
GR 4813 Natural Hazards	GR 4502 Pract in Broadcast Meteorology I GR 4512 Pract in Broadcast Meteorology II
General Electives	GR 4522 Pract in Broadcast Meteorology III
39 hours Consult advisor	GR 4532 Pract in Broadcast Meteorology IV
Total hours needed for major: 124	CO 2013 Voice and Articulation
* Fulfills Computer Literacy Requirement.	CO 3313 News Writing for Electronic Media**
** Fulfills Computer Literacy Requirement and Writing Requirement.	CO 2333 TV Production
	CO 3333 Advanced Television Production Choose two of the following:
Coography Concentration	GG 1133 Planetary Geology
Geography Concentration	GG 3133 Intro to Environmental Geology
Mathematics	GG 3603 Intro to Oceanography
MA 1313 College Algebra	GG 4523 Coastal Environments
MA 1323 Trigonometry	GR 3113 Conservation of Natural Resources
Natural Sciences	GR 4203 Geography of North America
6-9 hours Science with lab (CH, PH, BIO)	General Electives
3 hours Science without lab (CH, PH, BIO)	8 hours Consult Advisor
Concentration Requirements	Total hours needed for major: 124
GG 4333 Geowriting*	The state of the s
GP 2013 Cultural Geography	* Fulfills Computer Literacy Requirement.
GR 2013 Cultural Geography	Fulfills Computer Literacy Requirement.  ** Fulfills Writing Requirement.

## Total hours needed for major: 124

- Fulfills Computer Literacy Requirement. Fulfills Writing Requirement.

## **Professional Meteorology Concentration**

Professional Meteorology Concentration				
Mathematic	S			
MA	1713	Calculus I		
	1723	Calculus II		
MA	2733	Calculus III		
MA	3253	Differential Equations		
Natural Scie	ences			
CH	1213	Chemistry I		
CH	1211	Investigations in CH I		
PH	2213	Physics I		
PH	2223	Physics II w/ lab		
Concentration	on Requ	irements		
GG		Geowriting**		
GR	1603	Intro to Meteorology		
	4402	Weather Analysis I		
	4412	Weather Analysis II		
	4422	Weather Forecasting I		
GR	4432	Weather Forecasting II		
	4613	Applied Climatology		
GR	4623 4633	Physical Meteorology Statistical Climatology*		
	4733	Synoptic Meteorology		
GR	4753	Satellite and Radar Meteorology		
	4823	Dynamic Meteorology I		
GR	4933	Dynamic Meteorology II		
GR	4963	Mesoscale Meteorology		
3 ho	urs	General Electives		
Choose	two of t	the following:		
GG	1133	Planetary Geology		
GG	3133	Intro to Environmental Geology		
GG	3603	Intro to Oceanography		
GG		Water Resources		
	4523	Coastal Environments		
	4813	Natural Hazards		
GR		Conservation of Natural Resources		
GR 4203 Geography of North America				
Specified El	ectives	(20-23 hours) - See advisor		
		AMS (Broadcast Meteorology)		
GR	4502	Pract in Broadcast Meteorology I		
GR	4512	Pract in Broadcast Meteorology II		
GR	4522			
GR	4532	Pract in Broadcast Meteorology IV		
GG	3613	Water Resources		
GR	4813	Natural Hazards		
CO	2333			
CO	3333	Advanced Television Production		
		G*G		
		GIS		
GR	2313	Maps and Remote Sensing		
GR	3303	Survey of Geospatial Tech		
GR	3313	Intro to Geodatabases		
GR	4303	Principles of GIS		
GR	4313	Advanced GIS		
GR GR	4333 4323	Remote Sensing of the Physical Envir.		
UK	4323	Carographic Sciences		
		ROTC		
AS	1012	The Air Force Today I		
AS	1012	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	3023	Air Force Leadership Studies II		
AS	4013	Prep for Active Duty I		
AS	4023	Prep for Active Duty II		
General Electives				
1-4 1	nours	Consult advisor		

## Total hours needed for major: 124

- Fulfills Computer Literacy Requirement
- Fulfills Writing Requirement.

## Geographic Information Systems (GIS) Concentration

•	•	, ,		
Mathematics				
MA	1313	College Algebra		
	1323	Trigonometry		
Natural Scien	nces			
6-9 h	ours	Science with lab (CH, PH, BIO)		
3 hou	ırs	Science without lab (CH, PH, BIO)		
Concentratio	n Requ	irements		
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.		
GG	4333	Geowriting**		
GR	4990	GIS Senior Research		
12 hc	ours	4000-level departmental courses		
CSE	1284	Intro to Computer Programming		
ECE	4423	Introduction to Remote Sensing		
ST		Intro to Statistical Inference		
Choose t	wo of t	he following:		
	1133	Planetary Geology		
	3133	Environmental Geology		
GG	3603	Intro to Oceanography		
	3613	Water Resources*		
GG	4523	Coastal Environments		
	4813	Natural Hazards		
Choose three of the following:				
GR	4633	Statistical Climatology*		
WF	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.		
	4411	Remote Sensing Seminar		
FO	4313	Spatial Tech in Natural Resources		
FO	4452	Remote Sensing Applications		
General Electives				
4-5 h	ours	Consult advisor		
	Total house needed for major 124			

#### Total hours needed for major: 124

- Fulfills Computer Literacy Requirement.
- Fulfills Computer Literacy Requirement and Writing Requirement.

## **HEALTH INFORMATION MANAGEMENT CURRICULUM (BIOH)**

Major Advisor: Professor Don Downer Office: 224 Harned Hall

The health records administration curriculum is designed to prepare students for careers as administrators in charge of hospital medical records. Completion of the two-year curriculum qualifies a student for admission to the University of Mississippi Medical Center at Jackson or some other medical center offering a medical records administration program. The clinical work must be taken at a school having a program approved by the Council on Medical Education for Hospitals of the American Medical Association and the American Medical Record Association. Students who satisfactorily complete the pre-professional and professional training will be awarded the B.S. degree by the professional school and will be eligible to take the examination administered by the American Medical Record Association for certification as a registered medical records administrator.

## 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, majors 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, Ancient, Asian or Latin American history plus two upper division electives in any area of history. 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 Mary Kathryn Barbier.

#### **University and College Core**

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 University Core

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 Stats for Beh Sci or higher math

Fine Arts (3 hours)

See A&S requirements

Natural Sciences (9-12 hours)

3-4 hours
3-4 hours
3-4 hours
3-4 hours
Natural Science w/Lab\*\*
Natural Science Elective\*\*\*

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 U.S. History U/D Electives

6 hours African, Ancient, Asian, or Latin Amer U/D Elect.

6 hours European History U/D Elective

6 hours U/D History Elective

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 University Core.
- \*\* BIO, EPP, or PO; see University Core.
- \*\* 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 university-wide degree coordinated through the College of Arts and 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 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. University core curriculum 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 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.

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 15, February 15 or May 15. Application for a degree must be submitted to the Office of the Registrar. For further information, contact:

College of Arts and Sciences 224 Allen Hall, Mail Stop 9706 Mississippi State, MS 39762 (662) 325-2646

## **JOURNALISM**

See Department of COMMUNICATION

# Department of MATHEMATICS (MA) and STATISTICS (ST)

Interim Department Head: Michael Neumann Associate Head and Graduate Coordinator: Corlis Johnson Undergraduate Coordinator: Vivien Miller Office: 410 Allen Hall

The Department of Mathematics and Statistics offers a Bachelor of Arts degree, Bachelor of Science degree, and a BS in math with teaching certification. All 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. Candidates for the Bachelor of Science with teaching certification are required to take 36 hours of mathematics, 25 hours of education and 12 hours of teaching internship. Required courses for each degree are listed below.

For all degree programs, the student needs to have an overall C average and a C average in the math classes. In addition, the student must satisfy the common University and College Core requirements, including speech, computer literacy and writing requirements.

A minor is not required for either of the above degrees, but if a student wishes a minor it has to be chosen from a subject that offers a minor. For example, the only subject in the College of Engineering that offers a minor is Computer Science. To learn if a subject has a minor, the student should contact the department in question.

A minor in mathematics consists of MA 1713, MA 1723, MA 2733, MA 2743, MA 3113, MA 3253 and two more math courses at the 3000+level. A minor is statistics consists of MA/ST 3123, ST 4111, ST 4213, either MA/ST 4523 or MA/ST 4543, and two additional statistics courses at the 4000 level. Because not all 4000-level statistics courses count toward the minor, the student should consult the major advisor in statistics.

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

## **University and College Core**

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
3 hours
History - see University/A&S Core
hilosophy - see University/A&S Core
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 1203 Plant Biology OR
      BIO 1504
                  Principles of Zoology
        and
      CH 1213
                  Chemistry I
                  Chemistry II
      CH 1223
      СН
           1211
                  Investigations in Chemistry I
         OR
      PH
           2213
                  Physics I
           2223
      PH
                  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
            Intro to Modern Algebra
     3163
     3253
            Differential Equations I
MA
MA 4633
            Advanced Calculus I
3 hours
            Math Elective - 3000+
            Math Elective - 4000
3 hours
```

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

17-28 hours Consult advisor

#### Total hours needed for major: 124

(31 hours must be 3000/4000 from A&S)

## B.S. in Mathematics

## **University and College Core**

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 University/A&S Core History - see University/A&S Core

Math (6 hours)

See major Core

Fine Arts (3 hours)

See A&S Requirements

Natural Sciences (15-16 hours) - Choose one of three options.

Option 1

PH 2213 Physics I PH 2223 Physics II 2233 PH Physics III CH 1213 Chemistry I 1223 CH Chemistry II СН Investigations in Chemistry I 1211 Option 2

PH 2213 Physics I PH 2223 Physics II

PH 2233 Physics III

Option 3

PLUS choose two of the following:					
	BIO	1203	Plant Biology Principles of Zoology		
			Genetics I		
Op	otion 3				
	BIO	1203	Plant Biology Principles of Zoology		
	BIO	3103	Genetics I		
			Genetics I Chemistry I		
		1223 1211	•		
Social		es (6 h	Investigations in Chemistry I		
Jociai			quirements		
Major			1		
		should	check for prerequisites for all courses and consult		
their ac	dvisor.	1710			
			Calculus I Calculus II		
	MA	2733	Calculus III		
	MΑ	2743	Calculus IV		
	MA	3053	Foundations of Math		
	MA	3163	Intro to Linear Algebra Intro to Modern Algebra		
	MA	3253	Differential Equations I		
			Numerical Analysis I		
		4633 4643	Advanced Calculus I Advanced Calculus II		
	3 hou		Math Elective (3000+)		
	3 hou		Math Elective (4000)		
Oral C			n Requirement		
	CO 10		Fundamentals of Public Speaking		
Writing	g Requ MA 4	iremen	t Senior Seminar in Math		
Commi			Semoi Seminai in Maui		
Compt	iter Lit CSE 1		Fortran OR		
	CSE		Programming with C		
Genera	al Elect	tives (3	2-40 hours) - Consult advisor		
		Tota	l hours needed for major: 124		
			urs must be 3000/4000 from A&S)		
		(51 110	and made of 2000, 1000 from Field,		
	B.S.	in Ma	thematics with Teaching Certification		
Univer	rsity a	nd Coll	lege Core		
Englisl	n Com	position	n (6 hours)		
	EN	1103	English Comp I OR		
	EN	1163			
	EN EN	1113 1173	English Comp II OR Accelerated Comp II		
Foreign			*		
Foreign Language (6 hours)  2 semesters one Foreign Language - see advisor					
Humar	nities (	6 hours	)		
	3 hou		Literature - see University/A&S Core		
	3 hou		History - see University/A&S Core		
Math (	6 hour		0.40		
Eina A	rts (3 h	ajor Co	ore		
rine A	,	,	quirements		
Natura			10 hours) - Choose one of three options:		
	otion 1	()			
_	PH	2213	Physics I		
	PH	2223	Physics II		
	CH CH	1213 1211	Chemistry I Investigations in Chemistry I		
Option 2					
~ F	PH	2213	Physics I		
_	PH	2223	Physics II		
C	hoose		Plant Pialage		
	BIO BIO	1203 1504	Plant Biology Principles of Zoology		
			r		

```
BIO 1203 Plant Biology
       BIO 1504 Principles of Zoology
       CH 1213 Chemistry I
Social Sciences (6 hours)
       See A&S Requirements
Major Core
   Students should check for prerequisites for all courses and consult
their advisor.
Math and Statistics Requirements
       MA 1713
                   Calculus I
       MA 1723
                   Calculus II
                   Calculus III
       MA 2733
                   Calculus IV
       MA 2743
       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 hours
                   Math or Stats Elective (3000+)
     Choose one of the following:
       MA 4523
                   Intro to Probability
       MA 4533
                   Intro to Prob. and Random Process
       MA 4543
                   Intro to Math Stats I
Education Requirements
       EPY 3143
                  Human Development and Learning
       EDF 3333
                   Social Foundations of Education
       EDS 3411
                   Practicum in Secondary Education
       EDF 4243
                   Planning for the Diversity of Learners
       EDS 4633
                   Methods of Teaching Mathematics
       EDX 3213
                   Psych and Educ of Exceptional Children
       EPY 3253
                   Evaluating Learning
       EDS 4873
                   Seminar in Managing Secondary Class
       EDS 4886
                   Teaching Internship in Secondary Ed
       EDS 4896
                  Teaching Internship in Secondary Ed
Oral Communication Requirement
       CO 1003 Fundamentals of Public Speaking
Computer Literacy Requirement - choose one:
       CSE 1213 Fortran
       CSE 1233
                  Programming with C
       TKT 1273
                   Computer Applications
Writing Requirement
       EDF 3413 Writing for Thinking
General Electives (8-15 hours) - Please consult advisor.
              Total hours needed for major: 124
```

(31 hours must be 3000/4000 from A&S)

## STATISTICS (ST)

Major Advisor: Associate Professor Jane Harvill Office: 438 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. The undergraduate minor in statistics consists of ST 3123, ST 4111, ST 4213, either ST 4523 or ST 4543, and two additional statistics courses at the 4000 level. Because not all 4000-level statistics courses count toward the minor, the student should consult the major advisor in statistics.

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 Applied 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 Education 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 inter-disciplinary careers including music, in preparation for graduate study or for self-improvement.

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.

#### **University and College Core**

English Composition (6 hours)

EN 1103 English Composition OR
 EN 1163 Accelerated Composition
 EN 1113 English Composition II or
 EN 1173 Accelerated Composition II

Foreign Languages (9 hours)

3 semesters Foreign Language - see advisor

## Humanities (18 hours)

3 hours
3 hours
History Elective - see A&S requirements
History Elective - see A&S requirements
Philosophy Elective - see A&S requirements
Must be from 2 areas - EN, HI, PHI or REL
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
3-4 hours
Biological Sciences w/lab (CH, GG, PH)\*
Biological Sciences w/lab (BIO, EPP, PO)\*

3-4 hours Natural Science Elective\*\*

Fine Arts (3 hours)

MU 2323 Music History III

Social Science (18 hours)

6 hours See A&S requirements 9 hours Must be from 3 areas -

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

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 3412 Conducting

MU 3412 Conducting 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

3 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 6 hours Met in College Core

Total hours needed for major: 122

## **Department of PHILOSOPHY and RELIGION**

## PHILOSOPHY MAJOR (PR)

Professors Michael Clifford and Lynn Holt (Head) Associate Professor Yolanda Estes and Assistant Professor Trisha Phillips Office: 13 Morgan Street

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.

## **University and College Core**

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 University/A&S Core
3 hours History - see University/A&S Core
3 hours Philosophy Elective - see major

9 hours	Humanities Elective - see major Must be from 2 different areas- see A&S Core		
Math (6 hours)			
MA 1313	College Algebra		
MA 1323	8		
ST 2113	Stats for Beh Sci or higher math		
Fine Arts (3 hours)			
See Univers	ity/A&S Requirements		
Natural Sciences (9	-12 hours)		
3-4 hours			
3-4 hours	Biological Sciences w/lab (BIO, EPP, PO)* Natural Science Elective**		
Social Sciences (18			
6 hours 12 hours	See A&S requirements Social Sciences Electives		
	Social Sciences Electives		
Major Core	Later to Division when		
PHI 1103 PHI 1113			
PHI 1113			
	History Western Phil I		
PHI 3033	History Western Phil II		
12 hours	PHI Electives		
Oral Communication Requirement			
CO 1003	Fundamentals of Public Speaking		
Writing Requirement			
PHI 3133	Seminar in PHI		
Computer Literacy	- choose one of the following:		
TKT 1273	Computer Applications		
BIS 1012	r		
CSE 1213	Computer Programming with Fortran		

#### Total hours needed for major: 124

CSE 1273 Computer Programming with Java

General Electives (19 hours) - Consult advisor

Computer Programming with C

(31 hours must be 3000/4000 from A&S)

See University/A&S Core.

CSE 1233

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**

Major Advisors: Professor Paul Jacobs Assistant Professor Jimmy Hardin Office: 13 Morgan Street

Religion refers to the basic human impulse to seek coherence in life, to find that unity which 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.

Some Religion faculty are housed in the Cobb Institute of Archaeology and are cross-appointed to the Institute staff. In addition, there are other archaeologists in the Institute, including specialists in the Middle East and Southeastern U.S.

The Department of Philosophy and Religion offers a concentration in religion leading to the Bachelor of Arts degree in philosophy. The baccalaureate degree in religion is an accepted major for those planning to enter graduate school or to prepare for careers in a professional ministry or in teaching. However, because it offers a broad historical and cultural orientation, the religion major offers excellent preparation for any career. It is highly appropriate as a double major, or as a minor in association with any other concentrated field of study.

The major with the concentration in religion has a requirement of 30 hours. Of these nine hours are required in philosophy. These 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 and either World Religions I and II, or Introduction to the Old Testament and Introduction to the New Testament. The additional 12 hours, including six that must be REL courses, are to be selected in consultation with, and with approval by, the major advisor.

The department also offers a minor in religion, with the requirements being 15 hours in REL courses.

## **University and College Core**

See Philosophy Requirements above

#### **Major Core**

REL 1103 Intro to Religion Choose one of the following combinations: REL 1213 Intro Old Testament **REL 1223** Intro New Testament or **REL 3213** World Religion I **REL 3223** World Religion II Choose one of the following combinations: PHI 1103 Intro to Philosophy PHI 1113 Intro to Logic

PHI 3023 History of W. Philosophy I PHI 3033 History of W. Philosophy II

#### Electives

12 hours **REL/PHI Electives** 

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

## Writing Requirement

PHI 3133 Seminar in Philosophy Computer Literacy - choose one of the following TKT 1273 Computer Applications BIS 1012 Intro to Bus. Computer Systems CSE 1213 Computer Programming with Fortran 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: Professor Don Downer Office: 224 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 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 Advisor: Professor Don Downer Office: 224 Harned Hall

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
- return all application materials to the Office of Student Services and Registrar by the admissions deadline, and
- 5. complete the following prerequisite course requirements:
  - two Physics courses with labs
  - two advanced physical or biological sciences
  - one statistics course (from senior institution)

## Department of PHYSICS and ASTRONOMY (PH)

Major Advisors: Patrick Lestrade, Mark Novotny and Jeffry A. Winger Office: 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 engineering 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

## **University and College Core**

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 University/A&S Core 3 hours History - see University/A&S Core

Math (6 hours)

See Major Core

Fine Arts (3 hours)

See A&S Requirements

Natural Sciences (9-12 hours)

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 Desc Astronomy PH 2213 Physics I PH 2223 Physics II PH 2233 Physic III PH 3613 Modern Physics

PH 4113 Elec Circuits

PH 4143 Inter Lab

PH 4213 Inter Mechanics I

PH 4323 Elec Fields I

PH 4413 Thermal Physics PH 4513 Inter Optics

PH 4513 Inter Optics PH 4152 Mod Physics Lab

PH 4713 Intro Quantum Mechanics

Physics Electives - 6 hours; 3 hours must be from:

PH 4223 Inter Mechanics II

PH 4333 Elec Fields II

PH 4723 Applications of Quantum Mech

CH 1213 Chemistry I

CH 1211 Lab

CH 1223 Chemistry II

CH 1221 Lab

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

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

6 hours Consult advisor

## Total hours needed for major: 124

(31 hours must be A&S 3000/4000 level.)

## 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 3613 Elem Biochemistry

BIO 1504 Principles of Zoology

BIO 3304 General Microbiology

BIO 3504 Comp Anatomy

BIO 4504 Comp Vert Embryology

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## **Applied Physics Curriculum**

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:

PH 4333 Elec Fields II OR

ECE 3323 Electromagnetics II

18 hours Technical electives; consult advisor

## Department of POLITICAL SCIENCE and PUBLIC ADMINISTRATION (PS/PPA)

Undergraduate Coordinator: Dr. Diane Wall Office: 189 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 community-college 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 academically 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.

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. Diane Wall at (662) 325-7864 or dew1@ps.msstate.edu.

## **University and College Core**

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
3 hours
History - see University Core
History - see University Core
hilosophy Elective - Consult advisor

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 3-4 hours Physical Sciences w/lab (CH, GG, PH)\* Biological Sciences w/lab (BIO, EPP, PO)\*

3-4 hours Natural Science Elective\*\*

Social Sciences (18 hours)\*\*\*

6 hours See University Core 12 hours Social Sciences Electives

## **Major Core**

PS 1113 American Government\*\*\*\*

Introductory PS Courses (9 hours)

Choose 3 of the following (one counts as a Social Science req):

S 1313 Introduction to International Relations

PS 1513 Comparative Government

PS 2403 Introduction to Political Theory PS 2703 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

CO 1003 Fundamentals of Public Speaking

Writing Requirement

PS 4464 Political Analysis

Computer Literacy

PS 4464 Political Analysis

General Electives (18 hours)

## Total hours needed for major: 124

(31 hours must be A&S upper division)

- See University Core.
- \*\* 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.

## PRE-PROFESSIONAL PROGRAMS

## PRE-LAW CURRICULUM (LAW)

Faculty Advisors

Associate Professor Diane É. Wall; Office: 189 Bowen Hall Associate Professor 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

<sup>\*</sup> Transfer students receive the stipend for two years or until graduation, which ever comes sooner.

<sup>\*+</sup> 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.

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 189 Bowen Hall. For additional information contact Dr. Diane Wall at (662) 325-7864 or dew1@ps.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.

Legal Environment of Business EN 4223 Principles of Legal Writing Speed Reading LSK 2013 PHI 1113 Introduction to Logic PS 3063 Constitutional Powers Civil Liberties PS 3073 PS 4183 Judicial Process Psychology of Abnormal Behavior PSY 3213 PSY 4353 Psychology and the Law SO 3603 Criminology

#### PRE-MEDICAL and PRE-DENTAL CURRICULA (MED) (DENT)

Pre-Medical and Pre-Dental Advisory Committee: Professor Don Downer; Office: 224 Harned Biology Building Professor John A. Boyle; Office: 402 Dorman Associate Professor Steve Elder; Office: 214 Ag Engineering

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 CURRICULUM (BION)

Major Advisor: Professor Don Downer Office: 224 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 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 CURRICULUM (BIOO)

Major Advisor: Professor Don Downer Office: 224 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 CURRICULUM (CHPH)

Major Advisor: Professor Svein Saebo 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 (45 hours)

CH 1213 Chemistry I CH 1211 Investigations in Chemistry I CH 1223 Chemistry II CH 1221 Investigations in Chemistry II CH 4513 Organic Chemistry I CH 4511 Organic Chemistry Lab I CH 4523 Organic Chemistry II CH 4521 Organic Chemistry Lab II

Note: CH 1213,1223,4513, and 4523 must be taken in that order; the labs CH 1211, 1221, 4511, and 4521 should be taken in that order. A lab may be taken after the corresponding class has been completed.

English Composition I ΕN 1103 ΕN 1113 **English Composition II** CO 1003 Fundamentals of Public Speaking EC 2123 Microeconomics ST2113 Intro to Statistics MA 1713 Calculus I General Physics I PH 1113 PH 1123 General Physics II BIO 1504 Principles of Zoology BIO 2014 Human Physiology

Electives (18 hours)

Social and Behavioral Electives (6 hours)

At MSU EC 2113 Macroeconomics is a prerequisite 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 should be chosen from the following areas: English Literature, Foreign Language, History, Religion, or Philosophy General Electives (3 hours)

Any course with college credit other than algebra or trigonometry

IMPORTANT NOTE: This adds up to a total of 66 credit hours, but the minimum requirement for admission to School of Pharmacy is 68 credit hours. The reason for this discrepancy is that the physics requirement at the University of Mississippi is 8 credit hours (2 times 4). MSU only offers 3 credit hours physics courses, and the School of Pharmacy has decided to accept MSU students with only 6 credit hours in physics. However, a total of 68 credit hours is still required. The 2 additional credit hours can be made up either by taking General Physics III, which is recommended by the School of Pharmacy, or a general elective (any course with college credit). If a student completes General Physics III and therefore has received credit for nine hours of physics, the additional credit hour will count toward satisfying the general elective requirement.

## 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.).

## Bachelor of Arts 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.

## **University and College Core**

English Composition (6 hours)

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

Foreign Language (9 hours)

3 semesters one Foreign Language - see advisor

Humanities (18 hours)

3 hours Literature - see University/A&S Core 3 hours History - see University/A&S Core Philosophy Elective - Consult advisor 3 hours

9 hours Humanities Elective

Must be from 2 different areas - see A&S Core

Mathematics (6 hours)

College Algebra MA 1313 MA 1323 Trigonometry OR

ST 2113 Stats for Beh Sci (or higher math)

Fine Arts (3 hours)

See A&S Core List

Natural Sciences (9-12 hours)

Physical Sciences w/lab (CH, GG, PH)\* 3-4 hours Biological Sciences w/lab (BIO, EPP, PO)\* 3-4 hours

3-4 hours Natural Science Elective\*\*

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 3103 Intro Psychological Statistics PSY 3314 Experimental Psychology

Choose two of the following:

PSY 3213 Psy of Abnormal Behavior

PSY 3623 Social Psychology

PSY 3803 Developmental Psychology

PSY 4203 Theories Personality

Choose one of the following:

PSY 3343 Psychology of Learning Cognitive Psychology PSY 3713

Choose one of the following:

PSY 4403 Biological Psychology PSY 4423 Sensation and Perception 3 hours Choose one unused course from the groups above

PSY Upper Division Electives+ 12 hours

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 University Core.
- 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.

4403 and PSY 4423 if not already used to meet previous requirements.

#### Bachelor of Science 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 University core 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.

#### **University and College Core**

English Composition (6 hours)

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

Foreign Language (6 hours)

3 semesters one Foreign Language - see advisor

Humanities (6 hours)

3 hours Literature - see University Core 3 hours History - see University Core

Mathematics (6 hours)

College Algebra MA 1313 MA 1323 Trigonometry OR

ST 2113 Stats for Beh Sci (or higher math)

Fine Arts (3 hours)

See A&S Core List

Natural Sciences (9-12 hours)

Physical Sciences w/lab (CH, GG, PH)\* 3-4 hours Biological Sciences w/lab (BIO, EPP, PO)\* 3-4 hours

3-4 hours Natural Science Elective\*\*

Social Sciences Electives (6 hours)\*\*\*

PSY 1013 General Psychology 3 hours See Univ/A&S Core

#### **Major Core**

PSY 1021 Careers in Psychology PSY 3103 Intro Psychological Statistics PSY 3314 Experimental Psychology

PSY 4403 Biological Psychology

Choose two of the following:

PSY 3213 Psy of Abnormal Behavior

PSY 3623 Social Psychology

PSY 3803 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 University Core.
- \*\* 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 3363, PSY 3413, PSY 3503, PSY 4000 (for 3 credits; taken only once), PSY 4103, PSY 4123, PSY 4323, PSY 4333, PSY 4343, PSY 4353, PSY 4364, PSY 4523, PSY 4653, PSY 4713, PSY 4773, PSY 4743, PSY 4990 (for at least 3 credits), one 3000- or 4000-level EPY course or COE 4023 (if no EPY course is used). One or more of these electives could also come from: PSY 3213, PSY 3623, PSY 3803, PSY 4203, PSY 3343, PSY 3713, PSY 4403 and PSY 4423 if not already used to meet previous requirements.

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 the undergraduate coordinator in the Psychology Department to plan a concentration that will complement their career interests.

## **PUBLIC RELATIONS**

See Department of COMMUNICATION

## Department of SOCIOLOGY, ANTHROPOLOGY, and SOCIAL WORK (SO) (AN) (SW)

## **ANTHROPOLOGY (AN)**

Program Director: Dr. S. Homes Hogue 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 further 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 land surveying.

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 or sociology, with at least six of these in anthropology. Part-time jobs are available for anthropology majors through the Department of Sociology, Anthropology, and Social Work and through the Cobb Institute of Archaeology.

The Anthropology faculty and staff are housed in the Cobb Institute of Archaeology. The Institute includes archaeologists specializing in the Middle East and Southeastern U.S. Facilities include archaeology laboratories, darkroom, drafting room, 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. Twelve hours, (nine hours must be 3000 level or above) in addition to AN 1103, constitute an undergraduate minor. Requirements for an anthropology minor at the graduate level will be established in consultation with the anthropology major advisors. Courses taken for an undergraduate or graduate minor must be taught by anthropology faculty.

## **University and College Core**

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
3 hours
History - see University Core
3 hours
Philosophy - See A&S requirements
Humanities Elective - Consult Advisor
Must be from 2 different areas - see A&S Core

Mathematics (6 hours)

MA 1313 College Algebra

ST 2113 Stats for Behavioral Sciences

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 Life Science w/ lab (BIO)
3-4 hours Natural Science Elective\*\*

Social Sciences (18 hours)

6 hours See University Core

12 hours Social Sciences Electives \*+

**Major Core** 

AN 1143 Intro to Cultural Anthropology Intro to Biological Anthropology AN 1343

AN 1543 Intro to Archaeology

21 hours Anthropology Upper Div Electives - see advisor Anthropology lower or upper division Elective 3 hours

Oral Communication Requirement

AN 4123 Anthropological Theory

Writing Requirement

AN 4123 Anthropological Theory

Computer Literacy

Ethnographic Methods OR AN 4143

AN 3513 Artifact Analysis

General Electives (12-15 hours) Consult advisor

## Total hours needed for major: 123

31 hours must be 3000/4000 A&S work

- See University Core.
- Consult advisor
- \*+ Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. Consult advisor.

## **SOCIAL WORK (SW)**

Program Director: Adele Crudden, Ph.D. Office: 299 Bowen Hall

The Social Work Program at Mississippi State University (Starkville campus) is accredited by the Council on Social Work Education. Social work is a challenging and rewarding profession with the primary goal of helping people help themselves. The Bachelor of Social Work (BSW) degree is professional social work as the first practice degree. The BSW graduate is prepared 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 Program incorporates a liberal arts perspective into its curriculum. This liberal arts perspective enhances the person-in-environment focus of generalist social work practice. Students wishing to major in social work are classified as undeclared pre-social work until formally admitted into the social work program. The process and criteria for admission into the program include:

- 1. Cumulative GPA of 2.0;
- 2. Completion of 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. Completion of SW 2213 Intro to Social Work (including 20 hrs of service learning experience) with a minimum grade of B;
- 4. Completion of "Application for Admission"; and
- 5. Completion of an application with three reference letters and completing a personal interview with Social Work Admissions Committee prior to enrolling in further social work courses.

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;

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
- 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.

#### **University and College Core**

English Composition (6 hours)

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

Foreign Language (6 hours)

2 semesters one Foreign Language - see advisor

Humanities (18 hours)\*

3 hours Literature - see University Core 3 hours History - see University Core PHI 1103 PHI 1113 Introduction to Philosophy OR Introduction to Logic 3 hours Literature Elective

3 hours History Elective Humanities Elective 3 hours

Mathematics (6 hours)

MA 1313 College Algebra OR MA 1303 Quantitative Algebra

ST2113 Stats for Behavioral Sciences

Fine Arts (3 hours)

See A&S Core List

Natural Sciences (9-12 hours)

BIO 1004 Anatomy and Physiology

3-4 hours Physical Sciences w/lab (CH, GG, PH)\*\*

3-4 hours Natural Science Elective

Social Sciences (18 hours)

SO 1003 Intro to Sociology PS American Government 1113 SW 3003 Populations at Risk PSY 1013 General Psychology EC 2113 Prin of Macroeconomics AN 1103 Intro to Anthropology OR Intro to Cultural Anthropology AN 1143

#### **Major Core**

(See advisor for course sequencing)

SW 2303 Social Welfare Policy I SW 2313 Intro SW/Soc Welfare Social Welfare Policy II\*\*\* SW 2323

SW 3013 Human Behavior & Social Environment\*\*\* Human Behavior & Social Environment II\*\*\* SW3023

SW 4613 Child Welfare Service

SW 3213 Research Methods in Social Work\*\*\*

SW 4623 Social Work with the Aged OR SW4633 Social Work in Health Care OR sw4643 Social Work Services in Schools

Students must successfully complete a formal admissions process prior to taking the following courses:

SW 3513 SW Practice I\*\*\* SW 3523 SW Practice II\*\*

SW Practice II\*\*\*

SW 3533 SW Practice III\*\*\*

Field Work includes full-time placement for one semester in a supervised agency setting.

SW 4916 Field Work Prac\*\*\*

SW 4926 SW Field Work Prac 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

3 hours Consult advisor

## Total hours needed for major: 124

31 hours must be A&S 3000/4000 work

- Consult advisor.
- See University Core
- Course has prerequisite. Check course description in back of this catalog or consult advisor.

#### SOCIOLOGY (SO)

Major Advisor: Professor James Jones Office: 293 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 in all of its manifold interrelationships. With an interest in understanding human behavior, sociologists study such special areas 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, 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 socio-economic 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.

## **University and College Core**

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
3 hours
History - see University Core
hiors
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 University Core

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 Sex Roles & Gender

SU 4403 Sex Roles & Gell

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 University Core
- \*\* 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.

## **Criminal Justice and Corrections Certificate**

Program Director: Dr. Peter B. Wood Office: 294 Bowen Hall

The Criminal Justice and Corrections Certificate Program is administered through the Department of Sociology, Anthropology, and Social Work. Participation in this program is available to all departmental majors, as well as those majoring in any other fields (e.g., psychology, political science, computer science, or business).

Criminal Justice and Corrections is an ever expanding field of study. It involves the study of crime, crime control, and the administration of justice. This includes the study of the structure, functions, and decision processes of all administrating components within the system. Components of the system include such things as: Law Enforcement; Criminal Courts; Juvenile Court; Jails; Prisons; Probation; Community-Based Corrections; Parole System. Criminal Justice and Corrections is also inherently linked to the broader study of crime, delinquency, deviant behavior, and social pathology.

The mission or the Criminal Justice and Corrections Certificate Program is to prepare students for challenging careers in the criminal justice/corrections professions. Underlying our mission is a strong commitment to providing students with a solid theoretical foundation of relevant issues, as well as equally important practical information and experiences germane to their professional development. Key in achieving this is our two stage curriculum format where students receive both traditional classroom instruction and experiential training through an internship program. Thus, the Criminal Justice and Corrections Program is designed to provide a broad-based education for students interested in the field of crime and justice studies and to prepare students to assume leadership roles with crime and justice.

#### **University and College Core**

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
3 hours
History - see University Core
History - see University Core
history - see University Core
hilosophy - Choose one of the following:
PHI 1103
PHI 1113
PHI 1123
Introduction to Logic OR
PHI 1123
Humanities Electives

Must be from 2 different areas - see A&S Core

Mathematics (6 hours)

MA 1313 College Algebra

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ST 2113 Stats for Behavioral Sciences
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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)

1003

6 hours See University/A&S Core
PSY 1013 General Psychology
AN 1143 Cultural Anthropology OR
AN 1103 Introduction to Anthropology

Intro to Sociology\*\*\*\*

6 hours Social Sciences Electives\*\*\* - see Univ. Core

## **Major Core**

SO

2203 Cultural/Racial Minorities SO SO 3213 Intro Social Research SO 3103 Social Theory\*+ Social Research Practice SO 4803 SO 3603 Criminology Juvenile Delinquency SO 4233 4513 Correctional Systems SO COR 3103 Criminal Justice System COR 3310 Field Work I (6 hours) COR 3320 Field Work II (6 hours) 6 hours COR Electives #

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

Satisfied by successful completion of SO 3103

Computer Literacy

If SO 3213 and SO 3223 are taken, this requirement is fulfilled.

Electives

3-9 hours Consult advisor

## Total hours needed for major: 124

- \* See University Core.
- \*\* Consult advisor.
- \*\*\* Must not be Sociology or CJ/COR courses. With Social Science Core, must cross 4 disciplines over the 12 hours. Only one Economics allowed. See advisor.
- \*\*\*\* Satisfies Core Social Science requirement.
- \*++ Satisfies Social Science Electives.

# Choose two of the following: SO 3313 Deviant Behavior, SO 3503 Violence in the U.S., SO 3343 Gender, Crime, and Justice, PS 4183 Judicial Processes\*++, PSY 4213 Psychology of Abnormal Behavior\*+, PSY 4223 Drug Use and Abuse\*++, SW 4613 Child Welfare Services, AN 4313 Forensic Anthropology, SO 4990 Special Topics in Sociology, CSE 4273 Intro to Computer Crime Forensics

## Criminal Justice and Corrections Certificate with a major other than Sociology (33 hours)

The Criminal Justice and Corrections Certificate can also be earned in combination with any other degree program from any College. Specific Criminal Justice and Corrections Certificate requirements are:

Required Courses (27 hours)

SO 2203 Racial and Ethnic Minorities COR 3103 Criminal Justice System SO 3603 Criminology SO 4233 Juvenile Delinquency

SO 4513 Correctional Systems COR 3310 Field Work I (6 hours) COR 3320 Field Work II (6 hours)

Choose two of the following:

AN 4313 Forensic Anthropology

CSE 4273 Intro to Computer Crime & Forensics

SO 3313 Deviant Behavior

SO 3343 Gender, Crime and Justice

SO 3503 Violence in the US

SO 4990 Special Topics in Sociology\*

PS 4183 Judicial Processes

PSY 4213 Psychology of Abnormal Behavior

PSY 4223 Drug Use and Abuse

SW 4613 Child Welfare Services

\* SO 4990 Special Topics may be offered from periodically to cover timely issues in Sociology, such as Policing and Law Enforcement Systems, White Collar Crime or Law and Society. Consult an advisor or the master class schedule for the availability of these courses each semester.

## STATISTICS (ST)

See Department of MATHEMATICS and STATISTICS

## **THEATRE**

See Department of COMMUNICATION

## **WOMEN'S STUDIES CERTIFICATE**

Contact: Dean of Arts and Sciences Advisor: Dr. Jeralyn Cossman

Ellen Bryant Center for Women's Studies - Rice Residence Hall

Women's Studies is an academic discipline concerned with the contributions and struggles of women. Mississippi State University uses an interdisciplinary approach to enhance students' knowledge of the effect of women in all fields of study. MSU offers through its College of Arts and Sciences a Women's Studies Certificate of 15 semester hours of course work to be selected from a specified group of appropriate courses. This certificate is intended to enhance students' sensitivities to issues relating to gender in contemporary societies, with a special focus on American society. Women's Studies' classes, lectures, and special events are open to both women and men. This certificate is an optional grouping in addition to major and core requirements. Completion of approved courses will be recognized by awarding a certificate signed by the chair of the Women's Studies Advisory Committee and the Dean of the College of Arts & Sciences. To earn a certificate a student must have at least 15 credit hours distributed as follows:

- 1. Students must complete the introductory course SO/AN/WS 1173 Introduction to Gender Studies.
- 2. Students must complete at least two of the Core courses.
- 3. Students must complete an additional two courses. These courses may be from the core or electives; however, only one may be from the additional electives course offerings.

4. Finally, students cannot have more than nine hours from any one department count toward the certificate.

## Approved Courses

## Required Courses

SO/AN/WS 1173 Introduction to Gender Studies OR

SO/AN 3323 Contemporary Woman

#### Choose at least two core courses:

COE 4743 Gender Issues in Counseling

EN/WS 3513 Women and Literature

HI 4273 Women in American History

Feminist Interpre of West Social & Polit Phil PHI 4313

3033 Gender and Politics PS

PSY 3203 Psychology of Gender Differences

SO 4403 Sociology of Gender

#### Electives (see above)

3303 Consumer Economics in Counseling HS

HS 4313 Family Resource Management

HI 4283 History of Southern Women

Psychology of Aging Marriage and Family 4983 PSY

1203 SO

SO/AN 2203 Cultural and Racial Minorities

Social Welfare Policy I SW 2303

SW 2313 Intro to Social Work and Social Welfare

#### Additional Electives

Choose only one - approved by the Women's Studies Advisor

EDF 3333 Social Foundations of Education

Historic Costume HS 3573

4403 Introduction to Gerontology HS

Social-Psychological Aspects of Clothing HS 4513

The Family in the United States SO 4203

Directed Ind Study (from a WS faculty member) 3 hours

Other Additional Elective courses may be appropriate depending on course content and instructor; please contact the Women's Studies Advisor with questions concerning other options.

## College of Business and Industry

## DANNY P. HOLLINGSWORTH, Interim Dean

Louis M. Capella, Associate Dean for Internal Affairs

Offices: Suite 114 McCool Hall Telephone: (662) 325-2580 Business Research and Business Services

Office: Suite 200 McCool Hall Telephone: (662) 325-3817

Mailing Address: Box 5288, Mississippi State, MS 39762 E-mail Address: cobi@cobilan.msstate.edu

## HISTORICAL INFORMATION

The College of Business and Industry, 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.

This college permits students to major in any of the following programs: Accounting, Banking and Finance, Information Systems, Economics, Furniture Management, General Business Administration, GBA-International Business/Foreign Languages (double degree), Management, Management of Construction and Land Development, Marketing, Marketing-Transportation, Real Estate and Mortgage Appraisal Financing, 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 and Industry students. Minors are available in most program areas.

#### MISSION

The College of Business and Industry mission is to provide outstanding academic programs to develop the business skills and expertise of our students to enable them to assume leadership roles in a global economy, to foster an environment that encourages the development, dissemination, and application of new knowledge, and, in the spirit of our landgrant heritage, to work with the business community and policy makers of our state and region to develop opportunities for the future.

## **ACCREDITATION**

The undergraduate, masters, and doctoral business programs are accredited by AACSB International (The Association to Advance Collegiate Schools of Business). The School of Accountancy is separately accredited at the undergraduate and masters levels by AACSB International.

## **ORGANIZATION**

The administrative units of the College of Business and Industry consist of the 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 Division of Business Research, the Division of Business Services and the College of Business and Industry Academic Advising Center. The administrators of these units are as follows:

Unit	Name
School of Accountancy 300 McCool Hall	Clyde Herring, Interim Director 325-3710
Finance and Economics 316 McCool Hall	Paul Grimes, Head 325-2341
Mgt & Info Systems Dept 302 McCool Hall	Garry D. Smith, Head 325-3928
Mkt, Quan Analysis & BL 324 McCool Hall	Brian Engelland, Head 325-3163
Graduate Studies	Barbara Spencer, Director
210 McCool Hall	325-1891
Division of Business Research	
200 McCool Hall	325-3817
Division of Business Services	
200 McCool Hall	325-3817

COBI Acad Advising Ctr 106 McCool Hall Vergie Bash, Coordinator 325-1890 Courtney Altizer, Acad. Coor. Vickie Mann, Acad. Coor.

Directors and managers of other academic and professional support units in the College of Business and Industry are:

Unit	Name
Small Business Develop Ctr Research & Tech	Sonny Fisher, Director 325-8684
International Bus Strategy 302P McCool Hall	J.P. Shim, Director 325-3928
Computing Services 222 McCool Hall	Steve Canfield, Manager 325-1545
Banking Excellence Program 310I McCool Hall	Larry White, Director 325-1979
P. Koch Lutken Chair of Ins 312M McCool Hall	Eddie Duett, Chair 325-2341
R.W. Warren Chair of RE 310I McCool Hall	Larry White, Prog Coordinator 325-1979
Furniture Management 111 Franklin Center	G. Stephen Taylor, Prog Coord 325-0283
International Business	Director
308 McCool Hall	325-1996
Professional Golf Mgt 309 McCool Hall	Stephen LeMay, Director 325-3161
Center for Economic Educ.	Paul Grimes, Director
and Financial Literacy	325-1987

## **SUPPORT SERVICES**

312 McCool Hall

COBI Academic Advising Center Coordinator: Vergie Bash Admissions/Advancement Coordinator: Emily Keith 114C McCool Hall: 325-9082

The College of Business and Industry (COBI) 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 COBI 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.

All General Business Administration majors and freshmen are advised through the COBI Academic Advising Center.

## **Employment Service**

The College of Business and Industry endeavors, in cooperation with the Career Center (located at 300 Montgomery Hall), to arrange 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 and Industry 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 com-

posed 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.

COBI 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 and Industry 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

Admission into the College of Business and Industry for Transfer Students - Students wishing to transfer into the College of Business and Industry from another institution or from another major at MSU must meet certain grade point average requirements. Juniors and seniors must have a minimum 2.50 overall and MSU grade point average; sophomore must have a minimum 2.25 overall and MSU grade point average; and freshmen must have a minimum 2.0 overall grade point average to be admitted into the College of Business and Industry.

Junior/Senior Screen - A student in the College of Business and Industry must achieve a 2.5 overall GPA and a 2.5 MSU GPA within a 54 to 70 hour window to continue as a business student. Students who do not meet the junior-senior screen (COBI or transfer) will not be permitted to register for 4000 level business classes.

## SCHOOL of ACCOUNTANCY

Director: Danny Hollingsworth, H. Devon Graham, Jr. Professor of Accounting Major Advisor: Associate Professor Clyde Herring, Interim Director Office: 300 McCool Hall

Academic Coordinator: Lanna Miller Office: 300A McCool Hall, 325-1631

The 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 interests of the individual 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 and Industry as well as the separate and additional accreditation of accounting programs.

## Certification

The Bachelor of Accountancy Degree (BACC) from the 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 en-

couraged 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 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 and may only take two 3000 level courses if they have not been admitted to the 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 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**

## **University Core**

English Composition (6 hours)

EN 1103 English Composition I or

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 University Core

Humanities (6 hours)

Refer to University Core

Fine Arts (3 hours)

Refer to University Core

Social/Behavioral Sciences (6 hours)

PS 1113 American Government

3 hours See University Core (excluding: AEC and EC)

#### **Accounting Major Requirements**

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Computer Literacy

BIS 1012 Introduction to Business Computer Systems

International Elective - 3 hours

(see 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
EC 2113 Principles of Macroeconomics
EC 2123 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 EN 4223 Legal Writing

CO 2213 Small Group Communication

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

GB 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:

ACC 4023 Advanced Accounting

ACC 4043 Municipal & Governmental Accounting

ACC 4053 International Accounting

ACC 4063 Income Tax II

Non-business Electives - 7 hours Consult Advisor

Free Electives - 3 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:

## **Double Degree in Accounting and Another Field**

Combined curricula leading to a BACC degree and a degree in another field are available in the 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 non-accounting 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, School of Accountancy, P.O. Drawer EF, Mississippi State, MS 39762 or email: sac@cobilan.msstate.edu for specific details.

## **MASTERS PROGRAMS IN ACCOUNTING**

Edd Milam, MTX Advisor Clyde Herring, MPA Advisor Departmental Office: McCool 300 662-325-3710

The 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 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.
- A student must achieve a 3.0/4.0 GPA on graduate accounting work attempted.
- 4. 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).

ACC 6023 Adv Accounting (If not taken as an undergraduate)......3

#### **Required courses** (15 hours):

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	3
ACC 8043 Fraud Examination	3
ACC 8053 Professional Accounting Policy and Research	3
ACC 8063 Research in Tax Practice and Procedures	3
ACC 8073 Taxation of Corporations and Shareholders	3
ACC 8083 Federal Estate and Gift Taxation	3
ACC 8093 Fed. Taxation of Partnerships, Corps, Trusts & Estate	es3
ACC 8103 Income Taxation of Natural Resources	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:

## 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 24 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	
ACC 8083 Federal Estate and Gift Taxation	
ACC 8093 Fed. Taxation of Partnerships, Corps, Trusts,	& Estates.3
Elective - any 8000 level tax course	3
Other Required Courses (6 hours)	
ACC 8013 Seminar in Financial Accounting Theory	3
ACC 8033 Business Assurance Services	3

#### Electives (9 hours)

Graduate level Business or Accounting courses

Consult the Director, School of Accountancy, P.O. Box EF, Mississippi State, Mississippi 39762 for further information or E-mail: sac@cobilan.msstate.edu.

## 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 COBI Academic Advising Center prior to graduation.

## COLLEGE-WIDE DEGREE COURSE REQUIREMENTS

The College of Business and Industry 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.

## INTERNATIONAL BUSINESS PROGRAM

A Five-Year Double Degree Program: B.B.A. in General Business Administration & B.A. in Foreign Languages

Office: 308 McCool Hall

Major Advisors - Business Administration: Professors Capella and S. Taylor; Associate Professor Addy; Assistant Professor Rezek

Major Advisors - Foreign Languages: Professor Emplaincourt; Associate Professors Jordan and Robbins-Herring; Assistant Professors Lestrade and Rice 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 + 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 hallmark of this program is a work internship, an outside the country work experience of a full summer or one semester duration (generally taken the last of the 4th year or beginning of the 5th year). This work is ideally reflective of the student's specific business discipline and language proficiency area. The student who selects to separate the work and abroad experience must petition the IB committee 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. An International Business Co-Op Work program offers 3 semesters paid international work experience in concert with pursuing the academic degrees.

The total number of semester credit hours (SCH) will be 154 for most students. The program has five main components:

- 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 (37);
- (4) a thorough grounding in business techniques and practices, including 33 SCH of general business courses, 12 SCH of international business courses, and 12 SCH in one of six functional/discipline emphasis in business (accounting, banking and finance, information systems\*, economics, management, marketing\*, or risk management, insurance and financial planning\*).
- (5) a one-semester internship program with an international business (3 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 Industry 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 2.5 to be eligible for internship and study abroad.

 $^{\ast}$  — 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.

## **University Core**

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

Science (6 hours)

Life Science and Lab (BIO prefix)

Physical Science and Lab (CH, GG, OR PH prefix)

Math/Science Elective (3 hours)

ST 2113 Statistics for the Beh Sciences OR

ST 3123 Intro to Statistical Inferences

Humanities (6 hours)

EN 2273 World Literature I OR

EN 2283 World Literature II

HI 1173 World History Since 1500 OR

HI 1223 Modern Western World

#### Fine Arts (3 hours) Choose from the following: ARC 1013 Architectural Appreciation History of Architecture I ARC 2313 ART 1013 Art History I ART 1023 Art History II ART 1113 Art Appreciation ART 3143 Italian Renaissance Art History History and Appreciation of Music MU 1113 1503 Introduction to Theatre CO PΕ 1123 History and Appreciation of Dance Social/Behavioral Sciences (6 hours) 1123 Introduction to World Geography GR 1143 Introduction to Cultural Anthropology **College of Arts and Sciences Core** PHI 3013 **Business Ethics** Intro to International Relations OR PS 1313 PS 1513 Comparative Government 3000+ Upper-level History Elective (see advisor) 3000+ Upper-level Social Science Elective (see advisor) 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 Sur of French/German/Spanish Lit Foreign Language Elective - (see FL advisor for options) College of Business and Industry Core ACC 2013 Principles of Financial Accounting ACC 2023 Principles of Managerial Accounting 2113 Principles of Macroeconomics 2123 Principles of Microeconomics EC BL. 2413 Legal Environment of Business BIS 3233 Intro to Management Info Systems 3123 Financial Management FIN MKT 3013 Principles of Marketing MGT 3114 Principles of Management and Production GB 4853 Business Policy Oral Communication Requirement (3 hours) CO 1003 Fundamentals of Public Speaking Computer Literacy Requirement BIS 1012 Intro to Business Information Systems OR

CSE 1013 Basic Computer Concepts and Apps

Writing Requirement

MGT 3213 Organizational Communications

## **Major Core**

International Business Electives- 9-12 hours:

ACC 4053 International Accounting International Business Law 42.73 BL. EC 3513 Economic Systems of the World International Economic Relations EC 4323 FIN 4923 International Financial Management 3913 IB Principles of International Business MKT 3933 International Marketing MGT 4613 Cross Cultural Management Transportation Elective - 3 hours:

International Logistics 3323 TR TR 4233 International Transportation TR 4313 Physical Distribution Management

4333 International Supply Chain Management TR

(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, INS or TR) See Advisor for options. Internship Work
Internship Work/ Academic Report IB 3900 IB 4903 Free Electives 2 hours

Total hours needed for major: 154

## Department of FINANCE and ECONOMICS

Major Advisor: Andrew Luccasen Minor Advisor: Rebecca Campbell Offices: 312 McCool Hall

## **ECONOMICS**

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 and Industry (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 Industry 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.

## **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR Accelerated Comp I 1163 EN EN 1113 English Comp II OR

Accelerated Comp II ΕN 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 University Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PS 1113 American Government

3 hours See University Core excluding: AEC and EC

#### **College Core** BQA 3123 Business Statistical Methods II ACC 2013 Principles of Financial Accounting ACC 2023 Principles of Managerial Accounting EC 2113 Principles of Macroeconomics Principles of Microeconomics 2123 EC BL2413 Legal Environment of Business 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 GB 4853 **Business Policy**

#### Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

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 Economic Systems of the World EC 4303 Theory of Economic Development

EC 4323 International Economic Relations

Required Courses:

EC 3113 Intermediate Macroeconomics

EC 3123 Intermediate Microeconomics

EC 4643 Economic Forecasting and Analysis

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

## **BANKING and FINANCE**

The Banking and 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. All Banking and Finance majors must complete an internship which provides field experience prior to graduation. (A Special Topics course may be arranged for situation in which an internship is unavailable.) The degree plan also 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 Banking and 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. Banking and 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 Banking and Finance majors are excellent; graduates, with the proper preparation, have only to choose which career path to follow.

Banking and Finance minors and double majors are available for both business and non-business majors. For specifics, see below.

## **University Core**

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 University Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PS 1113 American Government and

3 hours from University Core excluding: AEC and EC

#### **College 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 Manager

FIN 3123 Financial Management MKT 3013 Principles of Marketing

MGT 3114 Principles of Management and Production

GB 4853 Business Policy

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

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

FIN 4923 International Financial Management

FIN 4243 Senior Seminar in Finance

1 hour Internship

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 Banking and 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

FIN 4223 Intermediate Financial Mgt

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

<sup>\*</sup> Non-Busniess School Majors wishing to pursue a second degree in a Business Administration field, please consult the MSU Bulletin or the COBI Advisement Center.

Minor Option for students with a Business School Major who desire to Minor in Banking and Finance. The following four courses are required:

FIN 3723 Financial Markets

FIN 4423 Investments

FIN 4223 Intermediate Financial Management

FIN 4923 International Financial Management

Minor Option for students with a Non-business School Major who desire to Minor in Banking and Finance. The following six courses are required:

FIN 3113 Financial Systems

FIN 3123 Financial Management

FIN 3723 Financial Markets

FIN 4423 Investments

FIN 4223 Intermediate Financial Management

FIN 4923 International Financial Management

#### **REAL ESTATE and MORTGAGE APPRAISAL FINANCING**

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.

#### **University Core**

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

BQA 2113 Business Statistical Methods I

Science (6 hours)

2 Lab Sciences from University Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PS 1113 American Government and

3 hours from University Core excluding: AEC and EC

#### **College 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

GB 4853 Business Policy

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

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)

REM 3333 Principles of Real Estate

REM 3253 Real Property Evaluation

REM 3353 Real Estate Finance

REM 4253 Mortgage Financing

BL 4253 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

## MANAGEMENT of CONSTRUCTION and LAND DEVELOPMENT

This major is designed to meet the needs of the student interested in managing a business that is associated with real property and the subsequent planning, financing, and development of the land and the eventual construction of buildings. The graduate may expect to seek employment from a broad range of employers including builders, developers, and financial organizations.

All non-COBI transfers to major must be approved by coordinator.

## **University Core**

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

BQA 2113 Business Statistical Methods I

Science (6 hours)

2 Lab Sciences from University Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PS 1113 American Government and

3 hours from University Core excluding: AEC and EC

### College 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

GB 4853 Business Policy

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

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)

EG 1143 Graphic Communication

ABE 1073 Agricultural Mechanics

ABE 4383 Building Construction

BL 4253 Real Estate Law

LA 3713 Landscape Contracting I OR

LA 4744 Landscape Contracting IV

LA 4724 Landscape Contracting IV

LA 4724 Landscape Contracting III

REM 3333 Principles of Real Estate

REM 3253 Real Property Evaluation REM 3353 Real Estate Finance Major Elective - 3 hours (see advisor for options)

Non-business Electives - 6 hours (see advisor for options)

## Total hours needed for major: 124

If LA 4744 is chosen instead of LA 3713, 5 hours of non-business electives are required.

## **RISK MANAGEMENT, INSURANCE** and FINANCIAL PLANNING

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.

#### **University Core**

English Composition (6 hours) 1103 English Comp I OR EN EN Accelerated Comp I 1163 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 University Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PS 1113 American Government and

from University Core excluding: AEC and EC 3 hours

**College Core** 

BQA 3123 ACC 2013 ACC 2023 Business Statistical Methods II Principles of Financial Accounting Principles of Managerial Accounting 2113 2123 EC Principles of Macroeconomics EC Principles of Microeconomics BL. Legal Environment of Business 2413 3233 Intro to Management Info Systems BIS FIN 3113 FIN 3123 Financial Systems Financial Management MKT 3013 Principles of Marketing

Principles of Management and Production

MGT 3114 GB 4853 Business Policy

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

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) INS 3103 Principles of Insurance

INS 4503 Enterprise Risk Management Choose 3 of the following:

INS 2003 INS 3203 Personal Money Management Property and Casualty Insurance INS 3303 Life and Health Insurance INS 3403 Financial Planning 3503 INS Employee Benefits

Law of Commercial Transactions

BL 3223 BL 4233 Legal Theories of Risk Dist & Loss Allocation

Choose 2 of the following:

ACC 4013 Income Tax I Financial Markets FIN 3723 Investments MKT 4113 Personal Selling Principles of Real Estate REM 3333

Non-business electives - 15 hours (see advisor for options)

Free electives - 4 hours

Total hours needed for major: 124

## **GENERAL BUSINESS ADMINISTRATION (GBA)**

The curriculum in General Business Administration is designed for students who desire a general rather than a specialized program in business. GBA advisors are located in the COBI Academic Advising Center. Students are encouraged to make appointments with advisors, as they are not always available on a walk-in basis.

General 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** 

## **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR EΝ 1163 Accelerated Comp I English Comp II OR ΕN 1113 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 University Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PS 1113 American Government and

3 hours from University Core excluding: AEC and EC

College Core

BQA 3123 Business Statistical Methods II Principles of Financial Accounting

ACC 2013 ACC 2023 Principles of Managerial Accounting

2113 Principles of Macroeconomics EC Principles of Microeconomics EC 2123

2413 Legal Environment of Business BL. 3233 Intro to Management Info Systems BIS

FIN 3113 Financial Systems FIN 3123 Financial Management

MKT 3013 Principles of Marketing

MGT 3114 Principles of Management and Production GB 4853

Business Policy

Oral Communication Requirement

Fundamentals of Public Speaking CO 1003

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:

ACC, BIS, BL, EC, FIN, IB, INS, MGT, MKT, REM, TR

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

#### **General Business Administration Minor**

A minor in General 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, 221 McCool Hall.

A minimum of 21 hours must be taken to obtain a GBA minor. A minimum of 12 hours must be taken at MSU to receive the GBA minor. Note that some choices require others as prerequisites.

## Elect SEVEN from:

Legal Environment of Business
Principles of Financial Accounting
Principles of Managerial Accounting
Principles of Macroeconomics
Principles of Microeconomics
Financial Management
Principles of Marketing
Principles of Management and Production
Management Information Systems
Business Statistical Methods I
Business Statistical Methods II
Production Management

## **Department of MANAGEMENT** and INFORMATION SYSTEMS

Major Advisor: Dr. Garry Smith Office: 302 McCool Hall

Students in the Department of Management and Information Systems may elect to major in either Management or Information Systems. Both majors offer excellent job opportunities and can help graduates to achieve their potential in business firms or other organizations.

#### MANAGEMENT (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 or general management/entrepreneurship.

A student chapter of the Society for Human Resource Management (SHRM), the leading voice of the human resource profession, is active. SHRM provides education and information services, conferences, and seminars, government and media representation, online services and publications to more than 165,000 professional and student members throughout the world. As a student member of SHRM, you will learn about the "real world" of human resource management through publications and educational opportunities. You will also participate in activities that will build your knowledge of the HR field while helping you to develop valuable leadership and organizational skills.

The following course of study is designed to prepare the student for careers in the field of Management.

## **University Core**

English Composition (6 hours)

EN 1103 English Comp I OR ΕN 1163 Accelerated Comp I ΕN English Comp II OR 1113 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 University Core

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Humanities (6 hours)
```

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PS 1113 American Government and

from University Core 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 EC 2123 Principles of Microeconomics Legal Environment of Business BL2413

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

GB 4853 Business Policy Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

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)

Introduction to Human Resource Mgt MGT 3513

MGT 3813 Organizational Behavior Organizational Theory MGT 4153

Choose one of the following:

Interviewing CO 3833

CO 3293 Corporate Communication

CO 3803 Principles of Public Relations

PSY 4523 Industrial Psychology

## Choose one Area of Emphasis:

**Human Resources Emphasis** MGT 4533 Advanced Human Resource Mgt

MGT 4543 Compensation Management

## MGT 4553 Collective Bargaining General Management/Entrepreneurship Emphasis

## Choose three of the following:

MGT 3323 Entrepreneurship

MGT 4533 Advanced Human Resource Mgt

MGT 4543 Compensation Mgt MGT 4553 Collective Bargaining

MGT 4613 Cross-Cultural Management

Non-business electives - 15 hours (see advisor for options)

Free electives - 4 hours

Total hours needed for major: 124

## **Furniture Management Concentration**

Program Coordinator & Academic Advisor: G. Stephen Taylor Office: 111 Franklin Center

The Furniture Management Concentration prepares students for careers in furniture and related industries. In this unique program, students take general business coursework along with specialized classes in furniture production and interior design. They also have the opportunity to enhance their education with hands-on experience through participation in cooperative education or internships at many furniture companies throughout Mississippi and the nation.

Required courses are intended to provide students with managerial and technical skills needed for effective performance in the furniture industry. Elective courses can then be chosen to develop additional knowledge in areas of interest (for example, human resource management, production, marketing, or furniture design and construction). Furniture management students take nine hours of Furniture electives to complete their furniture option. Appropriate upper-level business courses are then taken to develop business knowledge in areas of interest. In addition electives from other colleges may be chosen to build particular skills. (For a list of eligible courses, consult the Furniture Management advisor). Finally, to help students prepare for their career, students may engage in an internship or a cooperative education experience with a furniture manufacturer.

#### **Concentration Core**

muation Co.	i C
3 hours	International Elective (see advisor for options)
FP 1103	Wood Technology and Products
FP 4223	Furniture Production I
FP 4233	Furniture Production II
MGT 3333	Field Studies in Entrepreneurship
6 hours	Management Electives (see advisor for options)
6 hours	Supporting Area Electives (see advisor)

Non-business electives - 10 hours (see advisor for options)

Free electives - 6 hours

Total hours needed for major: 124

## **INFORMATION SYSTEMS**

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 data processing and management information systems.

The purpose of the 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 communica-

A student chapter of Association for Information Technology Professionals 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.

**University Core** English Composition (6 hours) ΕN 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 MA 1613 Calculus for Business and Life Sciences I Business Statistical Methods I BOA 2113 Science (6 hours) 2 Lab Sciences from University Core Humanities (6 hours) See University Core Fine Arts (3 hours) See University Core

Social/Behavioral Sciences (6 hours)

American Government and PS 1113

3 hours from University Core excluding: AEC and EC

**College Core** 

Business Statistical Methods II BQA 3123 ACC 2013 Principles of Financial Accounting ACC 2023 Principles of Managerial Accounting Principles of Macroeconomics EC. 2113 2123 EC Principles of Microeconomics BL2413 Legal Environment of Business BIS 3233 Intro to Management Info Systems Financial Systems FIN 3113 FIN 3123 Financial Management MKT 3013 Principles of Marketing Principles of Management and Production MGT 3114

GB 4853 Business Policy

Oral Communication Requirement (3 hours)

CO 1003 Fundamentals of Public Speaking

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)

Visual Basic Applications BIS 1733 Intro to Business COBOL BIS 1753 BIS 3523 Advanced Languages I 3753 Business Database Systems BIS

BIS 4753 Structured Systems Analysis & Design

4763 Electronic Commerce Seminar BIS

Choose two of the following:

BIS 4113 Business Info. System Security 4513 Microcomputers and Networks BIS

BIS 4523 Advanced Languages II BIS 4533 Management Support Systems

Non-business electives - 12 hours (see advisor for options)

6 hours Computer Science Engineering (CSE) electives

6 hours Computer-related electives

Free electives - 4 hours

Total hours needed for major: 124

## Department of MARKETING, QUANTITATIVE ANALYSIS and BUSINESS LAW

Major Advisors: Professors Ronald Taylor and Cynthia Webster; Associate Professors Brian Engelland, Melissa Moore and Rob Moore; Assistant Professors Subra Chakrabarty, Jason Lueg and Nicole Ponder-Lueg; Instructor Michael Goree 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**

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.

## **University Core**

English Composition (6 hours)

1103 English Comp I OR EN ΕN Accelerated Comp I 1163 English Comp II OR EN 1113

ΕN 1173 Accelerated Comp II

Mathematics (9 hours)

MA 1313 College Algebra and

MA 1613 Calculus for Business and Life Sciences

BQA 2113 Business Statistical Methods I

Science (6 hours)

2 Lab Sciences from University Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social Scien	nces	
PS	1113	American Government
3 ho	urs	Introductory course in AN, PSY or SO
College Co	re	
BQA	A 3123	Business Statistical Methods II
ACC	C 2013	Principles of Financial Accounting
ACC	C2023	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
MK	T 3013	Principles of Marketing
MG	T 3114	Principles of Management and Production
GB	4853	Business Policy
Oral Communication Requirement		
CO	1003	Fundamentals of Public Speaking
Computer L	iteracy 1	Requirement

BIS 1012 Intro to Business Information Systems

Writing Requirement

MGT 3213 Organizational Communications

## **Major Core**

, -		
	3 hours	International Elective (see advisor for options)
	MKT 4413	Consumer Analysis and Behavior
	MKT 4533	Marketing Research
	MKT 4813	Marketing Management
Cł	noose four of	the following:
	MKT 3213	Retailing
	MKT 4113	Personal Selling
	MKT 4123	Advertising
	MKT 4213	Internet Marketing

MKT 4613 Services Marketing MKT 4143 Sales Management MKT 3933 International Marketing

TR 4313 Physical Distribution Management TR 4233 International Transportation

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-A Makering limit is oriented to build business and Poli-Business students. A limit in Makering is attained by taking the following courses: MKT 3013, MKT 4413, and four from MKT 3213, MKT 3933, MKT 4113, MKT 4123, MKT 4143, MKT 4213, MKT 4533, MKT 4613 or TR 4313. Students interested in this minor should contact a Marketing advisor.

#### **Professional Golf Management Concentration**

Director: Dr. Stephen A. LeMay Office: 309 McCool Hall; Phone: (662) 325-3161

The Professional Golf Management Program (PGM) is the second oldest PGM program sanctioned by the Professional Golfer's Association of America (PGA). The Program prepares graduates for careers as Class A PGA Professionals at country clubs, resorts, and public golf facilities. The PGM Program is a demanding four and one half year curriculum. The PGA Professional must have a broad assortment of marketing, management and other business-related abilities to be effective in the golf profession today.

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 PGM requirements. Students must also complete a minimum of 16 months (five semesters) 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 and reach the threshold of PGA Class A membership.

**PGA Certification**. PGA Class A certification (membership) requires: completion of all PGM academic and co-op requirements; passing the PGA playing ability test; and completion of all PGA PGM requirements.

PGM Graduation Requirements. Students must complete the last semester in school (not on co-op). They must also pass PGA Playing Ability Test and complete all three levels of the PGA PGM training pro-

PGM Admission Procedures. The PGM Program has a limited enrollment. The current enrollment limit is 250; however, this number is subject to decrease based on the placement outlook and PGM 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:

- · 2.75 GPA with maximum of 62 applied semester hours
- · Have a USGA Handicap of 8 or less

Non-Citizen:

· The MSU PGM Program is sanctioned by PGA of America to educate and train graduates to become PGA Members. Admission to the MSU PGM Program is restricted to students who are U.S. Citizens or Resident Aliens.

## **Concentration Course Requirements**

PGM students are required to take all courses listed under the University and College Core for Marketing in addition to the following courses:

> MKT 2211 PGM Level I Seminar MKT 2221 PGM Level I Seminar MKT 2311 PGM Level II Seminar

MKT 3213 Retailing

MKT 4413 Consumer Analysis & 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

MKT 3933 International Marketing

Non-business electives - 3 hours (see advisor for options)

Total hours needed for major: 124

## Co-op Work

PGM students must complete a minimum of 16 months (five semesters) 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 QPA on all work and on all work at MSU are required in order to participate in the PGM co-op program.

#### **PGA PGM**

PGM students will complete all PGA PGM 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 PGM seminars, tests, workshops and playing privileges at the MSU Golf Course. A typical schedule of classes and co-ops are as follows:

## FRESHMAN YEAR

Fall School - 16 hours School - 16 hours Spring

Summer Co-op

#### SOPHOMORE YEAR

Fall School - 16 hours Spring School - 16 hours Summer Co-op

JUNIOR YEAR

Fall Co-op

Spring School - 16 hours Summer School - 12 hours

SENIOR YEAR

Fall School - 16 hours

Spring Co-op Summer Co-op

Fall School - 16 hours (Graduation)

## **Transportation Concentration**

Transportation 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 transportation concentration increase. The curriculum in the transportation concentration will acquaint 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) 3323 TR International Logistics 4233 International Transportation TR TR 4313 Physical Distribution Management International Supply Chain Management TR 4333 MKT 4413 Consumer Analysis and 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 and Industry 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-COBI 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 COBI Academic Advising Center in 221 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 university core 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 COBI 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

nly)

Total 69+ hours

#### PREPARATION for the STUDY of LAW

Major Advisors: Professors James A. Bryant and William D. Eshee; Associate Professor Pearson Liddell Office: 324 McCool Hall

Each year a number of graduates of the College of Business and Industry 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. 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

Barbara Spencer, Director of Graduate Studies in Business and Professor of Management Office: 210 McCool Hall

The College of Business and Industry offers six graduate programs in business administration, namely, the Master of Business Administration (MBA), The Master of Science in Information System (MSIS), the Master of Science in Business Administration (MSBA) with a major in Finance, 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, introductory calculus, 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.

## College of Education

## RICHARD L. BLACKBOURN, Dean

## Sue Minchew, Associate Dean

sminchew@colled.msstate.edu

Dinetta Karriem, Assistant to the Dean for Student Services dkarriem@colled.msstate.edu; Offices: 309 Allen Hall Telephone: (662) 325-3717 Fax: (662) 325-8784 Mailing Address: Box 9710, Mississippi State, MS 39762

Linda T. Jones, Director of Clinical/Field-Based Instruction and Licensure ljones@colled.msstate.edu Office: 309 Allen Hall
Telephone: (662) 325-2206 Fax: (662) 325-8784
Mailing Address: Box 9710, Mississippi State, MS 39762

## **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.

Non-teaching concentrations are also available in educational psychology, fitness management, industrial technology, sports communication, office systems and technologies, and trade and technical studies.

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 five departments: Counseling, Educational Psychology, and Special Education; Curriculum and Instruction; Kinesiology; Music Education; and Instructional Systems, Leadership, and Workforce Development.

Counseling, Educational Psychology, and Special Education. The Department of Counseling, Educational Psychology, and Special Education 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, special education, community counseling, school counseling, vocational rehabilitation counseling, college counseling, and student affairs administration in higher education.

Curriculum and Instruction. This department is responsible for instruction in all professional courses of a general nature, and in professional courses that deal specifically with teaching in 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 fields of elementary education and secondary education, the department is responsible for the direction and immediate supervision of trainees in these fields.

Through the Department of Curriculum and Instruction, 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 Physical Education with concentration areas in Fitness Management, Clinical Exercise Physiology, Sports Communication, and Teaching/Coaching. Teaching/Coaching majors may also pursue an add-on teaching endorsement in Health Education by taking additional course work. Master of Science in Physical Education 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 and Instrumental 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, Leadership, 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, Leadership, and Workforce Development to provide teacher/coordinator/ administrator preparation in vocational areas including adult, business, industrial arts, and trade and technical studies. The department also provides undergraduate preparation of personnel interested in the following occupations: industrial technology and information technology services. Job opportunities in these areas are very promising.

The Master of Science degree is offered in Technology and in Workforce Educational Leadership. 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.

In addition, the department provides programs in Educational 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 Teachings, 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 assists 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.

**Teaching Internship.** Partner School Districts in proximity to Mississippi State University are used to provide practicum and teaching internship 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 Early Childhood Institute is dedicated to providing leadership in improving the quality of the care and education of children from pre-kindergarten through third grade. The Institute is committed to working with local and state agencies to build community and school partnerships that focus on family involvement in children's education.

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.

#### 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 will provide the necessary counseling, screening, and advisement 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 (excluding developmental, remedial or 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 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 following minimum scores on the Praxis I Tests:

## C-PPST

Reading 170 Writing 172 Mathematics 169

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 of their Praxis I test scores in a safe place since they will be required to show these originals 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. The Admission to Teacher Education card will admit students to professional sequence courses. Instructors of professional education courses will check for verification that students have been officially admitted to Teacher Education. Students who have not been admitted to Teacher Education may not register for restricted professional education courses. The student must meet with the advisor to complete the phase 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 to the Director of Clinical/Field-Based Instruction and Licensure one senester prior to teaching internship. To be eligible for teaching internship, the student must have been admitted to Teacher Education, obtained a minimum of a 2.5 GPA in the major teaching field or concentration, and maintained an overall GPA of 2.5 or higher at the time of application. Final eligibility (2.5 GPA in major and 2.5 GPA overall) is determined through screening at the end of the semester prior to teaching internship. The student must also have completed all professional education and methods courses with a minimum grade of "C" prior to teaching internship. No course work other than the 15 teaching internship/seminar hours can be taken during the teaching internship semester.

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. As a general rule, 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, and 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 GPA falls below 2.50 will be placed on academic probation. This policy refers to transfer students as well. Teacher Education students whose GPA is below 2.50 after a semester of probation will be dismissed from teacher education. If their GPA later improves 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 and Licensure 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 and Licensure.

As part of securing a Mississippi teacher's license, students must have taken 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.

# CRIMINAL RECORDS BACKGROUND CHECKS for PUBLIC SCHOOL EMPLOYEES

Mississippi Senate Bill 2658 requires school districts to conduct Criminal Records Background Checks of all new employees. Under Senate Bill 2658, "a student teacher is not required to be fingerprinted and checked because a student teacher is not an employee of the school district. However, a student teacher may be checked at the discretion of the local school district."

# 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 outcomes 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 with concentrations in instrumental and vocal music, physical education with concentrations in teaching/coaching, technology teacher education, agricultural education, and human sciences education.

Non-teaching bachelor's programs are offered in the following areas: educational psychology; physical education with concentrations in fitness management, sports communication, industrial technology, information technology services, and trade and technical studies.

**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, Educational Psychology, and Special Education; Curriculum and Instruction; Kinesiology; Instructional Systems, Leadership and Workforce Development. You 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 and Instruction and for Community College Teachers by the Department of Instructional Systems, Leadership, and Workforce Development.

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, 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 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, Professional/Pedagogical, Content Specialty, 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, EDUCATIONAL PSYCHOLOGY, and SPECIAL EDUCATION

Major Advisor: Thomas Hosie Office: 508 Allen Hall

The Department of Counseling, Educational Psychology, and Special Education 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, special education, 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.

The B.S. Degree in Special Education is a teacher preparation program, which prepares individuals to teach children and youth with mental retardation, learning disabilities, and other exceptionalities. The program also enables graduates to attain endorsements in areas of specialization. Applicants must meet admission requirements and follow procedures for College of Education teacher majors. These regulations are provided in the beginning portion of The College of Education section of this Bulletin.

- 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. In addition, M.S. and Ed.S. Degrees are offered in the area of Special Education. Because of the increasing use of computer technology, students in all degree programs are strongly encouraged to acquire computer competency skills.
- 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 (EPY) (Non-teaching Option)

#### **University Core**

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 Math above College Algebra excluding:

MA 1413, 1423, 1433

Science (6 hours)

BIO 1123 Animal Biology with lab 3 hours Lab science from University Core

Math/Science Elective (3 hours)

Math above College Algebra excluding MA 1413, 1423, 1433

OR

Science from University Core

Humanities (6 hours)

3 hours History course 3 hours Literature course

Fine Arts (3 hours)

See University Core

Social Sciences (6 hours)

SO 1003 Intro to Sociology

3 hours University Core 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

#### Human/Cultural Diversity Elective - choose one:

SO 2203 Cultural and Racial Minorities

SO 1203 Society and the Individual

SO 1103 Contemp. Social Problems

SO 3323 Contemporary Woman

SO 3333 Society and Religion

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

<sup>\*</sup> 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.

<sup>\*\*</sup> Note: Issues of entering grade point average and other requirements are being considered for admission into the Educational Psychology program for those students entering the program in the fall of 2003. Refer to the Department's Undergraduate Handbook.

#### **Corrections Emphasis**

Required Co	ourses	
COF	R 3103	The Criminal Justice System
SO	2203	Cultural and Racial Minorities
SO	3603	Criminology
SO	4513	Correctional Systems
SO	4233	Juvenile Delinquency
Electives - C	Choose t	wo of the following:
AN	4313	Human Identification
SO	3313	Deviant Behavior
SO	3503	Violence in the U.S.
PS	4183	Judicial Process
PSY	4213	Psychology of Abnormal Behavior
PSY	4223	Drug Use and Abuse
SW	4613	Child Welfare Services
6 ho	urs	Selected SO courses

# 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 Emphasis**

Required Co	ourses	
HS	2803	Prenatal and Infant Development
HS	2813	Child Development I
HS	3803	Child Care Procedures
HS	4803	Art of Parenting (Jr. Standing)
HS	4853	The Family: A Transactional Approach
Electives - C	Choose t	wo of the following:
HS	4403	Introduction to Gerontology
HS	3813	Child Development II
HS	3823	Designing Child Programs
HS	4333	Family Public Policy
HS	4843	Family Interaction
HS	4863	Consumer Aspects of Aging
FNH	1 4253	Human Nutrition

## Total hours needed for major: 124

# **Counselor Education Emphasis**

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 of	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+
3 hours	Peer Counselors*
COE 4513	Paraprofessionals in Student Affairs**
Other releva	int courses may be added with advisor approval.
Total	al hours needed for major: 124

# Total hours needed for major: 124

- $+ \qquad Special\ Topics\ courses\ in\ a\ variety\ of\ subjects\ are\ offered\ periodically\ by\ the\ department\ and\ may\ satisfy\ this\ requirement.\ Consult\ advisor\ for\ approval\ of\ a\ Special\ Topics\ course.$
- Requires application and invitation to participate.
- Residence Hall advisors only.

#### **Physical Education Emphasis**

Required Co	ourses	
PE	1223	Personal Health
PE	4233	Biomechanics
PE	3213	Emergency Health Care
PE	3133	Adaptive Physical Education
PE	3223	Motor Development
PE	3303	Physiology of Exercise

#### Total hours needed for major: 124

Psychology with Applied/Industrial/Human Resource Emphasis
Required Courses  PSY 3353 Motivation PSY 4253 Industrial Psychology MGT 3114 Principles of Management & Production MGT 3513 Intro to Human Resources Management MGT 3213 Organizational Communications I  Electives - Choose two of the following: MGT 3413 Production Management MGT 4543 Compensation Management MGT 453 Advanced Human Resource Management MGT 4213 Organizational Communications I PSY 4123 Quant Techniques in Psy Using Computers  Total hours needed for major: 124
SPECIAL EDUCATION (EXED)
Major Advisors: Lynne Arnault, Kent Coffey, Sandy Devlin, and John Obringer; Licensure Advisor: John Obringer Office: 508 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.
University Core
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 OR  MA 1303 Quantitative Reasoning
3 hours MA Elective (see University Core)**
Natural Science (6 hours)  Natural Science w/lab (see University Core)  Natural Science w/lab (see University Core)
Math/Science Elective (3 hours) 3 hours See University Core
Humanities (6 hours) 6 hours See University Core Fine Arts (3 hour)
3 hours See University Core
Social/Behavioral Sciences (6 hours)  PSY 1013 General Psychology 3 hours Social/Behavioral Elective (see University Core)
Major Core

Planning for the Diversity of Learners\*

Social Foundations of Education

Human Growth and Development

Evaluating Learning\* EPY 4053 Psychology of the Mentally Retarded

EDF 4243

EDF 3333

EPY 2513

EPY 3253

( l		EDX 4413 EDX 4886 EDX 4896 EDX 4873 21-24 hours	
6 hours Reading Electives*			

#### Oral Communication Requirement

Computer Literacy Requirement

Satisfied by successful completion of EDX 4353, 4413 and 4133

Writing Requirement

Satisfied by successful completion of EDX 4353, 4413 and 4133

#### Total hours needed for major: 123

- Requires admission to Teacher Education.
- \*\* If MA 1113 is taken, MA 1123 must be also taken. If a course in math higher than College Algebra is elected, the student must choose one additional math or science course.

# Department of CURRICULUM and INSTRUCTION

Interim Department Head: Professor Linda Coats 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 (preschool, elementary, and middle school), and in the academic areas of high school teaching (English, foreign language, mathematics, science, social studies, and speech).

# **ELEMENTARY EDUCATION (ELED)**

Major Advisors: Devon Brenner, Terry Jayroe, Margaret Pope, Debra Prince, Jeanne Swafford, Nicole Thompson, Renarta Tompkins and Nancy Verhoek-Miller Office: 310 Allen Hall

The Elementary Education program 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. The junior year includes two mini-blocks of courses: one that emphasizes teaching of early childhood (pre-K – 3rd grade), and one that emphasizes teaching at the middle levels (grades 4-8). 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 or from any elementary education advisor.

Programs offered on the graduate level include the Master of Science Degree, Educational Specialist, and Doctor of Education and Doctor of Philosophy Degrees.

## **University Core**

English Composition (6 hours)

1103 English Comp I OR EN ΕN 1163 Accelerated Comp I ΕN 1113 English Comp II OR

Accelerated Comp II EN 1173

Mathematics (12 hours)

MA 1313 College Algebra

MA 1413 Structure of Real Number System MA 1423 Problem Solving & Real Numbers MA 1433 Informal Geometry & Measurement Science (6 hours) BIO 1001 Biological Laboratory BIO 1033 Biological Science PH 1011 Physical Science Lab PH 1013 Physical Science Survey Humanities (6 hours) English Literature Elective (see University Core) EN Elective (see University Core) Fine Arts (3 hours) 3 hours See University Core Social/Behavioral Sciences (6 hours) GR 1123 Intro to World Geography PS 1113 American Government **Additional Core** Physical Science Survey Lab II PH 1021 Physical Science Survey II PH 1023 Early U.S. History НІ 1063 HI 1073 Modern U.S. History **Major Core** RDG 3113 Early Literacy I\* RDG 3213 Early Literacy II\* Early Childhood Education\* EDE 3123 EDE 3233 Teach Children's Lit at Elem & Mid Levels\* EDX 3213 Psych and Educ of Except Child & Youth RDG 3413 Middle Level Literacy I3 Middle Level Literacy II\* RDG 3423 EDE 3223 Middle Level Education\* EDF 3333 Social Foundations of Ed EDF 3423 Exploring Diversity through Writing\* MU 3123/EDE 3443 Creative Arts at Elem & Mid Levels Teach Elem & Mid Level Science\* EDE 4113 EDE 4123 Teach Elem & Mid Level Mathematics\* RDG 4133 Integrating Lang. Arts Instruct in Content Areas\*

Elem/Middle Level Teaching Internship\* K-6/7-8 General Elementary Certification

12 or more hours Concentration Electives\*\*

N-1/K-3/6 Elementary and Early Childhood Certification

18 hours Early Childhood Specialization\*\*

#### Total hours needed for major: 123

Teach Elem & Mid Level Social Studies\*

Elem/Middle Level Teaching Internship\*

Managing the Elem & Mid Level Classroom\*

Requires admission to Teacher Education.

EDE 4143

EDE 4883

EDE 4886

EDE 4896

- Two subject matter concentrations of 21 hours each are required. See advisor
- See advisor and Elementary Education advising worksheet for Early Childhood requirements

#### SECONDARY EDUCATION

It is the purpose in the secondary education area to educate students to teach the academic subjects in grades 7-12, inclusive; to furnish professional courses and experiences for those desiring to teach the following subject areas; and to collaborate with the other schools of the University in matters of teacher education.

Licensure for a secondary education degree includes grades 7-12 in the following content areas; English, Speech, Foreign Language, Mathematics, Science, and Social Studies.

Through its graduate program in secondary education, including in-service 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, Educational Specialist and the Doctor of Education and Doctor of Philosophy.

#### **ENGLISH EDUCATION (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.

#### **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR ΕN 1163 Accelerated Comp I English Comp II OR EN 1113

ΕN 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1313 College Algebra MA higher than Algebra

Science (6 hours)

BIO Science with lab (see University Core) Physical Science with lab (see University Core)

Math/Science Elective (3 hours)

See University Core

Humanities (6 hours)

HI 1063 Early US History HI 1073 Modern US History

Fine Arts (3 hours)

3 hours See University Core

Social/Behavioral Sciences (6 hours)

See University Core

#### **Major Core**

Practicum in Secondary Ed EDS 3411 EDF 3333 Social Foundations of Ed

EDX 3213 Psych and Education of Except Child & Youth

RDG 3513 Developing Reading Strategies\*

EDE 3343 Teaching Adolescent Lit\*

Human Development/Learning\* EPY 3143

EDF 4243 Planning for the Diversity of Learners\*

EPY 3253 Evaluating Learning\*

Secondary Lang Arts Education\* EDS 3673

EDS 4673 Methods of Teaching Lang Arts\*

EDS 4873 Sem in Managing Sec. Class\*

Teaching Internship in Second Ed\* EDS 4886 EDS 4896 Teaching Internship in Second Ed\*

**Content Area** 

ΕN 2213 English Literature I

English Literature II ΕN 2223

ΕN 2243 American Literature I

2253 American Literature II EN

2273 World Literature I OR ΕN

2283 World Literature II EN

ΕN 2203 Intro to Literature

ΕN 3414

Advanced Comp Descriptive English Grammar 3423

ΕN ΕN 4503 Shakespeare I OR

EN 4513 Shakespeare II

History of English Lang OR ΕN 4413

EN 4403 Intro to Linguistics OR

EN 4633 Sociolinguistics

4323 Lit Crit Plato to Present OR EN

ΕN 4353 20th Century Criticism

1403 Intro to Mass Media OR CO

1503 CO Intro to Theatre OR

CO 1223 Intro to Communication Theory

6 hours EN Electives - 3000/4000 level

#### Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Computer Literacy Requirement

Satisfied by successful completion of EDS 4673 and EDF 4243

Satisfied by successful completion of EN 3414

#### Total hours needed for major: 124

Requires admission to Teacher Education.

#### FOREIGN LANGUAGE EDUCATION (FLED)

Major Advisor: William A. Person; Office: 310 Allen Hall

This curriculum is offered for the education of prospective teachers of foreign languages. A minimum of 32 semester hours in one language is required as the first teaching field. A second teaching field requires 18 hours in the second language.

Students should consult the Foreign Language Department if they have questions pertaining to courses in Foreign Languages.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR ΕN

ΕN 1163 Accelerated Comp I

English Comp II OR ΕN 1113

EN 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1313 College Algebra

MA higher than College Algebra (see Univ Core) 3 hours

Science (6 hours)

BIO Science with lab (see University Core)

Physical Science with lab (see University Core)

Math/Science Elective (3 hours)

See University Core

Humanities (6 hours)

EN Lit Sequence (World, Eng or Am) See University Core

EN Lit Sequence (World, Eng or Am) See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PSY 1013 General Psychology

SO 1003 Intro to Sociology

**Major Core** 

EDF 4243 Planning for Diversity of Learners\*

EDF 3333 Social Foundations

EPY 3143 Human Development/Learning\*

EPY 3253 Evaluating Learning\*

EDX 3213 Psy & Ed of Exceptional Child

Rdg Strat Second School\* RDG 3513 Practicum in Secondary Ed\* EDS 3411

EDS 4673 Methods of Teaching Lang Arts\*

Sem in Managing Sec. Class\* EDS 4873

EDS 4886 Teaching Internship in Second Ed\*

EDS 4896 Teaching Internship in Second Ed\*

Content Area

FLF/FLS/FLG or FLL w/lab 6 hours

FLF/FLS/FLG or FLL 18 hours

FLF/FLS/FLG or FLL (adv w/lab) 8 hours

General Core

History Sequence (Western, World, US) 6 hours

see University Core

PS 1113 American Government

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Computer Literacy Requirement

TKT 1273 Computer Applications or other approved course

# Total hours needed for major: 123

Admission to Teacher Education Required

#### **MATHEMATICS EDUCATION (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.

#### **University Core**

English Composition (6 hours)

English Comp I OR 1103 EN 1163 Accelerated Comp I ΕN 1113 English Comp II OR EN

1173 Accelerated Comp II

Mathematics (6 hours)

MA 1713 Calculus I MA 1723 Calculus II

Science (9 hours)

3 hours Biological Science w/lab (see University Core) 6 hours Physical Science (Calculus-based PH or CH 1213 or higher))

Humanities (6 hours)

НІ Early US History 1063 1073 Modern US History HI

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PSY 1013 SO 1003 General Psychology Intro to Sociology

**Additional Core** 

PS 1113 American Government

6 hours EN Literature Electives (see University Core)

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Computer Literacy Requirement - choose one

CSE 1213 Computer Programming w/ Fortran CSE 1233 Computer Programming w/ C

CSE 1273 Computer Programming w/ Java

Writing Requirement

EDF 3413 Writing for Thinking

#### **Major Core**

EDF 4243 Planning for Diversity of Learners\* EDF 3333 Social Foundations of Ed

EDX 3213 Exceptional Child and Youth

Human Development/Learning\* EPY 3143

Evaluating Learning\* EPY 3253

Developing Reading Strategies\* Practicum in Secondary Educ\* RDG 3513

EDS 3411

Secondary Mathematics Educ\* EDS 3633

EDS 4633 Methods of Teaching Mathematics\*

EDS 4873 Seminar in Managing Second Ed Class\*

EDS 4886 Teaching Internship in Second Ed\*

EDS 4896 Teaching Internship in Second Ed\*

#### **Content Area**

MA 2733 Calculus III

MA 2743 Calculus IV

MA 3053 Foundations of Math

MA/ST 3113 Intro to Statistical Inference

MA 3113 Linear Algebra

Modern Algebra MA 3163

MA 3253 Differential Equations I

Foundations of Geometry MA 3463

MA 3513 History of Math

MA 4523 Intro to Probability

# Total hours needed for major: 124

Requires admission to Teacher Education.

#### **BIOLOGY EDUCATION (BIED)**

Major Advisor: Burnette Hamil; 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.

#### **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR Accelerated Comp I EN 1163 ΕN 1113 English Comp II OR

EΝ 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1313 College Algebra

ST 3113 Intro to Statistical Inference

Science (6 hours)

See Science Content Area

Math/Science Elective (3 hours)

See Sciences Content Area

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

#### **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

Human Development/Learning\*

EPY 3143 EPY 3253 Evaluating Learning\*

Secondary Science Ed.\* EDS 3653

EDS 4653 Methods of Teaching Science\*

Sem in Managing Sec. Class\* EDS 4873

EDS 4886 Teaching Internship in Second Ed\*

EDS 4896 Teaching Internship in Second Ed\*

Develop. Reading Strategies\*

RDG 3513

PE 1223 Personal Health

# Content Area - choose 54 hours from the following:+

BIO 1203 Plant Biology

BIO 1504 Principles of Zoology w/lab

BIO 2014 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 Evolutionary Biology BIO 4113

1213 Chemistry I CH

1211 Invest in Chemistry CH

Chemistry II CH 1223

CH 1221 Invest in Chemistry CH 2503 Elem Organic Chemistry

BCH 3613 Elem 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 (CHED)**

Major Advisors: Burnette Hamil; 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.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR ΕN Accelerated Comp I 1163

English Comp II OR EN 1113

ΕN 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 University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

#### Major Core -

EDF 4243 Planning for the Diversity of Learners\*

EDF 3333 Social Foundations of Ed

Practicum in Secondary Ed\* EDS 3411

EDX 3213 Exceptional Child and Youth

EPY 3143 Human Development/Learning\*

EPY 3253 EDS 3653 Evaluating Learning\* Secondary Science Education\*

Methods of Teaching Science\* EDS 4653

EDS 4873 Sem in Managing Sec. Class\*

EDS 4886 Teaching Internship in Second Ed\*

EDS 4896 Teaching Internship in Second Ed\*

RDG 3513 Developmental Reading Strategies\*

Personal Health PΕ 1223

# Content Area - choose 54 hours from the following:

Chemistry I CH 1213

CH 1211 Investigations in Chemistry

Chemistry II 1223 CH

Investigations in Chemistry 1221 CH

CH 2314 Analytical Chem I

4213 CH

Adv Inorganic Chemistry Adv Inorganic Chem Lab 4212 CH

CH 4353 Analytical Chem II

4413 Physical Chemistry I CH Physical Chemistry Lab 4411 CH

CH 4423 Physical Chemistry II

Physical Chemistry II Lab CH 4421

Organic Chemistry I 4513 CH

CH 4511 Organic Chem Lab

CH 4523 Organic Chemistry II

Organic Chem Lab 4521 CH

PH 1063 Descriptive Astronomy

PH 2213 Physics I

2223 PH Physics II

PH 2233 Physics III

BCH 4603 General Biochemistry

MA 1723 Calculus II

MA 2733 Calculus III

# Oral Communication Requirement

Satisfied by 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

Requires admission to teacher education.

#### PHYSICS EDUCATION (PHED)

Major Advisor: Burnette Hamil; 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.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR EN

Accelerated Comp I EN 1163

ΕN 1113 English Comp II OR

ΕN 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1713 Calculus I

MA 1723 Calculus II

Science (9 hours)

See Content Area

Humanities Electives (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

# **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

Human Development/Learning\*

EPY 3143 EPY 3253 Evaluating Learning\*

EDS 3653 Secondary Science Education\*

EDS 4653 Methods of Teaching Science\*

Sem in Managing Sec. Class\* EDS 4873

EDS 4886 Teaching Internship in Second Ed\*

EDS 4896 Teaching Internship in Second Ed\*

RDG 3513 Developmental Reading Strategies\*

PE 1223 Personal Health

# Content Area - choose 54 hours from the following:

Descriptive Astronomy PH 1063

PH 2213 Physics I

PH 2223 Physics II

2233 PH Physics III

PH 3063 Astrophysics

PH 3613 Modern Physics PH

4113 Electronic Circuits PH 4143 Intermediate Laboratory

PH 4213 Intermediate Mechanics

Electromagnetic Fields I PH 4323

PH 4413 Thermal Physics

4513 Intermediate Optics PH

4713 Intro to Quant Mechanics PH

CH 1213 Chemistry I

1211 Investigations in Chem I CH

Chemistry II CH 1223

1221 Investigations in Chem II CH

2733 MA Calculus III MA 2743 Calculus IV

Math or Science Elective 3 hours

#### Oral Communication Requirement

Satisfied by 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

Requires admission to teacher education.

#### SOCIAL STUDIES EDUCATION (SSED)

Major Advisor: Susie 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.

#### **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR Accelerated Comp I EN 1163

EN 1113 English Comp II OR ΕN 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1313 ST 2113 College Algebra Stats for Beh Science OR MA higher than Algebra

Science (6 hours)

Biological Science w/lab (see University Core) Physical Science w/lab (see University Core)

Math/Science Elective (3 hours)

See University Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

PSY 1013 General Psychology SO 1003 Intro to Sociology

**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 EPY 3253 Human Development/Learning\*

Evaluating Learning\*

Developing Reading Strategies\* Secondary Soc. Stud. Educ.\* RDG 3513 EDS 3643

EDS 4643 Methods of Teaching Social Studies\*

EDS 4873 Sem in Managing Sec. Class\*

EDS 4886 Teaching Internship in Second Ed\* EDS 4896 Teaching Internship in Second Ed\*

**Content Area** 

EC 2113 Prin of Macroeconomics

EC 2123 Prin of Microeconomics

Elements of Physical Geography or GR 1114

approved GR elective

GR 1123 Intro to World Geography

Early US History HI 1063

HI 1073 Modern US History

World History before 1500 HI 1163

НІ 1173 World History since 1500

Mississippi History HI 3333

HI elective (3000 level or above) 3 hours

HI, PS, EC, or GR Elective (3000 level or above) HI, PS, EC, or GR Elective (3000 level or above) HI, PS, EC, GR, PSY or SO Elective 3 hours 3 hours

3 hours

(3000 level or above)

The Ancient Near East OR

4903 HI The Far East

PS 1113 American Government 1513 Comparative Government

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Computer Literacy Requirement

TKT 1273 Computer Applications or other approved course

Satisfied by successful completion of EDS 4643

#### Total hours needed for major: 124

Admission to Teacher Education required

#### **SPEECH EDUCATION (SPED)**

Major Advisor: William A. Person; 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.

# **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR Accelerated Comp I OR EN 1163

ΕN 1113 English Comp II OR ΕN 1173 Accelerated Comp II OR

Mathematics (6 hours)

MA 1313 College Algebra

MA higher than College Algebra (see University Core)

Science (6 hours)

Biological Science w/lab (see University Core)

Physical Science w/lab (see University Core)

Math/Science Elective (3 hours)

See University Core

Humanities (6 hours)

EN Lit Sequence - World, Eng, or Am (see University Core)

EN Lit Sequence - World, Eng, or Am (see University Core)

Fine Arts (3 hours)

CO 1503 Intro to Theatre

Social/Behavioral Sciences (6 hours)

PSY 1013 General Psychology

PS 1113 American Government

**Major Core** 

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\*

Developing Reading Strategies\* RDG 3513

EDS 3411 Practicum in Secondary Ed\*

EDS 3673 Secondary Lang. Arts Educ.\* Methods of Teaching Language Arts\* EDS 4673

EDS 4873 Sem in Managing Sec. Class\*

EDS 4886 Teaching Internship in Second Ed\*

EDS 4886 Teaching Internship in Second Ed\*

# **Content Area**

CO 1223 Communication Theory

1403 CO Introduction to Mass Media

CO 2013 Voice and Articulation

2213 CO **Small Group Communication** 

CO 2253 Interpersonal Communication

2333 CO TV Production

CO 2413 Introduction to News Writing and Reporting

2503 CO Acting

2524 Stagecraft and Lighting OR CO

Makeup and Costuming CO 2544

2613 Intro to Oral Interpretation CO

CO 3833 Interviewing

Elements of Persuasion CO 4253

4524 Directing OR CO

Summer Theatre Workshop OR CO 2574

Theatre Practicum 1513 CO

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

HI Sequence Elective (Western, World, or US) 3 hours (see University Core)

# Total hours needed for major: 123

Requires admission to Teacher Education

# Department of KINESIOLOGY

Interim Department Head: Associate Professor Joseph A. Chromiak Office: 216 McCarthy Gym Undergraduate Coordinator: Ben Abadie Office: 237 McCarthy Gym

The Department of Kinesiology offers four undergraduate concentrations: Teaching/Coaching Education (TCED), Fitness Management (FMGT), Clinical Exercise Physiology (CLEP), and Sport Communications (SPCO).

Community college transfer hours not to exceed 62 semester hours may be applied to the Physical Education degree program.

All concentrations require the specified course requirements cited within the University Core 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.

#### **University Core**

English Composition (6 hours) 1103 English Comp I OR EΝ Accelerated Comp I EN 1163 ΕN 1113 English Comp II OR EΝ 1173 Accelerated Comp II Mathematics (6 hours) MA 1313 ST 2113 College Algebra Introduction to Statistics or Math above MA 1313 Science (9 hours) BIO 1123 Animal Biology with lab BIO 1004 Anatomy and Physiology with lab BIO 1023 Plants and Humans (Req for TCED & SPCO) CH 1043 General Chemistry (Req for FMGT & CLEP) Humanities (6 hours) HI 1063 or HI 1073 (or other sequence) 3 hours

3 hours Fine Arts (3 hours)

PE 1123 History and Apprec. of Dance

Social Sciences (6 hours)

PSY 1013 General Psychology Marriage and Family (Req for TCED) SO 1203 EC 2113 Prin of Macroeconomics (Req for FMGT)

Intro to Sociology (Req for CLEP) SO 1003

**Major Core** 

3303 Exercise Physiology I PE PΕ 3213 Emergency Health Care

Oral Communication Requirement

1003 Fundamentals of Public Speaking CO

Computer Literacy Requirement

TKT 1273 Computer Applications or other approved course (not required for TCED)

Literature - EN 2203, 2213, 2223, 2243 or 2253

Writing Requirement

EDF 3413 Writing for Thinking (TCED, CLEP and FMGT) CO 3423 Feature Writing (SPCO)

# Choose one of the following concentrations:

# Teaching/Coaching Concentration

Major Advisors: K. Randell Foxworth, Debby Funderburk, Brett Holt, Paul Rukavina, Kevin Stefanek and Glen Young

The teaching coaching concentration requires 124 semester hours of prescribed courses to complete the Bachelor of Science in Physical Education. The curriculum is designed to meet the need of students interested in becoming physical education teachers and coaches. The teaching block 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.

> PΕ 1112 **Teaching Team Sports**

Teaching Individual and Dual Sports PE 1122

PE 1132 **Teaching Lifetime Activities** Teaching Rhythms PE 1142 PE 1223 Personal Health PE Intro to Physical Education 1313 3133 Adapted Physical Education PE PE 3153 Methods of Elementary Physical Education PE 3183 Psychology of Sport and Exercise PE 3223 Motor Development and Movement PE 4163 Prin & Meth of Secondary Health & PE\* PE 4173 Tests and Measurements\* PE 4233 Biomechanics PE 4853 Motor Learning and Skill Analysis\* School Health Education\* 4883 PE Choose two of the following (4 hours): PΕ 3422 Coaching Football PE 3432 Coaching Basketball PE Coaching Softball and Baseball 3452 Professional Education Courses- 30 hours Social Foundations in Ed EDF 3333 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\* Professional Seminar in PE & Athletics\* PE 4873 4886 Teaching Internship in Physical Education\* PE PE 4896 Teaching Internship in Physical Education\*

#### Total hours needed for major: 124

Requires full admission to Teacher Education

# **Fitness Management Concentration**

Major Advisors: Ben Abadie, Greg Drye and Holly Wiley

The fitness management concentration provides a basic understanding of the science behind physical fitness and the knowledge to implement effective fitness programs. This concentration also provides students a basic preparation in business to meet the economic challenges within the profession. The students are prepared to work as fitness instructors, exercise specialists, strength and conditioning specialists, and directors or managers of wellness and fitness centers in hospitals and corporate settings.

> ACC 2013 Principles of Financial Accounting 2123 Principles of Microeconomics EC 2293 Individual and Family Nutrition HS MGT 3513 Intro to Human Resource Mgt MKT 3013 Principles of Marketing Advertising MKT 4123 PE 1213 Intro to Exercise Science PE 1223 Personal Health 2003 Foundations of Health Education PE PE 3173 Measurement & Eval. in Exercise Science Psychology of Sport & Exercise PE 3183 PE 3273 Athletic Training PE 3623 Exercise Physiology II Fitness Programs and Testing Procedures PE 4113 Exercise Programs for Special Pop PF 4133 PE 4153 Training Techniques for Exercise and Sport Exercise and Weight Control PE 4183 PF. 4210 Internship (1-6 hours)

4233 PE Skill Elective (Choose two)

PE

PΕ 1041 Aerobics

PE 1131 Fitness Walking and Jogging

Biomechanics

PE Strength Training 1361

PE Electives 4 hours Free Electives 6 hours

Total hours needed for major: 124

# **Clinical Exercise Physiology Concentration**

Major Advisors: Trey Hoyt, John Lamberth and Lee Ann Joe

The Clinical Exercise Physiology concentration is designed as a professional preparation program of study that enables students to work in clinical settings as exercise specialists in cardiac rehabilitation and pulmonary rehabilitation. Students are equipped as exercise specialists in a variety of unique areas, such as exercise programs for individuals with diabetes, orthopedic limitations, arthritis, cancer, osteoporosis, renal failure, obesity, as well as programs for the elderly and pregnant women. The Clinical Exercise Physiology concentration also provides students with the essential information necessary to continue their academic career in other allied health professions such as Physical or Occupational therapy. Students electing to pursue Pre-OT or Pre-PT should consult their advisor for approved courses.

```
PE
            1213
                   Introduction to Exercise Science
            1223
                   Personal Health OR
       PE
        BIO 2004 Human Anatomy
       PE
            2003 Foundations of Health OR
        BIO 2014 Human Physiology
             2603
                   Medical Terminology
       PE
             2613
                    Exercise Electrocardiography
       PE
             3173
                   Measurement and Evaluation in Exer Science
       PE
             3183
                    Psychology of Sport & Exercise
                   Athletic Training
Exercise Physiology II
       PE
             3273
       PE
             3623
       PE
             3633
                    Rehabilitation Techniques
       PΕ
             3643
                    Appl Anatomy for Allied Health Sciences
       PE
            4113
                    Fitness Programs and Testing Procedures
       PE
            4133
                    Exercise Programs for Special Pop
       PE
             4183
                    Exercise and Weight Control
       PE
            4233
                    Biomechanics
            4410
                    Clinical Exer Physiology Internship (1-6 hours)
       PΕ
       PΕ
             4603
                    Exercise in Health and Disease
       HS
            2293
                   Individual and Family Nutrition OR
                    approved BIO 3000/4000
PE Skill Electives (Choose 2)*
            1041
                    Aerobics
       PE.
                    Fitness Walking and Jogging
       PE
             1131
       PΕ
            1361
                   Strength Training
PE Electives
                   4 hours (See advisor)
Free Electives
                   9 hours
```

# Total hours needed for major: 124

\* Pre-OT and Pre-PT students have NO PE electives. These students have 18 hours of designated professional school prerequisites. Please consult advisor.

#### **Sport Communication Concentration**

Major Advisor: Robert Zullo

The sport communication concentration is designed to prepare students for the career opportunities in the sport communication industry, including print media, broadcast media, audio visual production, and sport promotions. The program utilizes the strengths and expertise of faculty within the Department of Kinesiology and the Department of Communication. This concentration prepares students for jobs in university and professional sport media departments, sport videography departments, television and radio broadcast media and sport promotions.

Students enrolled in this program will complete a six hour internship. Internship locations depend on the career goals of the student. Students have been placed in internships in private, collegiate, and professional sports settings.

CO	1403	Intro to the Mass Media
CO	1223	Intro to Communication Theory
CO	2333	Television Production
CO	2343	Writing for Radio and TV
CO	2413	Intro to News Writing
CO	3403	Photography
CO	3803	Introduction to Public Relations
CO	3823	Public Relations Copy and Layout
CO	3833	Interviewing
CO	3843	Media Relations
SO	4333	Sociology of Sport
PΕ	1313	Intro to Physical Education
PE	3183	Psychology of Sport and Exercise

```
PE
            3422
                   Coaching Football
            3432
                   Coaching Basketball
       PΕ
      PE
            3452
                   Coaching Softball/Baseball
      PE
            3273
                   Athletic Training
            4173
                   Tests and Measurements
      PE
      PE
           4316
                   Sports Communication Internship
PE Electives (Choose two)
       PΕ
            3133
                   Adapted Physical Education
      PF.
            3223
                   Motor Development and Movement
      PE.
            4233
                   Biomechanics
Free Electives
                   9 hours
```

Total hours needed for major: 124

# 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 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 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.

#### **University Core**

English Composition (6 hrs)

EN 1103 English Composition I OR
EN 1163 Accelerated Composition I
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
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 PE 3213 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

General Electives 2 hours

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 MU 2721 Ear Training III MU 2813 Music Theory IV MU 2921 Ear Training IV Orchestration MU 3333 MU 3412 Conducting MU 3442 Advanced Conducting MU 4313 Form and Analysis MUE 3001 Practicum in Music Education

# Choose one of the following concentrations:

#### **INSTRUMENTAL CONCENTRATION**

MU 2111 Piano Class MU 2121 Piano Class MU 3111 Piano Class MU 3121 Piano Class OR MU 3112 Functional Skills Piano Class Functional Skills Piano Class MU 3122 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

Total hours needed for major: 130

Upper Division Proficiency Exam - 0 hours

#### **VOCAL CONCENTRATION**

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) MÜ 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**

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**

Piano Class MU 2111 Piano Class MU 2121 Piano Class MU 3111 MU 3121 Piano Class OR MU 3112 Functional Skills Piano Class 3122 Functional Skills Piano Class MU 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, LEADERSHIP, and WORKFORCE DEVELOPMENT (TTE), (EDA), (ITS), (TTS)

Interim Department Head: Linda Cornelious Office: 100 Industrial Education Building

# **TECHNOLOGY TEACHER EDUCATION (TTE)**

**Business Technology (BT) Concentration** 

Major Advisor: Connie Forde; Office: 251 IED Building

**Industrial/Technical Education (ITE) Concentration** 

Major Advisor: Connie Forde; Office: 251 IED Building

The Technology Teacher Education program provides teacher preparation with concentrations in Business Technology and Industrial/Technical Education. Schools recruit graduates of the TTE program to teach academic business courses, Business & Computer Technology (BCT), and industrial/technical and vocational courses. Students may also choose to complete certifications in Computer, Career, and Technology Discovery. Specific certifications and/or endorsements include:

- · Business Education Grades 7-12 (Certification #105)
- · Business & Computer Technology (Certification #310)
- · Computer Applications (Certification #111)
- · Cooperative Education (Certification #317)
- · Technology Education (Certification #147)
- · Career Discovery (Certification #996)
- · Computer Discovery (Certification #997)
- · Technology Discovery (Certification #998)

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 MSU advisor for course scheduling.

# **University Core**

English Composition (6 hours)

EN 1103 English Comp I OR

ΕN 1163 Accelerated Comp I

ΕN 1113 English Comp II OR

ΕN 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1313 College Algebra

MA 1323 Trigonometry (required for ITE)

MA higher than College Algebra (for BT)

Science (6 hours)

Lab Science (see University Core)

Lab Science (see University Core)

- PH 1113 and PH 1123 required for ITE concentration

Math/Science Elective (3 hours)

See University Core

Humanities (6 hours)

3 hours US or World History (see University Core)

Literature (see University Core) 3 hours

Fine Arts (3 hours)

See University Core 3 hours

- TKI 2413 required for ITE concentration

Social/Behavioral Science (6 hours)

PSY 1013 General Psychology

2113 Principles of Macroeconomics

1113 American Government

#### **Major Core**

EDF 3333 Social Foundations

Human Develop & Learn Strategies\* EPY 3143

EDF 4243 Planning for the Diversity of Learners\*

EPY 3253 Evaluating Learning\*

Psych of Exceptional Child Practicum in Vocational Educ EDX 3213

TKT 3001 Managing the Secondary Classroom\* EDS 4873

Teaching Internship\* TKT 4886

TKT 4896 Teaching Internship\*

#### Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

#### 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**

The TTE Business Technology concentration prepares students to teach academic business courses (105), Business & Computer Technology (310), as well as the option to add certifications in Computer, Career, and Technology Discovery.

#### **Concentration Requirements**

ACC 2013 Financial Accounting

Managerial Accounting

ACC 2023 BL 2413 Legal Environment of Business

2113 EC Principles of Macroeconomics

EC 2123 Principles of Microeconomics

MGT 3213 Organizational Communications

MKT 3013 Principles of Marketing

TKB 1123 Document Formatting and Info. Processing

TKB 1312 Information Resource Management

Intro to Database Management TKB 2122

TKB 2132 Intro to Spreadsheet Design & Analysis

TKB 2413 Administrative Office Procedures

TKB 3133 Office Management

TKB 4543 Advanced Information Processing

TKT 3153 Teaching Bus Technology\*

Teach Bus Ed Skills Subjects\* TKT 3173

TKT 4143 His/Phil of Voc Ed

TKT 4213 Teach Basic Bus Subj

TKT 4743 Electronic Desktop Publishing

#### Total hours needed for major: 124

Requires admission to Teacher Education.

# Industrial/Technical Education Concentration

The TTE Industrial/Technical Education concentration prepares students to teach industrial/technical and vocational courses (147), as well as the option to add certifications in Computer, Career, and Technology Discovery.

# **Concentration Requirements**

Computer Applications TKT 1273

Ind Wood Process TKI 1223

TKI 1813 Bas Ind Elec & Electronics

TKI 2323 Forg, Weld & Found

2813 Bas Ind Elec & Electronics II TKI

TKI 3043 Industrial Safety

TKI 3103 Adv Ind Elec & Electr

Mach Metal Processing 3183 TKI

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

Manufacturing Tech 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.

#### **EDUCATIONAL LEADERSHIP (EDA)**

Coordinator: Jerry Mathews; Office: 214 IED Building

The programs in educational administration 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 leaders for positions of leadership in elementary, middle, and secondary schools, and in central offices. The department also provides training for community college administrators.

Administration and supervision programs are offered leading to the Master of Science degree, an MAT in Community Colleges, the Educational Specialist, the Doctor of Education, and the Doctor of Philosophy degrees.

#### INFORMATION TECHNOLOGY SERVICES (ITS) non-teaching

Major Advisors: Connie Forde, Room 251; Chien Yu, 259; Vicki Keel, 114; Teri Brandenburg, 260; Kui Xie, 103.

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 user support and information project management.

Minor in General Business Administration. By completing the business requirements for the ITS degree, students may be eligible to receive a minor in General Business Administration from the College of Business. ITS majors interested in a minor in general 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.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR

ΕN 1163 Accelerated Comp I

English Comp II OR EN 1113

ΕN 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1313 College Algebra

ST 2113 Intro to Statistics

Science (6 hours)

Natural Science w/lab

Natural Science w/lab

Math/Science Elective (3 hours)

See University Core

Humanities (6 hours)

3 hours US or World History - see University Core

3 hours Literature - see University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Science (6 hours)

PSY 1013 General Psychology

PS 1113 American Government

#### **College Core**

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 MGT 3213 Org. Comm.

# **Major Core**

**Business Courses** 

ACC 2013 Financial Accounting

ACC 2023 Managerial Accounting

2413 Legal Environment of Business BL

2113 E.C. Principles of Macroeconomics EC 2123 Principles of Microeconomics

MGT 3114 Principles of Management and Production

Organizational Communication MGT 3213

MGT 3513 Human Resource Management

BIS 1733 Visual Basic Applications

BIS 3233 Intro to Mgt Information Systems

#### Technology Courses

TKB 1123 Document Formatting/Information Processing

TKB 1312 Information Resource Management

TKB 2122 Intro to Database Management

TKB 2132 Intro to Spreadsheet Design TKB 2413 Administrative Office Procedures

Office Management TKB 3133

TKT 3213 TKT 3463 Call Center Management

Computer Repair & Maintenance

TKT 3623 Design Tech Training

TKB 4283 Adv Office Systems

TKT 4343 Info Tech Project Management

TKB 4543 Advanced Info Processing

TKT 4563 Intro to Data Networks

TKB 4583 Graphics/Web Design

Del/Eval Tech Training TKT 4623

TKT 4683 Senior Seminar TKT 4743 Electron Desktop Publishing

TKT 4753 Presenting with Media

Total hours needed for major: 124

# INDUSTRIAL TECHNOLOGY (INDT) non-teaching

Major Advisors: Dr. John Wyatt, Office: 110 IED Building; Mickey Giordano, Room 113; and Jerry Mize, Room 111

This curriculum is designed for students who want to prepare for employment leading to supervisory and management positions in the production 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 their 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 an expertise 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 emphasis 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 a faculty advisor for course scheduling.

The INDT bachelor's degree requirements include a cumulative and MSU grade point average of 2.50 on all courses considered in the major. "Major" courses are defined as those courses listed on the INDT curriculum sheet with the following course symbols: TKI, MGT, MKT or TR.

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 General Business Administration or Marketing.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR EN

EN 1163 Accelerated Comp I

EN 1113 English Comp II OR

Accelerated Comp II EΝ 1173

Mathematics (9 hours)

College Algebra MA 1313

Trigonometry MA 1323

MA 1613 Calculus for Business & Life Science Science (6 hours)

			Survey of Chemistry I
]	PH	1113	General Physics w/lab
Humani	ties (	6 hours	)
	See U	Iniversi	ty Core
Fine Art	ts (3 l	nours)	
	,	Jniversi	ty Core
Social/E	Behav	ioral Sc	cience (6 hours)
	See U	Iniversi	ty Core (EC 2113 & EC 2123 recommended)
Major (	Core		
]	PH	1133	General Physics w/lab
			Intro to Industrial Technology
	ΓKΙ	1223	Ind Wood Proc
			Basic Ind Elec & Electronics I
-	ГКІ	2113	Intro to PLC/CNC Programming
-	ГКІ	2323	Forg, Weld, & Found
-	ГКІ	2813	Basic Electricity & Electronics II
			Industrial Safety
-	ГКІ	3063	Ind Human Relations
	ΓKΙ	3103	Adv Ind Elec & Electronics
	ΓKΙ	3183	Mach Metal Processing
-	ГКІ	3223	Ind Materials Tech
	ΓKΙ	3343	CAD/CAM
	ΓKΙ	3363	Motion & Time
	ΓKΙ	4113	Ind Fluid Power
	ΓKI	4213	Survey Energy Sources/Power Tech
		4223	Quality Assurance
Writing	Requ	iiremen	t
]	MGT	3213	Organizational Comm (recommended)

# Choose one of the following concentrations:

# **Industrial Distribution Concentration**

BQA 2113	Business Statistics
MKT 3013	Principles of Marketing
MKT 3213	Retailing
MKT 4113	Personal Selling
MKT 4123	Advertising
TR 3313	Principles of Transportation
TR 4393	Transportation Seminar
TKI 3383	Forecasting & Cost Modeling
9 hours	TKI or TR Electives - See advisor

Total hours needed for major: 123

# **Industrial Automation Concentration**

ACC 2013	Principles of Financial Accounting
BL 2413	Legal Env of Business
BQA 2113	Business Statistics
MGT 3114	Principles of Production & Management
TKI 3383	Forecasting & Cost Modeling
TKI 4103	Ind Control Systems
TKI 4203	Automated Systems
TKI 4303	Industrial Robotics
TKI 4233	Maintenance Management
6 hours	TKI Electives - See advisor

# Total hours needed for major: 123

# Manufacturing & Maintenance Management Concentration

ACC 2013	Principles of Financial Accounting
BL 2413	Legal Env of Business
BQA 2113	Intro Bus Statistics
MGT 3114	Prin of Management & Production
TKI 4103	Ind Control Systems
TKI 4233	Maintenance Management
TKI 4263	Manf Tech & Proc
TKI 3383	Forecasting & Cost Modeling
TKI 4363	Manufacturing Systems
6 hours	TKI Electives - See advisor

Total hours needed for major: 123

# The James Worth Bagley College of Engineering

KIRK H. SCHULZ, Dean of Engineering and Earnest W. and Mary Ann Davenport, Jr. Chair kschulz@bagley.msstate.edu

Donna S. Reese, Associate Dean for Academics and Administration dreese@bagley.msstate.edu

Roger L. King, Associate Dean for Research and Graduate Studies and William L. Giles Distinguished Professor rking@bagley.msstate.edu

> ROBERT A. GREEN, Undergraduate Coordinator Office: 160 McCain Telephone: (662) 325-2267 green@bagley.msstate.edu

Offices: 250 McCain Telephone: (662) 325-2270
Mailing Address: Box 9544 Mississippi State, MS 39762-9544
College of Engineering Web page: http://www.bagley.msstate.edu

#### **GENERAL INFORMATION**

The James W. 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 College consists of eight academic departments and many research centers including:

Department of Aerospace Engineering

Department of Agricultural 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

Center for Advanced Vehicular Systems (CAVS)

Center for Computer Security Research Center

Center for DoD Programming Environment and Training (PET)

Computational Simulation and Design Center (SimCenter)

Institute for Clean Energy Technology (ICET)

High Voltage Laboratory

Raspet Flight Research Laboratory

The Bagley College has the mission to provide programs of excellence in teaching, research, and outreach and the vision to be nationally known for innovative programs. To accomplish the mission the College has established the following specific objectives:

- 1. Excellence in engineering education with enhancements for the 21st century
- 2. Highly robust and relevant fundamental and applied research
- Robust, multidimensional outreach to industry, government, the K-12 and community college systems, and the citizens of Mississippi
- Effective personal and professional development for faculty and staff
- Appropriate facilities for a modern, comprehensive engineering program
- Active partnerships with business, industry and government to foster an environment conducive to economic development
- 7. Enhanced national image and reputation of the college and university

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 en-

hancements ensure that Bagley engineering graduates are highly sought after by employers and will continue to be successful.

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.

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 a position with the leading companies or further their education 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. All engineering programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). Computer Science is accredited by the Computing Accreditation Commission of ABET.

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.

The University Core Curriculum, published in this Bulletin, determines the general education component.

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:

- $\bullet$  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 22 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 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 during the summer prior to attending Mississippi State. These courses may be taken either at Mississippi State, at a Mississippi 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. 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.

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 degree-granting 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 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 a two-year community or junior college.

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 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. Information on the computer specifications, special pricing which may be available, and departmental requirements 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.

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 will 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 expected 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. For graduation with a bac-

calaureate degree from the Bagley College of Engineering, in addition to meeting the quality-point requirements of the University, candidates must have no less than a 2.00 cumulative GPA on all courses taken at Mississippi State University and applied to meeting degree requirements. 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 will 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.

Correspondence 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 correspondence be approved.

No courses taken under the pass/fail option may be used to satisfy degree requirements.

#### **COMPUTATIONAL ENGINEERING**

Computational engineering is the application of computational methods and high-performance computing to solve large-scale, complex engineering problems. It addresses problems that cannot be solved easily by analytical means and that are too difficult or costly to model physically through experiments.

Such problems must have precise mathematical statements, require knowledge of the discipline, and be of significant scope. Examples include the following: analyzing the air flow around an aircraft or missile in order to optimize design for performance and efficiency; analyzing the behaviors of electromagnetic fields; studying the movement of pollution through ground water aquifers; or predicting global weather patterns.

The Bagley College of Engineering offers both Master's and Ph.D. Degrees in computational engineering. Students interested in these programs should refer to the Mississippi State University Graduate Bulletin. To prepare for the computational engineering graduate degree, a student should pursue a bachelor's degree in an engineering discipline, mathematics, or a physical science such as physics or chemistry.

#### **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 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 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:

o rerui	ca to L	avironmental Engineering metading.
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 College of Engineering, especially those in Agricultural and Biological Engineering, Chemical Engineering, and Civil and Environmental Engineering.

# 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 College of Engineering at Mississippi State University. Through an endowment by alumnus Jack Hatcher and the support of the Robert M. Hearin Foundation of Jackson, Mississippi, we have established a multi-level engineering entrepreneurship program to serve students with different degrees of interest. The base 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 recognize opportunities and help instill the confidence to start entrepreneurial 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 and Industry 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 and industry. 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 2103 Prin Financial Accounting

EC 2123 Microeconomics

IE 3913 Engineering Economy

MKT 3323 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 Industry 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@engr.msstate.edu

#### **ENGINEERING STUDY ABROAD PROGRAMS**

(See International Study Programs)

#### ADVANCED-LEVEL PROFESSIONAL PROGRAMS

#### 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 ERC (formerly the Engineering Research Center). 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 (ERC), 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 3163 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

WF 4253/6253 Elective GIS & GPS in Wildlife and Fisheries Mgt. Special Topics in applications areas approved by the Technical Committee of GRI and 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 materials-related 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 are typically:

- (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 freshman Chemistry (CH 1213, CH 1223), its associated laboratories (CH 1211, CH 1221), freshman 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, either as a matriculated or non-matriculated student.

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

CE 3313 Construction Materials

CHE 3413 Engineering Materials

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
<b>ECE</b>	4243/6243	Physical Electronics
T-13 6	1100/6100	3.5 1

EM 4133/6133 Mechanics of Composite Materials

FP 4323/6323 Wood Physics PH 3613 Modern Physics

Elective Special topics: Courses under development related to basic materials properties such as: Ceramics, Physical 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 Corrosion of Biomedical Implants ABE 8314 ABE 8324 Failure Analysis of Metallic Medical Implant CHE 4423/6423 Fundamentals of Industrial Corrosion EPP 8144 Transmission Electron Microscopy EPP 8223 Scanning Electron Microscopy 4423/6423 Mechanical Properties of Wood ME 4453/6453 Lubrication 4413/6413 Casting and Joining ME ME 4423/6423 Machining and Forming 4813/6413 Introduction to Solid State Physics PH

For further details about the program and a current listing of allowed courses, please contact the Office of the Dean of Engineering at (662) 325-2270 or visit www.bagley.msstate.edu.

# **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 nations and the state of Mississippi 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 and job performance.

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:

Persons working in industry in a software development or maintenance function and who wish to improve their technical background.

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.

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 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 pre-requisite 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

#### **Issuance of Certificates**

Upon a candidate's successful completion of the program's requirements, the 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.

#### **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 undergraduates and graduates 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 high end 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

# **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 will be handled 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 following:

BIS 4513/6513 Local Area Networks

BIS 4113/6113 BIS Security Management

CSE 4153/6153 Data Communications and Networks

CSE 4733/6733 Operating Systems

CSE 4504/6504 Database Management Systems

(MIS students may substitute BIS 3753 or BIS 8313)

Any advanced (4000-level or above) IA course approved by the program administrator.

#### **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 students' 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 De-

partment of Industrial and Systems Engineering will validate completion of all requirements and forward a certification recommendation to the Dean of Engineering.

#### 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).

# **GRADUATE STUDY**

Graduate study leading to the Master of Science degree is available 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 a thesis (6 hours). The Master of Science (non-thesis option) is also offered with 33 semester hours of graduate study required. Computer Science also requires two semester hours of seminar for Computer Science. The Doctor of Philosophy degree is available in all departments, either through a composite inter-disciplinary program or through a specific major. In addition, interdisciplinary Ph.D. degrees are offered in Computational Engineering and Applied Physics.

Graduate teaching assistantships are available in most of the teaching departments in the College of Engineering, and a number of graduate research assistantships are available. Bagley, Barrier and Honda graduate Fellowships also are 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 receiving GEM Fellowships may elect to pursue graduate studies in the College of Engineering at Mississippi State University. Engineering students interested in graduate study should consult with their department heads, the Associate Dean for Research and Graduate Studies in the Bagley College of Engineering, and The Office of the Graduate School.

# **OFF-CAMPUS CENTERS and PROGRAMS**

#### Vicksburg Graduate Center

The Bagley College of Engineering also offers the Master of Science degree in Civil Engineering, Chemical Engineering, Electrical Engineering, Computational Engineering, Computer Engineering, Computer Science and Mechanical Engineering through the Vicksburg Center for Graduate Study in Engineering, in cooperation with the United States Army Engineering Research and Development Center. All requirements for the degree may be satisfied in the Vicksburg Center. Fifteen semester hours may be taken in courses taught by adjunct faculty, with an additional requirement of nine semester hours to be taken in courses taught by the regular, full-time engineering faculty at Mississippi State University. Thesis research and thesis requirements may be met in the Vicksburg Center through the appointment of a thesis director from the adjunct engineering faculty in Vicksburg and a major professor who is a member of the regular, full-time engineering faculty on the campus of Mississippi State University.

In addition to the courses taught on-site, students may register for courses delivered electronically in Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science, Electrical Engineering, Industrial Engineering and Mechanical Engineering.

#### Center of Higher Learning at the Stennis Space Center

This center, located at the John C. Stennis Space Center in Hancock County, provides students the opportunity to pursue master's degrees from Mississippi State University in Civil Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering, as well as a certificate in Software Engineering. Course materials are delivered by distance learning technologies - Internet delivered video, interactive video teleconferencing, and video tape. A dedicated student may earn a master's degree in three or four years. Students must be fully admitted for graduate studies in one of the participating programs and follow a plan of study approved by the department.

Students may register for courses at the Center of Higher Learning. Courses are delivered by distance education technology during the enrollment period; corresponding sections of the same courses are taught simultaneously on the main campus in Starkville.

In addition to courses offered as part of the four degree programs, courses in other engineering disciplines may be offered upon request.

For more information on courses offered through distance education in the College of Engineering, contact Anthony Lowe, Distance Learning Program Coordinator; Division of Academic Outreach & Continuing Education; Memorial Hall, Mississippi State University, MS 39762-9634. Mailstop: 9634; phone: (662) 325-2655; email: alowe@aoce.msstate.

# Department of AEROSPACE ENGINEERING (ASE)

Department Head: Professor Anthony J. Vizzini 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 what our graduates are expected to be able to accomplish during the first several years following graduation. Our gradu-

- 1. Demonstrate a good understanding of mathematics, basic physical sciences, and engineering sciences.
- 2. Show proficiency in the use of analytical and problem-solving
- 3. Be able to apply their design skills.
- 4. Be proficient in written, oral, and graphic communication.
- 5. Demonstrate an appreciation for the arts, humanities, and social sciences.
- 6. Conduct themselves ethically and professionally, and exhibit personal integrity and responsibility in their actions.

- 7. Be able to work in a multi-disciplinary team environment, and lead when necessary to accomplish a given mission.
- 8. Appreciate the need for lifelong learning.

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 under the EC 2000 criteria by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR ΕN

EN 1163 Accelerated Comp I

ΕN 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 University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

#### **Major Core**

Math and Basic Science

MA 1713 Calculus I

MA 1723 Calculus II MA 2733 Calculus III

Calculus IV

MA 2743 MA 3253 Differential Equations I

3 hours Math Elective CH 1213 Chemistry I

1211 CH Investigations in Chemistry I

PH 2213 Physics I

2223 PH Physics II

2233 PH 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

Intro to Flight Mechanics ASE 1023

ASE 2013 Astrodynamics, Propulsion, and Structures

Mechanics of Deformable Structures ASE 3213

Aerospace Structural Analysis ASE 3223 ASE 3333

Aerothermodynamics Aerospace Engineering Lab I ASE 4113

ASE 4123 Aerospace Controls

ASE 4343 Compressible Aerodynamics

ASE 4623 Aerospace Structural Design

ASE 4721 Aerospace Engineering Lab II

6 hours Technical Electives\*

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

GE 3513 Technical Writing

Computer Literacy

Fulfilled by ASE 1013, ASE 1023 and ASE 2013

#### Choose one of the following concentrations:

#### Aeronautics Concentration (15 hours)

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 (15 hours)**

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

\* Electives may be selected from any of the department's listing of Advanced Undergraduate/ Graduate Courses, or EM 4123 or EM 4133. Other courses in computer science, physical science, mathematics, and engineering may be elected with approval of the department. Any required course in one concentration qualifies as a technical elective for a student in the other concentration.

# Department of AGRICULTURAL and BIOLOGICAL ENGINEERING (ABE)

Department Head: Professor William Batchelor Office: 100 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 systems. 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.

Agricultural Engineering Emphasis. An Agricultural Engineering emphasis is offered in the Biological Engineering curriculum in the Agricultural and Biological Engineering Department, which is jointly administered by the College of Engineering and the College of Agriculture and Life Sciences. The student can tailor a specialization in agricultural engineering by choosing the precision agriculture/ag systems emphasis in the Biological Engineering curriculum. Advisors in the department will assist students in selecting courses consistent with the agricultural engineering interests of the student. The Biological Engineering curriculum below should be consulted for required curricular courses.

Environmental Emphasis. Biological engineers can engage in environmental conservation and improvement efforts by monitoring environmental variables, designing sustainable environments, and designing treatment facilities for industrial and other wastes. Students pursuing this emphasis area will earn a B.S. degree in Biological Engineering and be eligible for employment by industry, consulting firms, and governmental agencies such as state departments of environmental quality and the Environmental Protection Agency.

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 under the EC 2000 criteria by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700.

## **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR

EΝ 1163 Accelerated Comp I ΕN English Comp II OR 1113

EΝ 1173 Accelerated Comp II

Mathematics (9 hours)

See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

#### Major Core

Math and Basic Science

MA 1713 Calculus I

MA 1723 Calculus II

MA 2733 Calculus III 2743 MA

Calculus IV MA 3253 Differential Equations I

1213 CH Chemistry I

CH Investigations in Chemistry I 1211

1223 CH Chemistry II

СН 1221 Investigations in Chemistry II

CH 2503 Elementary Organic Chemistry

CH 2501 Elementary Organic Chemistry Lab

PΗ 2213 Physics I

PH 2223 Physics II

BIO 3304 General Microbiology

BCH 3613 Elementary Biochemistry

#### **Engineering Topics**

EM 3213 Mechanics of Materials

EM 3313 Fluid Mechanics

ABE 1911 Intro to Engineering in Life Sciences

Analytical Methods ABE 2421

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 4812 Principles of Engineering Design

ABE 4122 Biological Engineering Practices Lab

2
ing

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	BioTrtmnt NPS Poll OR
ABE 4323	Phys Sys Biomed Eng
4 hours	BIO Science Elective
3 hours	BIO Science Elective
2 hours	DIO Science Elective or I

BIO Science Elective or Engineering elective

6 hours Approved Engineering Electives

3 hours ABE Elective

## **Biomedical Engineering Concentration**

PH 2233 Physics III BIO 1504 Zoology Restricted BIO Science Elective (see below)\*\* ABE 4523 Biomedical Materials ABE 4613 Biomechanics Restricted Engineering Elective I (see below)\*\* Restricted Engineering Elective II (see below)\*\*

#### Total hours needed for major: 128

- Fulfills Jr./Sr. Writing Requirement.
- Restricted BIO Science Elective: BIO 2103, BIO 3504, BIO 4514, BIO 4413 or BIO 4503. Restricted Engineering Elective: EM 4123, EM 4213, EM 4133, or ME 4833.

Restricted Engineering/Math Elective: ABE 4533, MA 3113, MA 4373, MA 4543, or ECE 3714.

# DAVE C. SWALM SCHOOL of **CHEMICAL ENGINEERING (CHE)**

Director: Professor Mark G. White Associate Director: Professor Cliff George Office: 330 Swalm Chemical Engineering Building

Chemical Engineering is the application of the principles of the physical sciences, together with the principles of economics and team building, to fields that pertain directly to processes and process equipment in which material is treated to effect a change in state, energy content, or composition. The Chemical Engineering profession is quite diversified in terms of industries and opportunities within those industries.

Students graduating from the Dave C. Swalm School of Chemical Engineering are expected to function as chemical engineers that have the potential for far-reaching impacts on the advancement of science and industrial practice. Graduates will receive a broad education that will enable them to become proficient practicing engineers with meaningful, challenging and rewarding careers that impact the strength of the technological and industrial base. In addition, the education that is received in the Swalm School will benefit those who pursue advanced degrees or attend professional school after graduation.

Design experiences are integrated throughout the chemical engineering curriculum, beginning with the Design Concepts for CHE courses taken during the freshman year, continuing through the unit operations and reactor design courses and culminating in a comprehensive design experience in Plant Design taken during the senior year. Students may select the CHE elective, Chemistry elective and two technical electives from among the faculty-approved lists to provide depth in a given area of chemical engineering.

The Chemical Engineering program is accredited under the EC 2000 criteria by the Engineering Accreditation Commission of the accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR ΕN EN Accelerated Comp I 1163 ΕN 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 University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

#### **Major Core**

#### Math 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

Physical Chemistry I CH 4413

Organic Chemistry Lab I CH 4511

CH 4513 Organic Chemistry I Organic Chemistry II 4523 CH

PH 2213 Physics I

PH 2223 Physics II

# **Engineering Topics**

EM 2413 CHE 1101 Engineering Mechanics I

Chemical Engineering Freshman Seminar

CHE 2114 Mass and Energy Balances

CHE 2213 CHE Analysis

CHE 3113 Chemical Engineering Thermodynamics I\*

CHE 3123 Chemical Engineering Thermodynamics II

CHE 3203 CHE 3213 Fluid Flow Operations\* Heat Transfer Operations\*

CHE 3222 Chemical Engineering Laboratory I

Mass Transfer Operations

CHE 3223 CHE 3232 Chemical Engineering Lab II

CHE 3331 Professional Development Seminar

CHE 3413 CHE 4113 Engineering Materials

Chemical Reactor Design

CHE 4134 Process Design

CHE 4223 Process Instrumentation and Controls

CHE 4233 Chemical Plant Design

ECE 3183 Electrical Engineering Systems

ΙE 3913 Engineering Economy I

Chemical Engineering Elective

Chemistry Elective\*\*

6 hours Technical Elective\*\*\*\*

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

## Total hours needed for major: 128

- \* With consent of student's advisor, EM 3313, Fluid Mechanics, may be substituted for CHE 3203. ME 3513, Thermodynamics I, may be substituted for CHE 3113. ME 3313 Heat Transfer may be used in place of CHE 3213.
- \*\*\* To be chosen from among the following list of approved chemistry electives: CH 3213, CH 4213, CH 4303, CH 4423, BCH 3613, BCH 4603, BCH 4613, FP 4023...
- \*\*\*\* To be chosen in consultation with the student's advisor

# Department of CIVIL and ENVIRONMENTAL ENGINEERING (CE)

Department Head: Professor Dennis 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 Engineering Department at Mississippi State University is to provide the student with knowledge and skills needed to enter civil engineering practice, or to continue studies at the graduate level, and who have developed a sense of responsibility to the needs of the professor and the community.

The education program objectives of the Department of Civil Engineering carry out the department's mission by providing an educational environment that will produce graduates who:

- Possess a broad knowledge of the principles and fundamentals of civil engineering and their application, and thus be able to: successfully practice as professional civil engineers; pursue graduate or professional degrees; or engage in other professional careers that involve the application of the engineering method;
- Possess the skills required to achieve success in the multidisciplinary environment of the 21st century, such that they will readily be able to adapt to emerging and evolving technologies, social conditions, professional standards, and career opportunities;
- 3. Possess an understanding and appreciation of the ethnical, societal and professional responsibilities of a civil engineer; and
- Possess the foundation required and an appreciation for the value of continuing professional development in maintaining their professional competence.

The Civil Engineering Program is accredited under the EC 2000 criteria by the Engineering Accreditation Commission of the Accreditation Board for the Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700.

# **University Core**

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 University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

#### **Major Core**

Math 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

PH 2213 Physics I PH 2223 Physics II Engineering Topics

EG 1143 Graphic Communication IE 3913 Engineering Economy I ST 3123 Intro to Stat. Inference ME 3533 Thermodynamics

EM 2413 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 3113 Transportation Engineering

CE 3313 Construction Materials

CE 3413 Soil Mechanics CE 3601 Stress Analysis Lab

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 Design

CE 4903 Civil Engineering Comprehensive 9 hours Civil Engineering Electives

Choose one:

CE 4133 Geometric Design of Highways

CE 4433 Foundations CE 4143 Traffic Engineering CE 4103 Pavement Design

Choose one:

CE 4513 Engineering Hydrology

CE 4873 Water and Wastewater Engineering

CE 4523 Open Channel Hydraulics

Choose one:

CE 4623 Steel Structures

CE 4633 Concrete Structures

Technical Elective (3 hours)

May be approved courses in Eng. Topics and Math/Science

Oral Communication Requirement

Fulfilled in GE

3513 and other CE courses

Writing Requirement

GE 3513 Technical Writing

Computer Literacy

Fulfilled in Engineering Topics courses

Total hours needed for major: 130

# Department of COMPUTER SCIENCE and ENGINEERING (CSE)

Department Head: Professor Julia E. Hodges 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 three specific areas in which we shall seek national prominence: software engineering, artificial intelligence, and high-performance computing/scientific 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.

The Mississippi Alpha Chapter of Upsilon Pi Epsilon, the national computer science honorary society, was chartered at the University in 1973 and juniors, seniors, and graduate students with outstanding aca-

demic records are selected for membership. The department also supports a student chapter of ACM, the national professional society of the computing sciences.

For more information about the computer science or software engineering programs, requirements of double-major programs, careers in computer science and software engineering, or placement of graduates, please contact the Department of Computer Science and Engineering at Box 9637, Mississippi State, MS 39762, at office@cse.msstate.edu, or at (662) 325-2756. View the Computer Science Web pages at http://www.cse.msstate.edu/. For more information about the Computer Engineering program, please see the section on the Department of Electrical and Computer Engineering.

# Computer Science (CS)

Major Advisors: Dr. David A. Dampier and Dr. Andrew Watkins 300 Butler Hall; 313 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:

- The instruction a student receives will be consistent with national norms and will enable the student to become a competent software developer, to understand how computer hardware and software work, and to understand computer science theory.
- 2. The graduate can compete for jobs in the discipline at both the regional and national levels, and will be able to solve technical problems together with co-workers, to use and develop software tools, to communicate effectively in the workplace, and to apply computer science theory to practical circumstances.
- The graduate can compete for admission to graduate programs nationwide, and will be able to continue learning new principles and practices of computing as the field progresses.
- 4. The graduate will understand social and ethical issues that arise from the increased use of technology in society.

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 the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore MD 21202-4012. Telephone: 410-347-7700. http://www.abet.org.

# **University Core**

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 University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

#### **Major Core**

Math and Basic Science

MA 1713 Calculus I MA 1723 Calculus II MA 2733 Calculus III

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 1203 Plant Biology OR

BIO 1504 Principles of Zoology

3 hours Science elective from departmental list

Engineering and Computer Science Topics

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 4733 Operating Systems

CSE 4833 Intro to Analysis of Algorithms

CSE 4713 Programming Languages

CSE 3981 Social & Ethical Issues in Computing

ECE 3714 Digital Devices ECE 3724 Microprocessors

ECE 4713 Computer Architecture

IE 4613 Engineering Stats I 12 hours CSE electives from departmental list

6 hours Technical Electives - see advisor

PHI 1113 Introduction to Logic

6 hours International/Intercultural Studies - see advisor

0 or 1 hour 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

# Total hours needed for major: 128

\* Students taking BIO 1203 and 3 hour science elective need 2 hours of free electives

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 (SE)

Major Advisors: Dr. David A. Dampier and Dr. Andrew Watkins 300 Butler Hall; 313 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 instruction a student receives will be consistent with the software engineering body of knowledge and enables the student to understand the state-of-the-practice engineering of software systems and products and to become a competent software developer, and to understand how software systems are designed, constructed, and maintained.
- 2. The graduate can successfully compete for software engineering positions in the discipline at both the regional and national levels, and will be successful in the discipline by being able to apply computer science to software engineering processes in practical circumstances.
- 3. The graduate can solve technical problems together with co-workers in a team environment, can use and develop software tools, and apply written and oral communication skills effectively in
- 4. The graduate can compete for admission to graduate programs nationwide, and will be able to continue learning new principles and practices of computing as the field progresses. The graduate is capable of advancing to professional certification, as it becomes available nationwide.
- 5. The graduate will understand and be able to apply social and ethical principles to situations that arise from the increased use of technology in society.

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

The software engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700. http://www.abet.org.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR EN EΝ 1163 Accelerated Comp I 1113 English Comp II OR EN ΕN 1173 Accelerated Comp II

Mathematics (9 hours)

See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

# **Major Core**

Math and Basic Science

MA 1713 Calculus I MA 1723 Calculus II Calculus III MA 2733

Calculus IV OR MA 2743 MA 3053 Foundations of Mathematics

MA 3253 Differential Equations OR

MA 3113 Linear Algebra

CH 1213 Chemistry I

CH Investigations in Chemistry I

1211 2213 Physics I PH PH 2223 Physics II

Plant Biology OR BIO 1203

BIO 1504 Principles of Zoology

# **Engineering Topics**

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

CSE 4214 Intro to Software Engineering

Social & Ethical Issues in Computing CSE 3981

CSE 4733 Operating Systems

CSE 4503 Database Management Systems 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

ΙE 4533 Project Management

ΙE 4613 Engineering Statistics I 3 hours CSE Security Elective

9 hours Technical elective - 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 Sarah A. Rajala Office: 216 Simrall Engineering Building

The specific educational objectives for the Computer Engineering and Electrical Engineering undergraduate programs are that students:

- 1. demonstrate a strong foundation in fundamentals through an applied competence in mathematics, science, computing, and
- 2. demonstrate the ability to apply innovative techniques to address unstructured problems specific to technical specialties in Computer Engineering or Electrical Engineering by identifying and implementing solutions using the proper tools, practical approaches, and flexible thinking;
- 3. interact with others, both individually and within multidisciplinary teams using effective oral and written communication skills and have the ability to deal with both technical and nontechnical subjects when working with peers, supervisors, and the public;
- 4. develop an appreciation for the ethical duties incumbent on a Computer Engineering or Electrical Engineering professional including a commitment to lifelong learning and concern for society and the environment.

#### **COMPUTER ENGINEERING (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 C++ 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 under the EC 2000 criteria by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700.

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.

#### **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR

ΕN Accelerated Comp I 1163

ΕN English Comp II OR 1113

EN 1173 Accelerated Comp II

Mathematics (9 hours)

See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

## **Major Core**

Math and Basic Science

MA 1713 Calculus I

MA 1723 Calculus II

MA 2733 Calculus III

MA 2743 Calculus IV

MA 3253 Differential Equations I

MA 3113 Introduction to Linear Algebra

MA 4533 Probability and Random Processes

Chemistry I CH 1213

CH 1211 Investigations in Chemistry I

2213 PH Physics I

PH 2223 Physics II

**Engineering Topics** 

CSE 1284 Intro to Computer Programming

CSE 1384 **Intermediate Computer Programming** 

CSE 2383 Data Structures and Analysis Algorithms

CSE 2813 Discrete Structures

CSE 3324 Distributed Client/Server Programming

CSE 4153 Data Communications & Computer Networks

CSE 4733 Operating Systems I

CSE 4833 Introduction to Analysis of Algorithms ECE 1002 Introduction to Electrical and Computer Eng

ECE 3163 Signals and Systems

ECE 3413 Intro to Electronic Circuits

ECE 3424 Intermediate Electronic Circuits

ECE 3434 Advanced Electronic Circuits

ECE 3714 Digital Devices and Logic Design

ECE 3724 Microprocessors

ECE 4723 Embedded Systems

ECE 4532 CPE Design I

ECE 4542 CPE Design II

ECE 4713 Computer Architecture ECE 4743 Digital System Design

6 hours Technical Electives\*

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

#### **ELECTRICAL ENGINEERING (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 two-semester 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 under the EC 2000 criteria by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700.

#### **University Core**

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)

See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

#### **Major Core**

Math and Basic Science

MA 1713 Calculus I

MA 1723 Calculus II

Calculus III MA 2733 MA 2743

Calculus IV

MA 3253 Differential Equations I MA 3113

Introduction to Linear Algebra

MA 4533 Probability and Random Processes

CH 1213 Chemistry I

Investigations in Chemistry I CH

1211 2213 Physics I PH PH 2223 Physics II

PH 2233 Physics III

**Engineering Topics** 

CSE 1284 Intro to Computer Programming

CSE 1384 Intermediate Computer Programming

ECE 1002 Introduction to Electrical and Computer Eng.

ECE 3163 Signals and Systems

ECE 3413 Introduction to Electronic Circuits

ECE 3424 Intermediate Electronic Circuits

ECE 3434 Advanced Electronic Circuits

ECE 3313 Electromagnetics I

ECE 3323 Electromagnetics II

ECE 3414 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\*

3 hours Free elective

Professional Enrichment elective\* 3 hours

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

See advisor for approved courses.

# Department of INDUSTRIAL and SYSTEMS **ENGINEERING (ISE)**

Department Head: Professor Royce Bowden 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 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 and systems engineering profession. They were developed to satisfy the needs of the department's constituents: students, employers, alumni and faculty.

The Industrial and Systems 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 seven educational objectives of the Bachelor of Science degree program are stated below.

- 1. The Department of Industrial and Systems Engineering strives to provide excellence in instruction in its undergraduate courses in industrial engineering, using advanced teaching methods and technologies in classrooms, laboratories, and other educational settings.
- 2. The Department of Industrial and Systems Engineering strives to ready its students for a lifelong pursuit of learning.
- 3. 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.
- 4. The Department of Industrial and Systems Engineering expects its students to master important professional skills, including communication, economics, physical and social science, mathematics and statistics.
- 5. The Department of Industrial and Systems Engineering expects its students to interact cooperatively in professional situations with individuals having different cultures, training, education, and interest.
- 6. The Department of Industrial and Systems Engineering expects its students to think independently, to critically examine ideas, and to make discerning professional judgments, whether intellectual, ethical, or aesthetic
- 7. The Department of Industrial and Systems Engineering expects to graduate professionally mature, responsible, and informed citizens.

The faculty and staff strive to provide excellence in instruction in its industrial and systems engineering courses, using advanced teaching methods and technologies in classrooms, laboratories, and other educa-

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 and systems engineering, and culminates in a major design experience in the student's senior year.

The Industrial and Systems Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700.

## **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR

EN 1163 Accelerated Comp I

EN 1113 English Comp II OR

ΕN 1173 Accelerated Comp II

Mathematics (9 hours)

See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See University Core

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Fine Arts (3 hours)
       See University Core
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Social/Behavioral Sciences (6 hours)

PSY 1013 General Psychology

EC 2123 Principles of Micro Econ

# **Major Core**

Math and Basic Science

MA 2743

MA 1713 Calculus I Calculus II MA 1723 MA 2733 Calculus III

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 2223 PH 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** 

Engineering Mechanics I EM 2413 1911 ΙE Introduction to IE

ΙE 3124 Industrial Ergonomics ΙE 3323 Manufacturing Processes

3913 Engineering Economy I IE ΙE 4934 Information Systems for IE

ΙE 4333 Production Control I

ΙE 4513 **Engineering Administration** 

ΙE 4543 Logistics Engineering

ΙE 4613 Engineering Statistics I Engineering Statistics II ΙE 4623

4653 Industrial Quality Control I ΙE

ΙE 4733 Linear Programming ΙE

4753 Systems Engineering & Analysis

4773 Systems Simulation I ΙE

ΙE 4915 Design of Industrial Systems ACC 1203 Basic Industrial Accounting

EG 1142 **Engineering Graphics** 3 hours IE Design Elective\*

6 hours Engineering Science Elective\*\*

#### 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

# Department of MECHANICAL ENGINEERING (ME)

Department Head: Professor Glenn Steele Major Advisor: Ms. Chris Emplaincourt Office: 213 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:

- 1) Demonstrate competence in applying the fundamentals of mathematics, basic sciences, and engineering sciences to the practice of engineering.
- 2) Demonstrate competence in applying modern engineering analytical and experimental methods and tools to the practice of engineering.
- 3) Utilize the engineering approach to problem solving in the design of systems and devices.
- 4) Demonstrate effective oral and written communication skills and the ability to work in teams.
- 5) Demonstrate ethics in engineering practice and exhibit growth in the profession.

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 under the EC 2000 criteria by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore MD 21202-4012. Telephone: 410-347-7700

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR ΕN

EN 1163 Accelerated Comp I

English Comp II\* OR 1113 EN

EN 1173 Accelerated Comp II\*

Mathematics (9 hours)

See Major Core

Science (6 hours)

See Major Core

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

See University Core

 $<sup>^{\</sup>ast}$  Any three-hour industrial engineering course not required in curriculum, except Motion and Time Study (IE 3113).

Courses that can be used for the Engineering Science Elective are EM 2433, EM 3213, EM 3313, ECE 3283 and ME 3533

# **Major Core**

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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
                   Investigations in Chemistry I
      CH 1211
                   Chemistry II*
Physics I*
      CH
            1223
      PH
            2213
      PH
            2223
                   Physics II
      PH 2233
                   Physics III
Engineering Topics
            3913
      ΙE
                   Engineering Economy
      EM 2413
                   Engineering Mechanics I*
      EM 2433
EM 3313
                   Engineering Mechanics II*
                   Mechanics of Fluids*
                   Mechanics of Materials*
      EM 3213
      ECE 3183
                   Electrical Engineering Systems*
      ECE 3283
                   Electronics
                   Modeling and Manufacturing
      ME 3133
      ME
                   Thermodynamics I*
Thermodynamics II
            3513
            3523
      ME
                   Introduction to Mechanical Engineering
      ME 1111
      ME
            3113
                   Engineering Analysis*
      ME 3313
                   Heat Transfer
                   Mechanics of Machinery
      ME 3423
                   Experimental Orientation
Materials for Mechanical Engineering Design
Experimental Techniques I
      ME
            3701
      ME
            3403
      ME 4721
      ME
            4731
                   Experimental Techniques II
                   System Dynamics
      ME 3613
      ME 4403
                   Machine Design
      ME
            4443
                   Mechanical Systems Design
                   Automation of Mechanical Systems
      ME 4643
      ME 4333
                   Energy Systems Design
      6 hours
                   Technical Elective*
Oral Communication Requirement
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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 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

# Keith L. Belli, Associate Dean

111 Thompson Hall Telephone: (662) 325-2778 Mailing Address: Box 9680 Mississippi State, MS 39762-9680

#### **GENERAL INFORMATION**

**Organization**. The College of Forest Resources is composed of the Departments of Forestry, Wildlife and Fisheries, and Forest Products. The College is a part of the Division of Agriculture, Forestry, and Veterinary Medicine.

Graduates receive a Bachelor of Science degree in Forestry or Wildlife and Fisheries Science. Within the Forestry major, there are curricular concentrations in Forest Management, Environmental Conservation, Urban Forestry, Wildlife Management, and Forest Products. Each of these curricular concentrations in the forestry major meet the requirements for the professional degree in Forestry. Within the Wildlife and Fisheries Science major there are curricular concentrations in Fisheries and Aquaculture Science, Wildlife Science, Conservation Law Enforcement, and Wildlife Pre-Veterinary Medicine. Each of these curricular concentrations meet requirements for the professional degree in Wildlife by the Wildlife Society or in Fisheries by the American Fisheries Society. Each department offers courses leading to the Master's and Ph.D. degrees.

**Graduate Programs in Forest Resources.** Graduate programs leading to an M.S. or Ph.D. degree are offered in the College of Forest Resources: Departments of Forestry, Forest Products, and Wildlife and Fisheries. 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.

Research. Research is conducted in the Forest and Wildlife Research Center by the Department of Forestry, the Department of Wildlife and Fisheries, and the Department of Forest Products. Professors are employed jointly as professors and research scientists. There is opportunity for students to gain valuable 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 U.S. Forest Service, which operates research programs in Mississippi. Wildlife and Fisheries research also is conducted by a Cooperative Unit of the U.S. Fish and Wildlife Service 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 College of Forest Resources are located in Thompson Hall, a large modern building with excellent facilities for teaching and research in forestry and wildlife and fisheries. The facilities used for research—instruments, apparatus, literature, experimental forests, greenhouses, captive animal facilities and fish ponds—also are valuable in 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 8,000 acres is conveniently close to the campus, managed and regularly used for demonstration, as well as 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.

**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.

**Graduation Requirements.** Course and hour requirements for graduation are those shown in the individual programs of study. Each student is expected to become familiar with the courses and the prerequisites in the curriculum in which he/she expects to graduate and to be responsible for meeting those requirements. He/she is expected to consult a faculty advisor each semester prior to pre-registration. Two semesters prior to graduation, students must complete a graduation audit in the Office of Student Services

The final 32 semester credit hours must be completed in residence on the Mississippi State University campus.

#### 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/WF 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 D cannot be applied. Only two of the 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.

# 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. The educational programs in Forest Management, Wildlife Management, Urban Forestry, and Environmental Conservation leading to the first professional degree in Forestry at Mississippi State University are accredited by the Society of American Foresters (SAF). SAF is 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 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 the five academic concentrations for specialized study offered by the Forestry Major. The five academic concentrations are Forest Management, Environmental Conservation, Urban Forestry, Wildlife Management, and Forest Products. Each of the five concentrations is an integral part of the Forestry Major and is accredited by the SAF. 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 special 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

Degree Requirements: In addition to University and College requirements students must attain a minimum grade of C on the Forestry Major core courses taught within the College of Forest Resources.

#### **University Core**

English Composition (6 hours)

ΕN 1103 English Comp I OR 1163 Accelerated Comp I EN

English Comp II OR EN 1113

EN 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1313 College Algebra or equivalent

ST 2113 Statistics for Beh Sciences OR

BQA 2113 Business Stats Methods I

Natural Science (6 hours)

CH 1043 Survey of Chemistry I

BIO 1203 Plant Biology

Humanities (6 hours)

See University Core

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

FO 4113 Forest Resource Economics

AEC 2713 Intro Food and Resource Economics OR

2113 Intro to Macroeconomics OR

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

BIO 1504 Principles of Zoology EPP 3124 Forest Pest Management 1101 FO Forest Resources Survey

FO 2111 Dendrology Lab

FΟ 2112 Dendrology

FO 2213 Forest Measurements

3012 FO Intro to Forest Communities

FO 3015 Forest Description and Analysis Principles of Silviculture Lab FO 4121

FO 4123 Principles of Silviculture

FΟ 4213 Forest Biometrics

FO 4221 Practice of Silviculture Lab

FO 4223 Practice of Silviculture

FO 4231 Forest Operations and Harvesting Lab

FO 4233 Forest Operations and Harvesting

FO 4313 Spatial Tech in Nat Res Mgt

Forest Resources Management FO 4323

FO 4413 Natural Resources Policy

FO 4423 Professional Practice

**PSS** 3303 Soils

3031 Intro to Wildlife and Fisheries Practices WF

WF 4153 Prin of Wildlife Conservation & Mgt

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Computer Literacy Requirement

Computer Appl for Forest Resources Lab FO 3101

FO Computer Appl for Forest Resources 3102

Writing Requirement

Intro Tech Writing in Ag-comm OR

AIS 3203 MGT 3213 Organizational Comm OR

BIO 3013 **Prof Writing for Biologists** 

# Choose one of the following concentrations:

The 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 foundation education provided by the core curriculum of the Forestry Major. Concentrations are not intended to provide the depth of study demanded by a separate major.

# **Forest Management Concentration**

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:

> PH 1113 General Physics OR

PΗ 2213 Physics I

FP 1103 Wood Tech and Products

FO 3113 Forest Recreation Management

9 hours	Business/Science Electives*
9 hours	Professional Electives*
3 hours	Free Electives

#### Total hours needed for major: 128

#### Wildlife Management Concentration

Advisor: Dr. Emily B. Schultz 315 Thompson Hall

Undergraduate students who wish to prepare for careers in wild-life 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:

BIO 3524	Biology of Vertebrates
BIO 4203	Taxonomy of Spermatophytes
BIO 4523	Mammalogy
BIO 4543	Ornithology
FO 4353	Forestry Law
WF 3131	Appl Aquatic and Terrestrial Ecology Lab
WF 3133	Appl Aquatic and Terrestrial Ecology
WF 4243	Wildlife Techniques
3 hours	Professional Elective*
3 hours	Physical Science Elective
	•

#### Total hours needed for major: 127

#### **Environmental Conservation Concentration**

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:

PH	1113	General Physics OR
PH	2213	Physics I
BIO	3104	Ecology
FO	3113	Forest Recreation Management
FO	4463	Forest Hydrology & Watershed Mgt
FO	4471	GIS Nat Res Management Lab and
FO	4472	GIS Nat Res Management OR
FO	4452	Remote Sensing Applications and
FO	4451	Remote Sensing Applications Lab
14 hr	'S	Emphasis Electives - See Department Advisor for
list o	f curren	at approved emphasis electives.

#### Total hours needed for major: 128

#### **Urban Forestry Concentration**

Concentration 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:

FΟ	3113	Forest Recreation Management
EO	1252	E I

FO 4353 Forestry Law

FO 4471 GIS Nat Res Management Lab and

FO 4472 GIS Nat Res Management OR

FO	4452	Remote Sensing Applications and
FO	4451	Remote Sensing Applications Lab
LA	3623	Urban Planning
PS	1113	American Government
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**

Advisor: Dr. Rubin Shmulsky 1102 Bldg.1 Forest Products Lab

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.

CH	1053	Survey of Chemistry II
PH	1113	General Physics I
FP	1103	Wood Technology and Products
FP	4013	Wood Anatomy
FP	4323	Physical Properties of Wood
3 hrs		FP Processing Elective
12 h	rs	FP Electives

Total hours needed for major: 128 hours

# Department of WILDLIFE and FISHERIES (WF)

Major Advisor: Eric Dibble Office: 109 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 and Fisheries offers a major in Wildlife and Fisheries 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. Four concentrations are available to students: fisheries and aquaculture science, wildlife science, conservation law enforcement, and wildlife pre-veterinary medicine. 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 and Fisheries Science, pre-veterinary concentration at the end of the fourth year, and a DVM at the end of the seventh year.

Course work in the Wildlife Science and the Conservation Law Enforcement concentrations, and the wildlife Pre-veterinary program, enables students to fulfill the course work requirements necessary to become Certified Wildlife Biologists by The Wildlife Society. The Fisheries Science concentration exceeds requirements for certification by the American Fisheries Society as an Associate Fisheries Scientist.

The Wildlife and Fisheries 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. Students also are required to enroll in a two-week summer session prior to the junior year (except for the wildlife pre-veterinary program students). Transfer students are encouraged to begin course work at MSU by the

<sup>\*</sup> Professional electives and Business Science electives are chosen from a list approved by the Department of Forestry.

<sup>\*</sup> Professional electives are chosen from a list approved by the Department of Forestry.

end of their sophomore year to enable graduation in four years. Transfer students should be aware that course work taken elsewhere may not be accepted toward a degree in Wildlife and Fisheries Science. Only course work determined by the Wildlife and Fisheries 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 and Fisheries Science Degree. Transfer students with a grade point average less than or equal to 2.0 may not be admitted automatically into the Wildlife and Fisheries major. Permission to enroll on specific circumstances and the requirements of the Wildlife and Fisheries 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.

#### **University Core**

English Composition (6 hours)

1103 English Comp I OR EN EN Accelerated Comp I 1163 EΝ 1113 English Comp II OR

EN 1173 Accelerated Comp II

Mathematics (6 hours)

MA 1613 Calculus for Bus & Life Sciences OR

Calculus I MA 1713

ST 3123 Intro to Statistical Inference

Natural Science (9 hours)

BIO 1203 Plant Biology

BIO 1504 Principles of Zoology

See concentrations for additional requirements

Humanities (6 hours)

3 hours See University Core See concentrations 3 hours

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

AEC 2713 Intro Food & Resource Economics OR

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 of her program; pre-requisites and co-requisites are identified in the Course Description section of this Bulletin.

#### **Major Core**

AA I.	1101	Whithe and Pisheries Profession
PSS	3303	Soils
FO	2112	Dendrology
FO	2111	Dendrology Lab
BIO	3524	Biology of Vertebrates
WF	3133	Appl Aquatic and Terrestrial Ecology
WF	3131	Appl Aquatic and Terrestrial Ecology Lab
WF	4122	Wildlife and Fisheries Biometrics

WE 1101 Wildlife and Eigheries Profession

WF 4122 WF 4121

Wildlife and Fisheries Biometrics Lab

WF 4473 Wildlife and Fisheries Practices

Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

Writing Requirement

AIS 3203 Intro to Tech Writ in Ag Comm OR MGT 3213 Organizational Comm OR BIO 3013 **Prof Writing for Biologists** 

# 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.

#### Fisheries and Aquaculture Science Concentration

Advisor: Dr. Louis A. D'Abramo Room 255 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. 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. Undergraduate students who wish to seek employment within the aquaculture industry, particularly as farm managers, upon graduation should consider the aquaculture concentration within the Department of Agricultural and Biological Engineering.

Courses to be taken in addition to those of the core curriculum include:

iae:			
	3 hou	ırs	Humanities Elective - see University Core
	3 hou	ırs	Social Science Elective - see University Core
	CH	1043	Survey of Chemistry I
	CH	1051	Experimental Chemistry Lab
	CH	1053	Survey of Chemistry II
		2503	Elementary Organic Chemistry
	CH	2501	Elementary Organic Chemistry Lab
	PH	1113	General Physics OR
	PH	2213	Physics I
	BIO	3103	Genetics
	BIO	3304	General Microbiology
	BIO	4513	Ichthyology
	PSS	3301	Soils Lab
	WF	1213	Intro to Wildlife & Fish Conservation
	WF	3141	Wildlife and Fisheries Seminar
	WF	4133	Fisheries Science
	WF	4173	Fish Physiology
	WF	4183	Principles and Practices of Aquaculture
	WF	4222	Limnology
	WF	4221	Limnology Lab
	WF	4253	App. Spatial Tech and Wildlife Mgmt.
	WF	4313	Fisheries Management
	WF	4463	Human Dim. of Fish Wildlife Mgmt.
	4 hou	ırs	Entomology Elective*
	3 hou	ırs	Human Resource Mgt or Policy Elective*
	3 hou	ırs	Professional Elective*
	3 hou	ırs	Natural Resource Management Elective*
		TD 4	11 1.16 1.104

# Total hours needed for major: 124

All electives are chosen from a list approved by the Department of Wildlife and Fisheries.

#### Conservation Law Enforcement Concentration

Advisor: Dr. Kevin M. Hunt Room 223 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.

Courses to be taken in addition to those of the core curriculum include:

```
PHI 1123
           Intro to Ethics OR
PHI 3013
            Business Ethics
SO
     1003
            Intro to Sociology
PSY 1013
            General Psychology
            Survey of Chemistry I
CH
    1043
CH
     1053
            Survey of Chemistry II
            Experimental Chemistry Lab
CH
     1051
BIO
    4203
            Taxonomy of Spermatophytes
BIO
    4523
            Mammalogy
BIO 4543
            Ornithology
    3301
PSS
            Soils Lab
COR 3103
            Criminal Justice Systems
            Deviant Behavior
SO
     3313
     3603
SO
            Criminology
WF
     1213
            Intro to Wildlife & Fisheries Conservation
     3141
            Wildlife and Fisheries Seminar
WF
    4153
            Prin Wildlife Conservation and Mgt
```

WF 4243	Wildlife Techniques
WF 4253	Appl Spatial Tech. and WF Mgmt
WF 4313	Fisheries Management
WF 4353	Fish & Wildlife Policy & Law Enforce.
WF 4463	Human Dim. of Fish Wildlife Mgmt
3 hours	Professional Elective*
3 hours	Human Resource Mgt Elective*
3 hours	Natural Resources Mgt Elective*
3 hours	Nutrition/Physiology/ Anatomy Elective*

All electives are chosen a list approved by the Department of Wildlife and Fisheries

#### Wildlife Science Concentration

Advisor: Dr. Richard M. Kaminski Room 249 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 my be keen. This concentration is intended for serious, academically strong students, who maintain a A-B grade record (GPA 3.0), which is the minimum required for admittance into most graduate schools.

Courses to be taken in addition to those of the core curriculum include:

	3 hours	Humanities Electives - see University Core
	3 hours	Social Science Elective - see University Core
	CH 1043	Survey of Chemistry I
	CH 1053	
	CH 1051	Experimental Chemistry Lab
	CH 2503	Elem Org Chemistry
	BIO 3103	Genetics
	BIO 4203	Taxonomy of Spermatophytes
	BIO 4523	Mammalogy
	BIO 4543	Ornithology
	FO 4223	Practices of Silviculture
	FO 4221	Practices of Silviculture Lab
	WF 1213	Intro to Wildlife & Fish Conservation
	WF 3141	Wildlife and Fisheries Seminar
	WF 4253	App. Spatial Tech and WF Management
	WF 4153	Prin Wildlife Conservation and Mgt
	WF 4243	Wildlife Techniques
	WF 4313	Fisheries Management
	WF 4353	Fish and WF Policy and Law Enforcement
	6 hours	Professional Electives*
	3 hours	Human Resource Management Elective*
3 hours		Nutrition/Physiology/Anatomy Elective*
	3 hours	Natural Resources Management Elective*
	3 hours	Policy Elective*
		-

# Total hours needed for major: 124

All electives are chosen a list approved by the Department of Wildlife and Fisheries.

# Wildlife Pre-Veterinary Concentration

Concentration Advisor: Dr. Bruce D. Leopold Room 109 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 medi-

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 ho	urs	Humanities Elective - see University Core Social Science Elective*		
3 ho	urs			
CH	1213	Chemistry I		
CH	1211	Investigations in Chemistry I Lab		

```
CH 1223
           Chemistry II
     1221
            Investigations in Chemistry Lab II
CH
CH 4513
            Organic Chemistry
            Organic Chemistry Lab
CH 4511
BCH 3613
            Elementary Biochemistry
BIO 3103
            Genetics
BIO 3304
            General Microbiology
BIO 4203
            Taxonomy of Spermatophytes
BIO 4413
            Immunology
BIO 4523
            Mammalogy
BIO 4543
            Ornithology
PH
     1113
            General Physics OR
PH
           Physics I
     2213
PSS 3301
            Soils Lab
WF
     4153
            Prin Wildlife Conservation & Mgt
WF 4323
            Wildlife Nutrition and Physiology
WF 4243
            Wildlife Techniques
Wildlife/Veterinary Internship
            Policy Elective*
6 hours
```

#### Total hours needed for major: 114

All electives are chosen a list approved by the Department of Wildlife and Fisheries.

# **FOREST PRODUCTS (FP)**

Major Advisor: Associate Professor Rubin Shmulsky Office: 1102, Forest Products Department, 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 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 laboratory/office 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.

Students currently enrolled in the forest products major must complete a specified core curriculum and one of five academic concentrations within the major:

- 1. Marketing & Building and Supply Operations
- 2. Forest Products Technology
- 3. Industrial Environmental Operations
- 4. Wood Industries Management
- 5. Wood Materials Science

#### **University Core**

English Composition (6 hours)

EΝ 1103 English Comp I OR ΕN 1163 Accelerated Comp I EN 1113 English Comp II OR EN 1173 Accelerated Comp II

Mathematics (6 hours)

See concentration for specific requirements

Natural Science (9 hours)

BIO 1203 Plant Biology

See concentration for additional requirements

Humanities (6 hours)

See University Core and Concentration for requirements

Fine Arts (3 hours)

See University Core

Social/Behavioral Sciences (6 hours)

EC 2113 Intro to Macroeconomics and EC 2123 Intro to Microeconomics OR

AEC 2713 Intro to Food & Resource Economics For either EC 2113 or EC 2123

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**

"	Corc		
	FO	2112	Dendrology
	FO	2111	Dendrology Lab
	FP	1103	Wood Tech and Products
	FP	3012	Intro to Forest Industries
	FP	4013	Wood Anatomy
	FP	4023	Wood Chemistry
	FP	4253	Quant. Methods in FP and Furniture
	FP	4313	Environmental Principles
	FP	4323	Physical Properties of Wood
	FP	4413	Professional Practice
	FP	4423	Mechanical Properties of Wood
	9 hours		Forest Products Electives*
	3 hours		Professional Electives*
	3 hours		Free Elective

#### Oral Communication Requirement

CO 1003 Fundamentals of Public Speaking

\* Professional electives and Forest Product electives are chosen from a list approved by the Department of Forest Products.

# Choose one of the following concentrations:

# **Marketing & Building Supply Operations Concentration**

This concentration is designed to meet the needs of industry for individuals with knowledge and training in basic sciences, business management and marketing, as well as a thorough knowledge in wood properties and manufacturing technologies, technical aspects of building materials and service life. Students completing this curriculum can expect to begin their careers in technical and managerial positions in sales, building supply operations, marketing, distribution of forest products, and/or product development. Employment opportunities are varied with students finding positions in industry, government agencies, associations serving the wood-based industry, and chain operations. Today, marketing increasingly is being recognized and utilized as a key element in the overall business strategy of forest products firms. Students entering this field

find themselves with skills to rapidly advance beyond entry-level positions. Students pursuing this emphasis will receive a marketing minor. Course requirements include:

```
MA 1613
                  Calculus for Bus and Life Sciences OR
      MA 1713
                  Calculus
      BQA 2113
                  Business Statistics Methods I OR
                  Engineering Statistics I OR
      ΙE
           4613
      ST
           3123
                  Introduction to Statistical Inference
      PH
           1113
                  General Physics OR
      PH
           2213
                  Physics I
      CH
           1043
                  Survey of Chemistry I
      CH
            1053
                   Survey of Chemistry II
      CH
           1051
                  Experimental Chemistry Lab
      FP
           4353
                  Forest Prod Marketing
      ACC 2013
                   Principles of Financial Accounting
      MGT 3114
                  Principles of Management
      MKT 3013
                  Principles of Marketing
      MKT 4413
                   Consumer Behavior
      MKT 4813
                  Marketing Management
      6 hours
                  Marketing Electives
                   Professional Electives*+
      4 hours
      3 hours
                  Forest Products Elective*
Computer Literacy Requirement
                  Intro to Bus Computer Systems OR
      BIS 1012
      CSE 1013
                  Basic Computer Concepts OR
      BIS 3233
                  Intro to Mgt Information Systems OR
      FO
          3102/3101 Comp Appl for Forest Resources/Lab
```

#### Writing Requirement

MGT 3213 Organizational Comm OR AIS 3203 Intro to Tech Writ in Agricom OR BIO 3013 Prof Writing for Biologists

#### Total hours needed for major: 124

- Professional and FP electives are chosen from a list approved by the Dept. of Forest Products.
- If BIS 1012 is selected for Computer Literacy, then seven hours of electives are required.

#### **Forest Products Technology Concentration**

This concentration is designed to train students for manufacturing management positions with forest products manufacturing firms. The course work provides students with a complete forest products industry background combined with industrial technology skills to allow application of these skills on the factory floor. Students who complete this curriculum will begin their careers in manufacturing management in a production environment. The addition of management and business courses provide students with skills to advance rapidly beyond the entry levels. Course requirements include:

```
MA 1613 Calculus for Bus and Life Science OR
MA 1713
            Calculus
BOA 2113
            Business Statistics Methods I OR
            Engineering Statistics I OR
IE.
     4613
ST
     3123
            Intro to Statistical Inference
PH
     1113
            General Physics OR
PH
     2213
            Physics I
            Survey of Chemistry I
     1043
CH
CH
     1053
            Survey of Chemistry II
CH
     1051
            Experimental Chemistry Lab
            Principles of Management
MGT 3114
            Basic Industrial Accounting
ACC 1203
FΡ
     4223
            Furniture Production I
FP
     4233
            Furniture Production II
TKI 1813
            Basic Ind Electricity and Electronics
TKI 3103
            Adv Ind Elec and Elec
            Motion and Time Study
TKI 3363
            Ind Control System
TKI 4103
TKI 4223
            Quality Assurance
TKI 4203
            Automated System
            Professional Elective*+
4 hours
```

# Computer Literacy Requirement

BIS 1012 Intro to Bus Computer Systems OR CSE 1013 Basic Computer Concepts OR BIS 3233 Intro to Mgt Information Systems OR FO 3102/3101 Comp Appl for Forest Resources

#### Writing Requirement

- MGT 3213 Organizational Comm OR
- AIS 3203 Intro to Tech Writ in Agricomm OR
- Prof Writing for Biologists BIO 3013

#### Total hours needed for major: 124

- Professional and FP electives are chosen from a list approved by the Dept. of Forest Products.
- If BIS 1012 is selected for Computer Literacy, then four hours of electives are required.

#### **Industrial Environmental Operations Concentration**

This concentration is designed to provide Forest Products students with the background to pursue careers as environmental managers within the forest products industry. Environmental compliance is a major component of all forest products manufacturers and industry has requested that prospective employees become knowledgeable in this field. Students that successfully complete this concentration will have career opportunities in virtually any forest products manufacturing operation with opportunity for advancements. The course work is designed to provide students with a basic understanding of environmental science, policy and practices and to complement the knowledge and experience received in the areas of forest products science and technology and business management. Courses have been selected from such diverse fields as economics, management, forestry and sociology. The selection of an Environmental Science certificate course for 3 SCH of a Professional Elective will yield a Certificate in Environmental Science for students pursuing this emphasis. Course requirements include:

- MA 1613 Calculus for Bus and Life Science OR
- MA 1713 Calculus
- BOA 2113 Business Statistics Methods I OR
- 4613 Engineering Statistics I OR ΙE
- Intro to Statistical Inference ST 3123
- PΗ 1113 General Physics OR
- PH 2213 Physics I
- 1043 Survey of Chemistry I CH
- CH 1053 Survey of Chemistry II
- 1051 Experimental Chemistry Lab CH
- MGT 3114 Principles of Management
- ENS 2102 Intro to Environmental Science
- ENS 4102 Practicum
- Intro to Sociology SO 1003
- Environment and Society SO 4173 FO 4413 Natural Resource Policy
- 9 hours Environmental Science Electives\*
- 6 hours Forest Products Electives\*
- 3 hours Professional Electives\*+

# Computer Literacy Requirement

- BIS 1012 Intro to Bus Computer Systems OR
- CSE 1013 Basic Computer Concepts OR BIS 3233
- Intro to Mgt Information Systems OR
- FO 3102/3101 Comp Appl for Forest Resources

### Writing Requirement

- MGT 3213 Organizational Comm OR
- AIS 3203 Intro to Tech Writ in Agricomm OR
- Prof Writing for Biologists BIO 3013

# Total hours needed for major: 124

- Electives are chosen from a list approved by the Department of Forest Products.
- If BIS 1012 is selected for Computer Literacy, then three hours of electives are required.

# **Wood Industries Management Concentration**

This concentration is designed to provide Forest Products students with the background to pursue careers in the forest products and allied industries. The curriculum is multidisciplinary, provides a knowledge of the basic sciences, the social sciences, business, and wood science, and provides extensive training in the major wood processing operations. The abundant elective hours in this curriculum are chosen in consultation with an advisor in the Department of Forest Products and allow the student to tailor a program of study yielding a minor in General Business, Management, or other areas of business. Double degree programs with the College of Business & Industry are also available. Course requirements include:

- Calculus for Bus and Life Science OR MA 1613
- MA 1713 Calculus
- BOA 2113 Business Statistics Methods I OR
- IE. 4613 Engineering Statistics I OR
- 3123 Intro to Statistical Inference ST
- 1113 General Physics OR
- PΗ Physics I 2213
- Survey of Chemistry I CH 1043
- Survey of Chemistry II CH 1053
- CH 1051 Experimental Chemistry Lab
- MGT 3114 Principles of Management
- MKT 3013 Principles of Marketing
- 22 hours Professional Electives\*
- Forest Product Electives\*+ 6 hours

## Computer Literacy Requirement

- Intro to Bus Computer Systems OR BIS 1012
- CSE 1013 Basic Computer Concepts OR
- Intro to Mgt Information Systems OR BIS 3233
- FO 3102/3101 Comp Appl for Forest Resources

#### Writing Requirement

- MGT 3213 Organizational Comm OR
- AIS 3203 Intro to Tech Writ in Agricomm OR
- BIO 3013 Prof Writing for Biologists

## Total hours needed for major: 124

- Professional electives and FP electives are chosen from a list approved by the department.
- If BIS 1012 is selected for Computer Literacy, then four hours of electives are required.

# **Wood Materials Science Concentration**

This concentration is designed to provide Forest Products students with the background to pursue careers in research and development or to continue their education at the graduate level. The curriculum is multidisciplinary, provides a knowledge of the basic sciences, mathematics, and provides a strong background in wood materials science. By judicious selection of electives, students may obtain a minor in various fields. The professional electives are chosen in consultation with an advisor form a list approved by the Department of Forest Products. Course requirements include:

- MA 1713 Calculus
- MA 1723 Calculus II
- ΙE 4613 **Engineering Statistics**
- Computer Program with Fortran CSE 1213
- CH 1213 Chemistry I
- CH 1211 Investigations in Chemistry
- CH 1223 Chemistry II
- 1221 Investigations in Chemistry II CH
- PH 2213 Physics I
- 2223 PH Physics II
- 4513 Organic Chemistry CH
- CH 4511 Organic Chemistry Lab
- EM 2413 Engr Mechanics
- Professional Electives\* 11 hours Forest Product Elective\*

# 9 hours

### Writing Requirement

- MGT 3213 Organizational Comm OR
- AIS 3203 Intro to Tech Writ in Agricom or
- BIO 3013 Prof Writing for Biologists

### Total of hours needed for major: 124

 $\mbox{*}$  The professional electives and forest product electives are chosen from a list approved by the Department of Forest Products.

# 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. The professional curriculum focuses on the skills of the veterinary practitioner who will serve the animal-owning public of Mississippi.

Students seeking a career in veterinary medicine 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 seek a career in veterinary medicine.

# 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. Printable applications are available at www.cvm.msstate.edu. Questions should be addressed to the Office of Student Affairs, College of Veterinary Medicine at (662) 325-1278 or coats@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 a seven-year period. 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.

#### **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 Affairs 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 3.00 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	3 sem hours
Mathematics (college algebra or higher)	6 sem hours
Biological science with lab	
(including vertebrate zoology)	4 sem hours
Microbiology with lab	4 sem hours
Immunology	3 sem hours
Genetics with lab	3 sem hours
Chemistry with lab	8 sem hours
Organic chemistry with lab	4 sem hours
Biochemistry	3 sem hours

Physics (can be Trig-based) 3 sem hours Nutrition 3-5 sem hours

Humanities/fine arts/social and

behavioral sciences 15 sem hours **Total** semester **credit** hours **65-67 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 fall 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 Affairs College of Veterinary Medicine Mississippi State University Box 6100, Mississippi State, MS 39762-6100 662-325-1278; coats@cvm.msstate.edu

#### **DVM CURRICULUM**

The professional curriculum is divided in to 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

CVM 5163	Veterinary Parasitology
CVM 5011	Professional Development I

CVM 5012 Vet Medical Informatics and Evidence-based Med CVM 5023 Immunology and Mechanisms of Infect. Agents

CVM 5033 Veterinary Physiology I CVM 5064 Veterinary Anatomy I

CVM 5004 Veterinary Histology

Freshmen Spring Courses

CVM 5013 Veterinary Neuroscience CVM 5021 Professional Development II

CVM 5022 Veterinary Epidemiology CVM 5044 Introduction to Veterinary Pathology

CVM 5074 Veterinary Anatomy II CVM 5083 Veterinary Physiology II

CVM 5093 Veterinary Agents of Infectious Disease

# **Total Credit Hours: 39 hours**

#### **DVM 2 COURSES**

Sophomore Fall Courses

CVM 5122 Anesthesiology & Pharmacology I CVM 5123 Veterinary Clinical Pathology

CVM 5123 Veterinary Preventive Medicine

CVM 5142 Equine Medicine and Surgery I CVM 5143 Theriogenology

CVM 5152 Veterinary Toxicology

CVM 5185 Small Animal Medicine and Surgery I

Sophomore Spring Courses

CVM 5132 Anesthesiology & Pharmacology II CVM 5153 Equine Medicine and Surgery II

CVM 5162 Diagnostic Imaging

CVM 5175 Food Animal Medicine and Surgery

CVM 5183 Special Species

CVM 5195 Small Animal Medicine and Surgery II

**Total Credit Hours: 40 hours** 

#### Clinical and Elective

Phase 2, (DVM3 and DVM4 years) is conducted in a clinical and elective format. Students participate in ten 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 9 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 5302 Professional Development IV\*

CVM 5310 Small Animal Emer and Critical Care Medicine\*

CVM 5386 Small Animal Internal Medicine<sup>3</sup>

CVM 5392 Pharmacy

CVM 5420 Advanced Rotation in Radiology (1-6 hours)

CVM 5430 Advanced Rotation in Anesthesiology (1-6 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 (1-6 hours)

CVM 5520 Animal Industry Externship 2 (1-6 hours)

CVM 5530 Animal Industry Externship 3 (1-6 hours)

CVM 5540 Animal Industry Externship 4 (1-6 hours)

CVM 5550 Animal Industry Externship 5 (1-6 hours)

CVM 5560 Advanced Clinical Rotation 1 (ACR 1) (1-6 hours)

CVM 5570 Advanced Clinical Rotation 2 (ACR 2) (1-6 hours)

CVM 5580 Advanced Clinical Rotation 3 (ACR 3) (1-6 hours)

CVM 5622 Veterinary Diagnostic Toxicology

CVM 5632 Advanced Large Animal Techniques

CVM 5644 Applied Gross Anatomy

CVM 5654 Applied Veterinary Parasitology

CVM 5662 Clinical Neurology

CVM 5672 Veterinary Dentistry

CVM 5682 Veterinary Ophthalmology

CVM 5694 Veterinary Cytology

CVM 5704 Veterinary Practice Management

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 5794 Clinical Cardiology

CVM 5814 The Feline Patient

CVM 5824 Diagnostic Ultrasound

CVM 5834 Advanced Anesthesia Techniques

CVM 5844 Clinical Pharmacology

CVM 5854 Aquarium Health Management

CVM 5862 Equine Lameness

CVM 5902 Job Search

CVM 5912 Personal, Professional and Financial Success

CVM 5922 Veterinary Practice Management

CVM 5990 Spec Topics in Veterinary Medicine I (1-6 hours)

### **Total Credit Hours Required: 48 hours**

\* Required

Students must take 30-36 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.

#### **ANIMAL HEALTH TECHNOLOGY**

(Veterinary Technology Program)

The Veterinary Technology Program is a one-plus-one program offered by Mississippi State University College of Veterinary Medicine in conjunction with two Mississippi community colleges.-Northwest Mississippi Community College in Senatobia and Hinds Community College in Raymond. The student spends one year—fall and spring semester—at one of the community colleges and one year—fall and spring semester—at Mississippi State University College of Veterinary Medicine gaining additional clinical experience. An Associate of Science degree is awarded from either Northwest or Hinds upon completion of the two-year program. The program is structured to provide the successful graduate optimum employment opportunities in Veterinary Technology carreers.

To be accepted into the first year of the program, a student must meet admission requirements at one of the two community colleges. To be accepted into the second year of the Veterinary Technology Program, a student must be in good standing at their respective community college as well as be recommended by the Director of the Veterinary Technology Program at that community college. You may contact Hinds Community College at (601) 857-3334 or Northwest Mississippi Community College at (662) 562-3381 for an application.

# **GRADUATE PROGRAM**

The College of Veterinary Medicine at Mississippi State University offers advanced graduate study leading to Master's and Ph.D. degrees with emphasis in infectious diseases, toxicology, pharmacology, and pathology. The multidisciplinary composition of the Veterinary Science Program provides the unique opportunity for training in food animals with special emphasis in aquaculture and poultry. Specialized training encompassing molecular biotechnology, microbiology, immunology, virology, physiology, toxicology, pathology and biochemical approaches to solving basic and applied biomedical problems is offered. Master's and Ph.D. degrees are offered in Veterinary Medical Science and Ph.D. degrees in Toxicology is also offered. A non thesis Master's option in Veterinary Medical Science is also offered with emphasis in food animal production medicine, i.e. dairy, beef, swine, poultry and aquaculture.

Research interests of the faculty include pathogenesis of viral and bacterial and environmental diseases, comparative and developmental immunology, biochemical characterization of parasites, and xenobiotic contamination of animal tissues. The multidisciplinary approach of the program is strengthened by active collaboration of faculty members with other institutional units including the Departments of Animal and Dairy Sciences, Biochemistry, Poultry Science, Wildlife and Fisheries, and Biological Science. The Veterinary Medical Science Graduate Program is firmly committed to providing trained graduates who can serve as leaders in management and research for the food animal industry and in biomedical research.

For additional information about the Graduate Program, contact the Graduate Coordinator, Box 9825, Mississippi State, Mississippi 39762, telephone (662) 325-1417.

# Office of Academic Affairs

Office: 608 Allen Hall 662-325-3742 P.O. Box BQ; Mississippi State, MS 39762

# **Environmental Sciences Certificate Program**

Any study of the human environment is by nature multi-disciplinary. Therefore, an undergraduate certificate program in Environmental Sciences (ENS) that can also serve as an academic minor has been established to serve a large student population from a variety of disciplinary majors. The intent of this program is to provide a certification track whereby a student in any given undergraduate major may strategically select elective courses within their normal program of study to additionally satisfy the requirements for a certificate and minor in Environmental Sciences. Certification is also available for the nontraditional student seeking further professional credentials for career development.

Due to the multi-disciplinary nature of the program, it structurally resides and is administered within the Office of Academic Affairs, outside of any particular college. A program coordinator is appointed by the Provost to advise Environmental Sciences students and assist departmental advisors. It is also the coordinator's responsibility to perform the necessary transcript audits and formally authorize the certificates and minors.

To assist the ENS coordinator and provide a mechanism for regular review, a faculty oversight committee has been formed. The committee is composed of at least six faculty members including the ENS advisor and represents a cross-section of environmental disciplines.

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

### **Environmental Sciences Certificate**

A total of 22 semester hours are required in the following four component areas with at least six hours from the social sciences and humanities and six hours from the natural sciences. Courses typically serve as electives within any traditional disciplinary major. No more than two courses can be double-counted between the ENS certificate and the student's academic major. Courses marked in BOLD are required of all students. It is recommended that ENS 2102 be taken as the entry-level course.

	ENS	2102	Intro to Environmental Science
Social S	Scienc	ces and	Humanities (6-12 hours)
	BL	4263	Environmental Law
	SO	4173	Environment and Society
	PS	4743	Environmental Policy
	AEC	3233	Intro Environmental Economics and Policy
	AEC	4233	Advanced Topics in Environmental Economic
	GG	4523	Coastal Environments
	GR	3113	Conservation of Natural Resources
	SO	4703	Population Problems and Processes
	FO	4413	Natural Resources Policy
	FP	4313	Environmental Principles
	WF	4463	Human Dimensions of Fish & Wildlife Mgt
Capston	ne (2 l	hours)	
	ENS	4102	Practicum (with seminar)
Natural	Scien	nces (6-	12 hours)
	BIO	2503	Environmental Quality
		2101	

BIO 3104 Ecology Marine Biology BIO 3114 BIO 4213 Plant Ecology Environmental Microbiology BIO 4404 3824 Environmental Engineering CE Advance Sanitary Analysis 4843 CE. CE 4873 Water and Wastewater Treatment 4893 Hazardous Waste Management CE CH 4303 **Environmental Chemistry** CHE 4613 Air Pollution Control Design CHE 4623 Hazardous Waste Incineration

Environmental Toxicology

CVM4513

FO	3123	Forest Ecology and Global Environment
GG	3613	Water Resources
GG	3133	Intro Environmental Geology
GR	4943	Air Pollution Meteorology
GR	4613	Applied Climatology
GR	4813	Natural Hazards and Processes
PSS	3303	Soils
PSS	4313	Soil Microbiology
PSS	4333	Soil Conservation and Land Use
ABE	3303	Biosystems Environment I
ABE	4312	Biosystems Environment II

# Geospatial and Remote Sensing Technologies Certificate Program

Technology revolutions have driven the expectations of remote sensing and spatial technologies to an all-time high for a new generation of resource managers. 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 bettereducated 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. David R. Shaw, Director GeoResources Institute; A127 HPC 662-325-9575 dshaw@gri.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/ECE/PSS 4483/6483 Introduction to Remote Sensing GR 4333/6333 Remote Sensing of the Physical Environment FO 4452/6452 Remote Sensing Applications AND

FO 4451/6451 Remote Sensing Applications Lab

GIS - choose one

GR 4303/6303 Principles of GIS

WF 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

ABE 3513 GPS & GIS in Agriculture and Engineering PSS 4373/6373 Geospatial Agronomic Management

GR 3303 Survey of Geospatial Technologies

FO 4313/6313 Spatial Technologies in Natural Res. Mgt. AND

FO 4311/6311 Spatial Technologies in Natural Res. Mgt lab

#### Electives - 6 hours\*

SO 8243

ECE 3163	Signals and Systems
ECE 4413/6413	Digital Signal Processing
ECE 8401	Current Topics in Remote Sensing
ECE 8413	Digital Spectral Analysis
ECE 8473	Digital Image Processing
FO 8313	Spatial Statistics for Natural Resources
GR 2313	Maps and Remote Sensing
GR 3311	Geospatial Applications
GR 3313	Introduction to Geodatabases
GR 4313/6313	Advanced GIS
GR 4323/6323	Cartographic Sciences
GR 8303	Geodatabases
PSS 4411/6411	Remote Sensing Seminar

ST 4313/6313 Spatial Statistics

\*Choose from the list of electives above or any courses in the required categories not previously taken to fulfill those requirements.

Spatial Analysis of Social Data

#### UNIVERSITY ACADEMIC ADVISING CENTER

UNDECLARED (UND)

Director: Dr. David Boles Coordinator: Wesley Ammon Professional Academic Advisors: Jamie Inmon, Tim Fancher, Janet Odom, and Sandra Powe

Volunteer Advisors: The UAAC also utilizes the expertise of selected distinguished faculty members, staff, and MSU graduate students during peak preregistration periods to meet the needs of students served by the Center.

48 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.

# Office of the Graduate School

# William A. Person, Interim 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 is the administrative unit responsible for providing graduate students with admission and enrollment services and the management of graduate student records. The office is responsible for processing applications for admissions to graduate education; processing graduate assistantship paperwork; publishing the Graduate Bulletin, the Standards for Preparing Dissertations and Theses, and the Graduate Assistant Handbook; coordinating the Graduate Teaching Assistant Workshop; monitoring academic performance; coordinating the Graduate Work Study/Plan of Compliance Assistantship Program; monitoring and coordinating the English as a Second Language (ESL) Program for international graduate students; and conducting degree audits of students as they complete their programs of study. The Office is guided by the academic policies established by the Graduate Council. The Dean reports to the Vice President for Academic Affairs.

#### **DEGREES**

#### 1. MASTER of ARTS

- a. The Master of Arts degree is offered in applied anthropology, economics, English, foreign languages, history, and political science.
- 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 in agricultural and extension education, the physical and biological sciences, the agricultural sciences, agricultural economics, architecture, business administration, computer science, specializations in education, engineering disciplines, forestry, forest products, geosciences, mathematics, mathematics (applied math), psychology, sociology, statistics, veterinary medical science, wildlife and fisheries science, and workforce education leadership.
- 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

- a. The Master of Agribusiness Management is offered in Agribusiness Management.
- b. Courses are divided between the College of Agriculture and Life Sciences and the College of Business and Industry.

# 4. MASTER of PROFESSIONAL ACCOUNTANCY

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.

#### 5. MASTER of BUSINESS ADMINISTRATION

- 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 with a concentration 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.

#### 6. 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.

#### 7. MASTER of PUBLIC POLICY and ADMINISTRATION

- 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 and internship paper, are required. The internship and internship paper may be waived for students with significant and relevant work experience as determined by the Department of Political Science.

#### 8. MASTER of FINE ARTS

- a. The Master of Fine Arts is offered in electronic visualization with emphases in computer animation and multi-media.
- b. The degree requires a minimum of 60 graduate credits with at least six semester hours earned as exhibition and thesis.

#### 9. MASTER of LANDSCAPE ARCHITECTURE

- 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 36 semester required, including a six hour thesis.

#### 10. MASTER of TAXATION

- a. The Master of Taxation is a graduate professional degree requiring 30 semester hours of graduate course work.
  - b. A thesis is not required.

### 11. MASTER of ARTS in TEACHING (M.A.T.)

- a. The program is offered in the Instructional Systems, Leadership and Workforce Development department.
- b. The major is Community College Education and requires 33-36 credit hours.

## 12. 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.

# 13. MASTER of SCIENCE in INSTRUCTIONAL TECHNOLOGY (M.S.I.T.)

- a. The program is offered in the Instructional Systems, Leadership, and Workforce Development Department.
- b. The non-thesis option requires 33 credit hours of graduate course work.

# 14. EDUCATIONAL SPECIALIST DEGREE

The Educational Specialist degree is offered with areas of emphasis in agricultural and extension education, school administration, elementary education, counselor education, school psychology, secondary education, special education, education-community college, and 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.

#### 15. DOCTOR of PHILOSOPHY

The Doctor of Philosophy degree may be pursued in agricultural economics, agricultural sciences (concentrations: animal and dairy science, agricultural and extension education, agronomy, animal nutrition, horticulture, poultry science, weed science); food science, nutrition and health promotion (concentrations: food science and technology, nutrition); life sciences concentrations: entomology and plant pathology, genetics, animal physiology), molecular biology, biological sciences, biomedical engineering, business administration (areas of emphasis – accounting, business information systems, finance, management, marketing), graduate applied economics, chemistry, cognitive science, college/ post-secondary student counseling and personnel services, community college leadership, computational engineering, computer engineering, computer science, counselor education/student counseling and guidance services, curriculum and instruction, education (areas of emphasis - agricultural and extension education, technology), educational psychology, electrical engineering, elementary education, education administration (elementary, middle and secondary), engineering (areas of emphasis - aerospace engineering, biological engineering, chemical engineering, civil engineering, engineering physics, industrial engineering, mechanical engineering), entomology, environmental toxicology, food and science technology, forest resources (areas of emphasis - forest products, forestry, wildlife and fisheries), history, horticulture, mathematical sciences, molecular biology, nutrition, plant pathology, public policy and administration, secondary education, sociology, veterinary medical science, and weed science.

#### 16. DOCTOR of EDUCATION

The Doctor of Education degree is offered in the College of Education with a major in education and concentrations in agricultural and extension education, counselor education, school administration, elementary education, education-technology, and 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.

#### **GRADUATE BULLETIN**

A Graduate Bulletin is published annually. It contains more detailed statements concerning the requirements for advanced degrees at Mississippi State University, as well as other pertinent information. To secure a CD copy, write to the Office of the Graduate School, P.O. Box G, Mississippi State, Mississippi 39762-5507.

The Graduate Bulletin and additional information relative to graduate studies may be accessed at www.msstate.edu/dept/grad.

# Academic Outreach & Continuing Education

# Dr. Mark S. Binkley, Director

Offices: 103 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 learning goals through dynamic partnerships, targeted programming, innovative technology, and quality customer service. Our vision is to be the nationally recognized leader in lifelong learning. We value exemplary customer service and employee well-being, lifelong access to knowledge, and operational excellence. We value an educational environment based on mutual understanding, success, and equality with our clients, partners, and employees.

The Division of Academic Outreach & Continuing Education is a member of the University Continuing Education Association (UCEA), Learning Resources Network (LERN), and Association for Continuing Higher Education (ACHE).

# OFFICE OF ACADEMIC OUTREACH

Dr. Laura Crittenden, Manager Offices: 210 Memorial Hall, (662) 325-2677

The Office of Academic Outreach is dedicated to providing quality academic courses, certifications, and programs via distance at Mississippi State University and to assist distance learners in their academic pursuits. By working closely with academic departments across campus, Academic Outreach is able to offer courses, certifications, and programs through a variety of distance learning methods at both the undergraduate and graduate levels. Delivery methods offered include Text-Based and Video Streaming Online through WebCT, the Mississippi Interactive Video Network (MIVN), DVD, CD-ROM, Intensive Weekend Seminar, and Hybrid.

Students interested in enrolling in any courses offered through the Office of Academic Outreach must first contact the appropriate Distance Learning Program Coordinator for admittance criteria. Since some of the courses are available through partnerships with other four-year institutions and community colleges, admission procedures vary.

For more information about the Office of Academic Outreach, please go to www.distance.msstate.edu.

# **INDEPENDENT STUDY**

Dr. Laura Crittendon, Manager Offices: 210 Memorial Hall, (662) 325-2677

The Independent Study Program provides an educational opportunity for a diverse group of learners interested in studying by correspondence and receiving instruction in a wide variety of subject areas. Courses are developed by qualified faculty and staff of the University and 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. Some college courses may also be used to achieve professional certifications involving teachers, consumer safety officers, and many more. In addition, high school courses are available to both traditional and home schooled students.

The objective of the Independent Study Program is 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.

### INTERNATIONAL EDUCATION

Molly Watkins, Manager Office: 103 Memorial Hall, (662) 325-2648

The Office of International Education in the Division of Academic Outreach & Continuing Education supports international and domestic students as they strive to achieve their individual goals in the global arena. Areas within International Education include the English as a Second Language Center, the American Language & Culture Program, Cultural Awareness & Acclimation Workshops, and study abroad support.

The English as a Second Language Center (ESLC) offers an intensive English language program (non credit) for non-admitted students as well as English language academic support courses (credit) for admitted MSU students. The ESLC also provides teaching observations and practicums for students enrolled in the TESL Certificate program through the English Department; assists the Graduate Office in offering the international teaching assistants workshop; and is active in bringing international and cultural programming to the MSU and Starkville communities.

The American Language & Culture Program offers various other programs and services designed to promote the exchange of ideas and information with other countries, such as short-term group programs and the conversation partner program, developed to introduce international students to American college students.

Cultural Awareness and Acclimation workshops and study abroad support are designed to help the community and MSU students develop a greater awareness of cultural differences and issues. These programs are designed specifically for Americans traveling abroad.

For more information about programs within the Office of International Education, go to www.eslc.msstate.edu.

### **EXTERNAL AND ADMINISTRATIVE SERVICES**

Patricia Brock, Manager Offices: 321 Memorial Hall, (662) 325-1457

The External and Administrative Services (EAS) unit provides many specialized services to assist a diverse population of individuals in fulfilling their professional and personal development needs. EAS also offers coordination support to campus departments to facilitate the delivery of conferences, workshops, short courses, camps, and events that serve the outreach mission of the University.

- EAS manages the University's Continuing Education Unit (CEU) registry service which maintains essential materials, data and mechanisms for CEU approval, record keeping, evaluation, and the CEU registry for the University.
- EAS offers a variety of learning experiences for personal growth designed to serve the desires and needs of the community with instruction provided by university faculty, staff, and expert practitioners.
- The Office of Safety and Environmental Training provides programs ranging from on-campus short courses and seminars to in-house training services that are made available to state and regional businesses, industries, governmental agencies, municipalities and defense facilities who must comply with various EPA, DOT, and OSHA regulations. This

office also partners with the Mississippi Department of Environmental Quality (MDEQ) and the U.S. Environmental Protection Agency (EPA) to provide asbestos certification courses which fulfill the requirements of EPA's Model Accreditation and Certification Act. These courses are required for persons seeking licensing qualifications as asbestos professionals. In 1989, the Mississippi legislature designated MSU to be the sole asbestos training provider within the state.

• EAS manages internal support units such as Operations, Business & Finance, and Technology whose functions support the efforts of the entire division.

#### **CONFERENCE CENTER**

The Division of Academic Outreach and 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 are four, small, well-equipped meeting rooms available for groups up to 15 for breakout sessions if needed.

# Meridian Campus

# Harold Nichols, Dean

1000 Hwy 19 North Meridian, Mississippi 39307-5799 Telephone (601) 484-0100 In State-Wats 1-800-824-5288

Mississippi State University-Meridian Campus is a regional, upper- division, degree-granting campus of Mississippi State University. Located in east-central Mississippi, the Meridian 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, a convenient location, and a diverse student population flavor the educational experience at MSU-Meridian. Through the flexibility of day and evening classes at the MSU-Meridian Campus, 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 to its commitment of providing quality higher education through the missions of learning, research, and service.

#### Location

Mississippi State University-Meridian is located on a 26-acre campus at 1000 Highway 19 North in Meridian, Miss. It is easily accessible to residents of east Mississippi and west Alabama by a short drive northwest of Exit 150, off Interstate 20/59 in Meridian.

#### **Facilities**

Overlooking a beautiful lake, the 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 Meridian Campus. The complex contains 23 classrooms and laboratories, a bookstore, academic suites, study lounges, an 800-person multi-purpose auditorium for campus and community use, and ample parking. Since it is a commuter campus which primarily serves non-traditional, working students, no dormitory facilities are available on campus. Apartments are located nearby at Meridian Community College or may be found in other Meridian locations.

### Students

Approximately one-half of the students who attend MSU-Meridian reside in Lauderdale County. The remainder commute from 34 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 are expected to expand even further the scope of service.

#### **Distance Learning**

Two interactive "teleclassrooms" allow students on the Meridian and Starkville campuses, and at downlink sites elsewhere in the state, 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**

Meridian Campus students are authorized to use the Mitchell Memorial Library in person, or may access it and other university resources through the MSU Web site.

MSU-Meridian Campus and Meridian Community College have a partnership whereby MSU-Meridian students may access the holdings in the L.O. Todd Library. The book collection contains 56,000 titles. The

library also subscribes to over 600 periodical titles, including scholarly journals, magazines, and newspapers. Interlibrary loan services are provided for students and faculty.

Through an "Electronic Library Room" on the MSU-Meridian Campus, students may access many references and databases directly via computer.

#### **Degree Programs**

Junior, senior, and graduate-level courses offered at Mississippi State-Meridian Campus enable 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 Broad-

Bachelor of Arts in General Liberal Arts

Bachelor of Arts in Psychology

Bachelor of Science in Interdisciplinary Studies

Bachelor of Arts in Criminal Justice\*

Bachelor of Social Work

Gerontology Certificate is available at the undergraduate and graduate level. Contact the Division of Arts and Sciences for information.

Division of Business & Industry

Bachelor of Business Administration with concentrations in:

Accounting

**Business Administration** 

Information Systems

Management

Marketing

Resort and Convention

Division of Education

Bachelor of Science in Education with majors in:

Elementary Education

Secondary Education - concentrations in

Teaching of English

Teaching of Social Studies

USM-Meridian School of Nursing

# Bachelor of Science in Nursing

Division of Business and Industry

Master of Business Administration

MBA for Professionals Saturday program

Division of Education

**Graduate Degrees** 

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 degree

(Alternate Route)

Educational Specialist degree in Education with concentrations:

Elementary Education

Secondary Education

Counselor Education

School Administration

USM-Meridian School of Nursing

Master of Science in Nursing\*

\* USM program offered at MSU-Meridian

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#### **DIVISION of ARTS and SCIENCES**

Dr. Dennis J. Mitchell, Chair

Assoc. Professor & Dir. of Social Work Program Sandra S. Vaughn
Assistant Professor & BSW Advisor Rhonda R. Goodman Carr
Assistant Professor of Social Work Marian Swindell, Ph.D.
Assistant Professor of History David Sicko, Ph.D.
Assistant Professor of Psychology C. Edward Snodgrass, Ph.D.
Assistant Professor of Psychology Janet St. Lawrence, Ph.D.
Assistant Professor of English James Kelley, Ph.D.
Instructor of Mathematics Nibiao Zheno

The Division of Arts and Sciences offers five degree programs: the Bachelor of Science in Interdisciplinary Studies (BSIS), the B.A. in Communication, General Liberal Arts (GLA), Psychology, and the Bachelor of Social Work (BSW). Also available is a Gerontology Certificate that may be added to any degree.

#### **Bachelor of Science in Interdisciplinary Studies (BSIS)**

Advisors: David A. Sicko, Ph.D. and James Kelley, Ph.D. Office: 092

The Bachelor of Science in Interdisciplinary Studies is a university-wide 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. University core curriculum requirement (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 Committee 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. David Sicko, Office 092 of the MSU-Meridian Campus.

# Communication with a concentration in Broadcasting

MSU Advisor: Dr. Dennis J. Mitchell; MCC Advisor: Josh Taylor

The Communication B.A. Degree is a joint offering with Meridian Community College. Contact Dr. Dennis Mitchell for a brochure detailing this joint program with MCC.

# General Liberal Arts Program (GLA)

Advisor: Dr. James Kelley Office: 088

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. pro-

gram; 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.

### **University and College Core**

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 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
Natural Science W/Lab\*\*

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 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 University Core.
- \*\* BIO, EPP, or PO; see University Core.
- \*\*\* Consult advisor.
- \*\*\*\* Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor.

# **Psychology Program**

Advisors: Dr. C. Edward Snodgrass or Dr. Janet St. Lawrence Office: 090

MSU-Starkville faculty members may offer classes at Meridian. Three adjunct professors teach regularly in the program. They are:

- Thomas N. Elliott, Ph.D., University of Mississippi. Hospital Program Director/ Director of Psychology, East Mississippi State Hospital, Meridian.
- 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.

#### 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.

#### University and College Core

English Composition (6 hours)

1103 English Comp I OR EN 1163 Accelerated Comp I

English Comp II OR ΕN 1113 EN 1173 Accelerated Comp II

Foreign Language (9 hours)

3 semesters one Foreign Language - see advisor

Humanities (6 hours)

3 hours Literature - see University Core 3 hours History - see University Core

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 MA 1323 Trigonometry OR

ST 2113 Stats for Beh Sci (or higher math)

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 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 Intro Psychological Statistics

PSY 3314 Experimental Psychology

Choose two of the following:

PSY 3213 Psy of Abnormal Behavior

PSY 3623 Social Psychology

PSY 3803 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

PSY Upper Division Electives 12 hours

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

32 hours of course work must be A&S 3000/4000

- See University Core.
- 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: Sandra Vaughn, MSW, ACSW, LCSW Office: 076

The Social Work Program at Mississippi State University-Meridian Campus is accreditation by the Council on Social Work Education was reaffirmed until 2013. 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 Campus, 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 66 hours) from other accredited universities and colleges. The applicant must complete the sixty-four (64) semester hours of university/college work indicated in the shaded area below before applying for admission to Mississippi State University-Meridian Campus Social Work Program. The Program Director reviews all course credit transfer hours.

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 & PhysiologyPrinciples 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. Must earn a minimum of a B in each social work course before proceeding to required social work courses at the next level
  - 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 Assoc. of Social Workers Code of Ethics

#### **University and College Core**

English Composition (6 hours)

ΕN 1103 English Composition OR

ΕN Accelerated Comp I 1163

ΕN **English Composition OR** 1113 EN 1173 Accelerated Comp II

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#### Foreign Language (9 hours) 3 semesters one Foreign Language - see advisor Humanities (6 hours) 3 hours Literature - see University Core 3 hours History – see University Core Philosophy (3 hours) PHI 1103 Introduction to Philosophy OR PHI 1113 Introduction to Logic Humanities Elective (9 hours)\* Literature Elective 3 hours 3 hours History Elective 3 hours Humanities Elective Mathematics (6 hours) MA 1313 College Algebra ST 2113 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 1113 American Government Social Sciences Electives (12 hours) Required: SW 3003 Populations at Risk \* PSY 1013 General Psychology Prin of Macroeconomics EC 2113 AN 1103 Intro to Anthropology OR Intro to Cultural Anthropology AN 1143 **Major Core**

Social Work curriculum is completed as sequenced.

SW Intro SW/Soc Welfare 2313 2303 Social Welfare Policy I SW

SW 3013 Human Behav & Social Envir. I

Students must successfully complete a formal admissions process prior to taking the following courses:

> Social Welfare Policy II\*\*\* SW 2323 Human Behav & Social Envir. II\*\*\* SW3023 Research Methods in Social Work \*\*\* SW 3213 Child Welfare Services SW 4613 SW 3513 Social Work Practice I\*\*\* Social Work Practice II\*\*\* SW 3523 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

- Consult Advisor
- Course has prerequisite. Please check course description in back of catalog or consult advisor.

### Gerontology Concentration Program

Advisor Dr. Dennis J. Mitchell Office: 074

On the Meridian campus the gerontology concentration is offered in cooperation with the School of Human Science which provides key courses by distance learning. The Arts and Sciences Division provides courses in psychology, sociology, and social work at Meridian. The Education Division provides community counseling courses. Administration of the certificate is through the Council on Gerontology on the Starkville campus. The concentration in gerontology is open to all students within the university. It is intended to be added to any degree to signify that a student has combined factual and theoretical knowledge with practicum

This area of study is open to students from all colleges within the University. The Gerontology 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. Graduate students are required to complete a readings or independent study course in addition to the 15 hours of gerontology course work.

Undergraduate Certificate Requirements: (minimum 15 hours) Select three of the following:

HS 4403 Intro to Gerontology ABE 4513 Dynamics of Aging PSY 4983 Psychology of Aging HS 4863 Consumer Aspects of Aging SO 4413

Aging and Retirement in American Society

SW 4623 Social Work with the Aged

Select at least two of the following: (may include courses from above list)

> COE 4713 Issues in Aging SW 2323 Social Welfare Policy HS 3673 Environments for Special Needs

HS 4243 Nutrition Throughout the Life Cycle

HS 4813 Adult Development

Families, Legislation, and Public Policy HS 4333

Graduate Certificate Requirements (minimum 18 hours):

Select three of the following:

ABE 6513 Dynamics of Aging Psychology of Aging Aging & Retirement in American Society PSY 6983 6413 SO 6863 Consumer Aspects of Aging PE 8153 Wellness and Aging

Take at least two of the following (may include courses from above list):

> 6813 Adult Development

HS 6243 Nutrition Throughout the Life Cycle

8243 Community Nutrition HS

Families, Legislation, and Public Policy HS 6333

COE 8813 Counseling the Elderly COE 6713 Issues in Aging PSY 8313 Developmental Psychology

Required: Independent study/readings course (3 hours)

#### **DIVISION of BUSINESS and INDUSTRY**

Dr. Jack Tucci, Chair

Associate Professor Paul Allen; Assistant Professors Kevin Ennis, William Hill, DohKhul Kim, and Seung Jae Shin Instructors James S. Lawson, Harold White and Natasha Wilkins; Academic Advisor Regena Clark

The mission of the College of Business and Industry is to develop knowledge and critical skills in students, and to foster economic and professional development through teaching, research, and service.

#### **BACHELOR of BUSINESS ADMINISTRATION**

(Concentrations in Accounting, Business Administration, Information Systems, Management, Marketing or Resort and Convention)

Lower Division - Lower division hours must be completed at another educational institution.

English - 6 hours

EN 1103 **English Composition** English Composition EN 1113

Humanities - 6 hours

3 hours **Humanities Elective** 3 hours **Humanities Elective** 

Fine Arts - 3 hours Choose one of the following:

Art Appreciation Music Appreciation

Mathematics - 9 hours

MA 1313 College Algebra MA 1613 Calculus for Business

BQA 2113 Intro to Business Statistical Methods

Science - 6 hours

BIO, GG, CH, or PH (with laboratory)

Behavioral Science - 3 hours (Choose one)

Introduction to Psychology Introduction to Sociology Introduction to Anthropology

Additional Required Lower Division Courses

PS 1113 American Government

CO 1003 Fundamentals of Public Speaking

ACC 2013 ACC 2023 Principles of Financial Accounting

Principles of Managerial Accounting The Legal Environment of Business

BL 2413 2113 Principles of Macroeconomics EC

EC 2123 Principles of Microeconomics

7 hours Electives

#### Total lower division hours 61

## **Upper Division**

BIS 3233	Intro to Mgt Info Systems
BIS 3713	Electronic Information Systems
BQA 3123	Business Statistical Methods II
FIN 3113	Financial Systems
FIN 3123	Financial Management
MGT 3114	Principles of Management & Production
MGT 3213	Organizational Communications I
MKT 3013	Principles of Marketing
GB 4853	Business Policy (Senior course)
3 hours	International Elective

Major Electives\* General Electives\*\*

#### Total hours needed for degree: 124

## **DIVISION of EDUCATION**

Dr. George Thomas, Chair Associate Professor Laura Bryan Assistant Professors Sallie Lavnius, Bill Leewer, Janet McCarra, Julia Porter, Linda Walker, Joshua Watson and Darren Wozny Instructor Carole Smith

The Division of Education offers degree programs in areas previously listed. Education programs offered at the Meridian Campus parallel those offered through the College of Education. Specific degree program requirements may be obtained by referencing the College of Education section in this Bulletin.

Degree requirements not listed in this section may be found by referencing the corresponding degree program located within this general bulletin

<sup>\*</sup> Major elective hours by major: Accounting (24), Business Administration (24), Information Systems (30), Management (18), and Marketing (21).

Choose enough general electives to bring the total number of hours to 124.

# Reserve Officers' Training Corps

Professor of Military Science
Office: 1st Floor, Middleton Hall
Telephone: (662) 325-3503
www.msstate.edu/dept/militaryscience/info
Mailing Address: P.O. Box 5447, Mississippi State, MS 39762

Lieutenant Colonel Marcus D. Majure

Lieutenant Colonel Terry L. Dickensheet
Professor of Aerospace Studies
Office: 2nd Floor, Middleton Hall
Telephone: (662) 325-3810
www.msstate.edu/dept/afrotc
Mailing Address: P.O. Box AF, Mississippi State MS 39762

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 catalogue for further information.

Basic Courses (2 hours each)

MS 1112 Leader Development 1 MS 1122 Leader Development 2 MS 2112 Leader Development 3

MS 2112 Leader Development 3 MS 2122 Leader Development 4

#### Total of 8 hours

Advanced Courses (3 hours each)

MS 3113 Advanced Military Skills I MS 3123 Advanced Military Skills II MS 4113 Leader's Responsibilities

MS 4123 Professional Development of the Leader

# **Total of 12 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, 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 32 days at Advanced Camp (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).

#### **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.

Advanced Course. Entrance into the Advanced Course is on a selective and competitive basis. The primary requirements for entry into the advance program are satisfactory completion of the basic course or equivalent, good academic standing, demonstrated leadership ability, an approved physical examination and completion of 54 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 five weeks Basic Summer Camp. This basic summer camp 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 (eg. 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

# Pay and Allowances

**At School**. Each student enrolled in the Army Advanced Course is paid a monthly subsistence allowance by the Federal Government of \$300.00 per month.

At Summer Training. While at the Leadership Training Course, the student receives pay at the rate of the first enlisted grade with less than four months service (approximately \$726 per month). Students attending Army Advanced Camp receive pay equal to one-half the pay of a second lieutenant with less than two years service (approximately \$752 per month)

### **Army ROTC Scholarship Program**

The Army awards ROTC scholarships to outstanding students each academic year. Army ROTC scholarships are for periods of either 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 (CASH AWARDS) 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, fall semester
- AS 1022 Foundations of USAF II, spring semester
- AS 2012 Air and Space Power I, fall semester
- AS 2022 Air and Space Power II, spring semester

#### **Total of 8 hours**

Professional Officer Course (POC) 3 hours each

- AS 3013 AF Leadership Studies I, fall semester
- AS 3023 AF Leadership Studies II, spring semester
- 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 and the Air Force Officer Qualifying Test. They must be interviewed, selected by a board of USAF Officers, and have completed a four- or six-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. There are six-week encampments for students seeking POC entry who have not previously completed GMC requirements. Cadets report individually to selected Air Force bases. 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 \$350 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 three-or two-year scholarships. The majority of scholarships pay full college tuition, laboratory and incidental fees, book costs, plus at least \$250 per month, depending on academic year. Applicants are selected on the basis of college grade point average. Air Force Officer Qualifying Test 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

 $<sup>\</sup>ast$  Courses numbered 2000 or higher were upper division courses until Spring semester 1996.

# Course Descriptions in Alphabetical Order by Course Symbol

# Department of AGRICULTURAL and BIOLOGICAL ENGINEERING

Office: 100 Agricultural and Biological Engineering Center

Professors Batchelor (Head), 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 2990. Special Topics in Agricultural and Biological Engineering, (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).
- 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 4000. Directed Individual Study. Hours and credits to be arranged.
- ABE 4111/6111. Biological Engineering Principles Laboratory. (1) (Co-requisite: 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 4122/6122. Biological Engineering Practices Laboratory. (2) Six hours laboratory. The student constructs, tests, and evaluates a biological engineering design.
- 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 4803/6803. Biosystems Simulation. (3) Three hours lecture. Spring semester. Application of engineering analysis, modeling and simulation to biological systems.
- **ABE 4812/6812. Principles of Engineering Design. (2)** (Prerequisite: senior standing in engineering). Two hours lecture. Emphasizing the use of

mathematics, mechanics, and systems analysis in the design of engineering systems in agricultural, biomedical, food processing and forestry areas.

- **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 4990/6990. Special Topics in Agricultural and Biological Engineering. (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).
- ABE 7000. Directed Individual Study. Hours and credits to be arranged.
  - ABE 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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 8501-8531. Journal Reviews in Biomedical Engineering. (1) One hour lecture. Current Journal articles relevant to Biomedical Engineering topics are read and reviewed.
- 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.
- ABE 8990. Special Topics in Agricultural and Biological Engineering. (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).
- ABE 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

### **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 2063. Introduction to Agricultural Engineering Technology. (3) (Prerequisite or Co-requisite: MA 1313. Open to freshman or first-semester transfer students only). Three hours lecture. Curricula and career objectives. Quantitative and analytical assessment of the physical system in agriculture and natural resources.
- **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 2263. Agricultural Surveying and Drainage. (3) Two hours lecture. Three hours laboratory. Basic surveying measurements and equipment use. Surveys for drainage and erosion control measures, principles of water control for soil conservation and drainage.
- 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 4961. Seminar.** (1) (Prerequisite: Consent of instructor). One hour lecture. Review of current literature dealing with the technical problems in the agricultural industry.

#### SCHOOL of ACCOUNTANCY

Office: 300 McCool Hall

Professors Hollingsworth (Director) and McNair; Associate Professors Addy, Herring, Lehman and Rigsby; Assistant Professors McWhorter, Watson and Yoder.

- ACC 1203. Basic Industrial Accounting. (3) Three hours lecture. Emphasis on the fundamentals of financial and cost accounting essential for interpreting accounting reports. Designed primarily for engineering students. (Not open to students who have had 3 semester hours in accounting or who are accounting or business majors.)
- 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). (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 2990. Special Topics in Accounting. (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).
- ACC 3003. Accounting Information Systems I. (3) (Prerequisite: 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 3003). 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). 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: ACC 3023). Financial accounting and reporting related to liabilities, leases, pensions, in-

- come taxes, stockholder's equity, accounting changes, errors, cash flows, and earnings per share.
- ACC 3053. Accounting Information Systems II. (3) (Prerequisite: 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.
- **ACC 4000. Directed Individual Study.** (Prerequisites: ACC 2023 and consent of Director of School of Accountancy). Hours and credits to be arranged
- 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: ACC 3033). (Not open to PACC students). Three hours lecture. Financial accounting and reporting related to consolidations, partnerships and international business issues.
- ACC 4033. Auditing. (3) (Prerequisite: ACC 3053). (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: 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 4203/6203. Accounting Internship. (3) (Prerequisites: Senior standing and approval by the Internship Director prior to the internship). A minimum of eight consecutive weeks consisting of forty hours per week of professional experience in audit, tax and other accounting related areas.
- ACC 4990/6990. Special Topics in Accounting. (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).
- ACC 7000. Directed Individual Study. Hours and credits to be arranged.
- ACC 8013. Seminar in Financial Accounting Theory. (3) (Prerequisite: ACC 4023). 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 8103. Income Taxation of Natural Resources. (3)** (Prerequisite: ACC 4013). Three hours lecture. An examination of federal income tax laws as applied to oil and gas, solid minerals, timber, and topics in farming.
- 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. (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 8990. Special Topics in Accounting. (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).
- ACC 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.
- 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 Boyd and Kiser (head); Associate Professors Rude, Ryan and Willard; Assistant Professors Evans, Nicodemus, A. Smith, T. Smith, St. Louis, and Vann

- **ADS 1114. Animal Science. (4)** Fall and spring semester. Three hours lecture. Two hours laboratory. Fundamental principles and practical application of livestock, dairy, and poultry science.
- **ADS 1132. Western Equitation. (2)** Fall and spring semester. One hour lecture. Two hours laboratory. Principles of horsemanship and management and training of western pleasure horses.
- ADS 2102. Equine Conformation and Performance Evaluation. (2) Spring Semester. 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 2122. Advanced Equine Evaluation. (2) Fall Semester. (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 appli-

cation of psychology principles for training horses. Systematic approaches to horse training emphasizing learning principles and training methods for specific equine activities.

- ADS 2990. Special Topics in Animal and Dairy Science. (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).
- ADS 3142. Meats Judging I. (2) Spring semester. Four hours laboratory. Grading and judging meat carcasses and cuts, study of packing house operation. (Same as FNH 3142)
- ADS 3213. Performance Analysis of Meat Animals. (3) Fall Semester. One hour lecture. Four hours laboratory. Productive evaluation of livestock as meat animals directly related to carcass value and economics of production.
- **ADS 3232. Horse Science.** (2) Spring semester. Two hours lecture. Breeding, feeding, management, and training of horses.
- ADS 3233. Introduction to Therapeutic Riding. (3) (Prerequisite: ADS 1132 or consent of instructor). Two hours lecture. Two hours laboratory. An introductory course to therapeutic horseback riding discussing the therapeutic riding team, facilities and equipment, standards and accreditation, and special needs of the rider.
- ADS 3312. Livestock Management Practices. (2) (Prerequisite: ADS 1114). Four hours laboratory. Modern techniques used in proper vocational management of beef cattle, sheep, swine, and horses.
- ADS 3813. Dairy Cattle Appraisal.(3) One hour lecture. Four hours laboratory. Phenotypic appraisal; breed programs; performance record systems.
- ADS 4000. Directed Individual Study. Hours and credits to be arranged. Approval by Department Head only.
- ADS 4113/6113. 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. Fall semester. (Same as GNS 6123.)
- ADS 4212/6212. Livestock Evaluation. (2) (Prerequisite: ADS 3213). Four hours laboratory. Evaluation of individuals and representative groups of livestock from the standpoint of the breeder, the market, and the consumer. Spring semester.
- 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. Fall semester.
- ADS 4221. Animal and Dairy Sciences Senior Seminar. (1) One hour lecture. Review and oral presentation of animal science research and related production problems. Fall semester.
- ADS 4222/6222. Small Ruminant and Diversified Livestock Production. (2) (Prerequisite: ADS 114, 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 4232/6232. Advanced Livestock Evaluation. (2) (Prerequisite: ADS 4212/6212). Four hours laboratory. Advanced study of animal evaluation in functional efficiency. Fall semester.
- 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. Spring semester. (Same as FNH 4243/6243.)
- ADS 4314/6314. Meats Processing. (4) Three hours lecture. Two hours laboratory. Survey of the meat industry with emphasis on slaughtering, cutting, curing, cooling, care, storage and manufacturing meats and meat products. Spring semester. (Same as FNH 4314/6314.)
- ADS 4323/6323. Beef Cattle Science. (3) (Prerequisites: ADS 1114). Three hours lecture. Breeding, feeding, management, and marketing of beef cattle. Spring semester.
- ADS 4333/6333. Equine Exercise Physiology. (3) (Prerequisite: ADS 3232). 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. Fall Semester.
- 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 4611/6611. Practices 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 PHY 6611).
- **ADS 4613/6613. Physiology of Reproduction. (3)** (Prerequisite: BIO 1504). 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 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 PHY 6623.)
- ADS 4632/6632. Animal Biotechnology and Application of Molecular Biology. (2) (Prerequisites: BIO 1504, ADS 4613, and BCH 3613, or consent of instructor). Two hours lecture. An animal biotechnology course with an emphasis on reproduction using molecular biology tools.
- 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 4990/6990. Special Topics in Animal and Dairy Science. (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).
- ADS 7000. Directed Individual Study. Hours and credits to be arranged.
- **ADS 8233.** Advanced Breeding. (3) Fall semester. (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) 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 byproducts. (Same as FNH 8423.)
- ADS 8433. Bone, Muscle and Fat Deposition in Animals. (3) (Prerequisite: BCH 4613/6613). Fall semester. 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) Spring semester. (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 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 8811-8821-8831. Advanced Seminar. (1)** Review of literature of assigned and chosen topics in the respective field; preparation, organization, and presentation of papers.
- ADS 8990. Special Topics in Animal and Dairy Science. (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).

# Department of AGRICULTURAL ECONOMICS and AGRIBUSINESS

Office: 300 Lloyd-Ricks Building

Professors Turner (Head), Allen, Beaulieu, Herndon, Laughlin, Little, Reinschmiedt, and Spurlock; Associate Professors Coble, Hanson and Hudson; Assistant Professors Anderson and Ibendahl

- 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 2990. Special Topics in Agricultural Economics. (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).
- 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 4000. Directed Individual Study. Hours and credits to be arranged.
- **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 4233/6233. Advanced Topics in 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 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, AEC 3113 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 4611. Seminar II. (1)** (Prerequisite: Senior standing). One hour lecture. Discussion of current agricultural economics and agribusiness developments and their relation to the food and fiber sector.
- 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. Spring semester.
- **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 4723/6723. Modeling for Agricultural Management. (3) (Prerequisite: AEC 3113). Three hours lecture. Application of mathematical programming techniques to problems confronted by firms and industries involved in the production, processing, and marketing of agricultural commodities.
- **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 4990/6990.** Special Topics in Agricultural Economics. (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).
- 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 7000. Directed Individual Study. Hours and credits to be arranged
  - AEC 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **AEC 8122. Agribusiness Strategy Field Study. (2)** (Prerequisite: MGT 8121 or equivalent). A group project-based, field study of strategic issues currently facing a participating agribusiness organization.
- 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 8153. Research Philosophy and Methodology in Economics. (3) (Prerequisite: Graduate standing or consent of instructor). Three hours lecture. A study of undergirding philosophies and important methodologies in applied economic research. Case studies will focus on implications for conduct, review, and evaluation of research.
- **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 8413. Quantitative Economic Analysis. (3)** (Prerequisite: MA 1613). Three hours lecture. A mathematical exploration of model building in economics and derivation of refutable hypotheses using comparative statics analysis.
- 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 8712. Topics in Applied Economics: Production and Supply. (2) (Prerequisites: EC 8163 and EC 8133, or consent of instructor). Two hours lecture. Focuses on applying microeconomic theory to applied production-oriented problems. Emphasis is placed on using analytical tools to empirical data and reporting results.
- AEC 8722. Topics in Applied Economics: Marketing and Demand. (2) (Prerequisites: EC 8163 and EC 8133, or consent of instructor). Two hours lecture. Focuses on problem-solving skills using economic simulation techniques. Emphasis is placed on stochastic and/or dynamic applications.
- AEC 8733. Topics in Applied Economics: Welfare and Policy Analysis. (3) (Prerequisites: AEC 8712 and AEC 8722, or consent of instructor). Three hours lecture. Focuses on problem-solving skills using applied econometrics. Emphasis is placed on applications of welfare economics.
- **AEC 8813.** Advanced Production and Risk Analysis. (3) (Prerequisite: Consent of instructor). Three hours lecture. Economic theory and research applications related to production problems with emphasis on risk.
- **AEC 8823.** The International Economy. (3) (Prerequisite: Consent of instructor). Three hours lecture. Economic theory and analysis of government policies related to international trade with emphasis on the causes and consequences of globalization.
- **AEC 8833.** Environmental and Resources Economics. (3) (Prerequisite: Consent of instructor). Three hours lecture. Economic theory and analysis of government policies related to natural resources and the environment with emphasis on institutional frameworks within which policy decisions are made
- **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.
- **AEC 8990. Special Topics in Agricultural Economics. (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).
- AEC 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

# AGRICULTURAL INFORMATION SCIENCE and EDUCATION

Office: 130 Lloyd Ricks

Professors: Deeds, Gerard, Newman, Raven and Taylor; Associate Professors Browning, Jackson, and Swortzel

- 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 2990. Special Topics in Agricultural and Extension Education. (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).

- 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 Agricommunications. (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 4000. Directed Individual Study. Hours and credit to be arranged.
- 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 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 4443/6443. Vo-Ed Curricula and Techniques of Teaching the Rural Disadvantaged. (3) Organizing training programs in agricultural occupations for rural disadvantaged persons; developing teaching techniques adaptable to such programs and persons. Occupational opportunities for the rural disadvantaged.
- AIS 4453/6453. Cooperative Programs in Occupations Served by Agricultural Information Science. (3) Procedures and techniques in organizing and coordinating cooperative vocational education programs in agricultural occupations; application at the local level.
- 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 4990/6990. Special Topics in Agricultural Information Science and Education. (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).
- AIS 7000. Directed Individual Study. Hours and credits to be arranged.
  - AIS 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- AIS 8113. Planning, Organizing, and Managing AEST Programs. (3) (Prerequisite: AIS 4203/6203 or consent of instructor). One hour lecture. Six hours laboratory. Objectives, materials, and teaching methods for planning, organizing, and managing agricultural and environmental science and technology programs. (Only for agriscience teachers seeking AEST 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 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 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. History, Philosophy, and Policy of Agricultural Information Science and Education. (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 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 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 8990. Special Topics in Agricultural Information Science and Education. (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).
- AIS 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

#### ANTHROPOLOGY

Office: 206 Cobb Institute of Archaeology

Professor Rafferty; Associate Professors Hogue, Loewe and Peacock; Instrutor 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 WS 1173 and SO 1173).
- AN 1343. Introduction to Biological Anthropology. (3) Three hours lecture. The biological nature of man; study of human origins; fossil evidence; genetic mechanism; cultural association; comparative primate anatomy and behavior; concepts of race. Note: Unacceptable for Natural Science requirement in Arts and Sciences.
- 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 SO 2203).
- AN 2510. Archaeological Field Methods: Survey. (1-6) Credit to be arranged. Archaeological surface survey methods in field setting, including map-reading, shovel-testing, collection techniques, controlled surface collection, artifact recognition.
- AN 2990. Special Topics in Anthropology. (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).
- 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 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 non-human 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 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 REL 3553).

AN 4000. Directed Individual Study. Hours and credit to be arranged. AN 4123/6123. Anthropological Theory. (3) (Prerequisite: AN 1103 or

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 4990/6990. Special Topics in Anthropology. (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).

AN 7000. Directed Individual Study. Hours and credit to be arranged.
AN 8000. Thesis Research and Thesis. Hours and credits to be arranged.

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 8216. Internship in Applied Anthropology. (6) 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 thin-sectioning and petrography, raw material sourcing, organic residues, dating techniques, and preservation technology.

AN 8990. Special Topics in Anthropology. (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).

#### INTEGRATED PEST MANAGEMENT

(For departmental information, see Department of ENTOMOLOGY and PLANT PATHOLOGY.)

**APM 2990.** Special Topics in Agricultural Pest Management. (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).

**APM 4021. APM Senior Seminar.** (1) (Prerequisite: CP 2203). One hour lecture. Fall semester. Review and discussion of co-op experiences. Includes discussion of contemporary topics in pest management and development of professional skills.

APM 4990/6990. Special Topics in Agricultural Pest Management. (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).

**APM 8990.** Special Topics in Agricultural Pest Management. (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).

## SCHOOL of ARCHITECTURE

Professors West (Dean), Berk; Associate Professors Barrow, Buege, Greenwood, Lewis, McCann, Monson, Perkes, Poros; Assistant Professors Brown, Callendar, and Mathew Visiting Professors: Dye, Kellum and Kumar

**ARC 1003. Concept and Form. (3)** (Prerequisite: ART 1213 or ART 1123 or ARC 1536). 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.

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 1586-1596. Honors Architectural Design 1-A and 1-B. (6,6) (Prerequisites: Letter of Acceptance into design studio and consent of Associate Dean of Architecture). Two hours lecture. Ten hours studio. Independent investigation and presentation of an approved research topic in addition to the content described under ARC 1536-1546.

**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 2586-2596. Honors Architectural Design II-A and II-B. (6,6) (Prerequisite: ARC 1546 or 1596). One hour lecture. Eleven hours studio. Independent investigation and presentation of an approved research topic in addition to the content described in ARC 2536.

- 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.
- **ARC 2723. Materials. (3)** (Prerequisites: ARC 2536 and ARC 2713). 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 2990. Special Topics in Architecture. (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).
- **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 3343.** The Architecture of Housing. (3) Three hours lecture. An historical, social, and typological investigation of the evolution of housing as an architectural and cultural phenomenon.
- 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 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.
- ARC 3723. Active Building Systems. (3) (Prerequisites: ARC 3536 or ARC 3566 and ARC 3713 or for non-architecture majors- 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.
- **ARC 3904. Architectural Structures I. (4)** (Prerequisite: MA 1613 and ARC 2546). Three hours lecture. Three hours laboratory. Application of the principles of statics and the strength of materials on structural elements.
- **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.
- **ARC 4000. Directed Individual Study**. Hours and credits to be arranged with approval of College of Architecture Dean.
- **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 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 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 4990/6990. Special Topics in Architecture. (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).
- **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. Thesis Programming. (3)** One hour lecture. Six hours laboratory. Advanced study of analytical and intuitive methods of programming, leading to development of thesis 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 Thesis 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 7000. Directed Individual Study. Hours and credits to be arranged.
  - ARC 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **ARC 8013. Seminar in Visualization Theory.** (3) (Prerequisite: Consent of the instructor). One hour lecture. Four hours laboratory. Lectures and presentation of student papers and projects related to a selected specialized topic.
- **ARC 8023. Seminar in Digital Design Applications. (3)** (Prerequisite: Consent of the instructor). One hour lecture. Four hours laboratory. Lectures and presentations of student papers and projects related to a selected specialized topic in digital design applications.
- **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 CAD-CAM processes using automated machines and devices.
- **ARC 8143. Physically-Based Modeling.** (3) One hour lecture. Four hours laboratory. Applications of existing software to generate motion studies of dynamic and physically based phenomena. Simulation of these events in a 3D-computing environment.
- **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 8233.** Computational Media I. (3) Three hours studio. Application of the design process to the creation of interactive computational artifacts with an emphasis on visual literacy, aesthetics and communication theory.
- **ARC 8243.** Computational Media II. (3) Three hours studio. Continuation of ARC 8233. Emphasis is placed upon the creation of web-based `interactive illustrations', narrative form, and VRML/QTVR artifacts.
- **ARC 8433. Digital Compositing. (3)** (Prerequisite: ARC 8513). One hour lecture. Four hours laboratory. Study of digital compositing and image

processing, using software-based editing packages. Concepts of video editing and post production in a software computing environment.

- **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.
- **ARC 8643. Problem Solving in Virtual Space. (3)** (Prerequisite: ARC 4523/6523). One hour lecture. Four hours laboratory. Use of virtual environment technology to solve architectural problems. Investigations of architectonic form, space, lighting, and acoustics through class research projects.
- **ARC 8990.** Special Topics in Architecture. (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).

## **Department of ART**

Office: 102 Freeman Hall

Professors Funderburk, Gootee, Long, Mixon, and Seckinger; Associate Professors De Marsche (Head), Haupt, McCourt, Miller and Ngoh; Assistant Professors Bourgeois, Campbell, J. Davis, R. Davis, DeMarte, Harvey, and Runnells; Instructors Andrews, Poole and Rieth; Lecturers: Galey and Triplett

- **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 as 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 2990. Special Topics in Art. (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).
- **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. Nonobjective Painting. (3)** (Prerequisite: ART 1213). Six hours studio. Introduction to nonobjective 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.
- **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 3203. Darkroom Explorations.** (3) (Prerequisite: ART 2103 or permission of instructor). One hour lecture. Four hours studio. Advanced techniques of photographic processes in black and white with emphasis on aesthetics.
- **ART 3213. Life Drawing II (3)** (Prerequisite: ART 2213). Six hours studio. Further study in rendering the human figure.
- **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 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 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 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 3713. 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 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 3873. Digital Photography. (3)** (Prerequisites: ART 2103 and ART 3423 or permission of instructor). Six hours studio. The techniques and aesthetics of digital imagery emphasizing the use of traditional photographic input and output processes.
- ART 4000. Directed Individual Study. Hours and credits to be arranged.
- **ART 4013/6013. Advanced Painting. (3)** (Prerequisite: ART 3043). Six hours studio. Advanced study in painting with emphasis on the student's personal needs and interests.
- **ART 4083. Senior Honors Research in Art. (3)** (Prerequisites: Senior standing, and consent of instructor). The application of research methods for the fine artist in contemporary society.
- **ART 4093. Senior Honors Thesis in Art. (3)** (Prerequisites: ART 4083, or consent of instructor). (Co-requisite: enrollment in studio emphasis course). The proposal, development and execution of a project or exhibition.
- 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 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 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 agencyclient situations in order to develop efficient, distinguishable and competitive promotional campaigns.
- **ART 4443/6443. Alternative Color. (3)** (Prerequisites: ART 2103 and ART 3423 and permission of instructor). One hour lecture. Four hours studio. Advanced problems in color photography utilizing the dye transfer and polaroid processes. Additional projects for graduate 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.
- **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 4543/6543. Art and Architecture of Japan. (3)** (Prerequisite: ART 1113, 1013, 1023, or consent of instructor). Three hours lecture. Discussion of the major developments in the art and architecture of Japan.
- **ART 4563/6563. Art of India and Southeast Asia. (3)** (Prerequisite: One of the following: ART 1113, 1013, 1023, HI 1163, REL 1103, 3453). Three hours lecture. Discussion of the major developments in the art and architecture of India and Southeast Asia, 200 B.C. to 1200 A.D.
- **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 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 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 date.
- 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 3103 and ART 2803 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 4990/6990. Special Topics in Art. (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).
- **ART 6683. Introduction to Animation/Multimedia. (3)** (Prerequisite: Acceptance into the MFA program in Art or the MS program in Architecture, or consent of instructor). One hour lecture. Five hours studio. Introduction to basic animation and multimedia principles and practice.
- **ART 6763. Sequential Art I. (3)** Six hours studio. Readings on sequential art and the history of traditional and computer animation inform students working in traditional forms and techniques of temporal composition.
- ART 7000. Directed Individual Study. Hours and credits to be arranged.
- **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 8043. Seminar in Electronic Visualization I. (3)** Six hours studio. Seminar in contemporary issues critical to electronic visualization and digital media.
- 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 III, 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 8123. Multimedia Installation and Performance. (3)** (Prerequisite: ART 8103 or consent of instructor). One hour lecture. Five hours studio. Coursework relates advanced interactivity concepts in computer-based multimedia to the broader context of performance art and installation for alternate as well as gallery settings.
- **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.
- **ART 8603.** Advanced Figurative Studio. (3) (Prerequisite: Six hours undergraduate life drawing courses or consent of instructor). Six hours studio. An advanced studio course in drawing, painting, and/or digital media utilizing the human figure as subject.
- **ART 8990.** Special Topics in Art. (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).

#### AIR FORCE AEROSPACE STUDIES

- Office: Second Floor, Middleton Hall Lt. Col. Dickensheet, Capt. Ethridge, and Lt. Mobley
- 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 2990. Special Topics in Aerospace Studies. (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).
- 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.
- **AS 4990. Special Topics in Aerospace Studies. (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).

#### Department of AEROSPACE ENGINEERING

Office: 330 Walker Engineering Laboratories

Professors Cinnella, Edwards, Koenig, Lawrence, Newman, Jr., Rais-Rohani, J. Thompson, Vizzini (head); Associate Professors Bridges, Janus, Lacy, Newman III, D. Thompson; Assistant Professors C. Olsen, G. Olsen, Sullivan, Xin; Instructor Hannigan

- 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) (Prerequisite: ASE student or permission 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 1023 and a grade of C or better 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. Flight Mechanics I—Performance. (3) (Prerequisite: EM 2413). Three hours lecture. Introduction to general aerodynamics, propulsive and structural considerations of flight mechanics, quasi-steady flight; non-steady flight; maneuvering flight; high performance vehicles.
- ASE 2990. Special Topics in Aerospace Engineering. (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).

- ASE 3123. Aircraft Attitude Dynamics. (3) (Prerequisites: ASE 2013, EM 2433, credit or registration 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: EM 3213). Three hours lecture. Introduction to structural materials and loads. Deflection analysis using energy methods, flexibility-based matrix method, and the finite element method. Influence of design on deflection and vice versa.
- ASE 3223. Aerospace Structural Analysis. (3) (Prerequisite: 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: 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: MA 2733, PH 2213). Three hours lecture. Energy; first and second laws of thermodynamics; entropy; properties of ideal gases; mixtures; gas power cycles; one-dimensional compressible flow; introduction to heat transfer.
- **ASE 3813. Introduction to Orbital Mechanics. (3)** (Prerequisites: EM 2433 and MA 3253). Three hours lecture. Two-body 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 4000. Directed Individual Study. Hours and credits to be arranged.
- **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 2013). 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 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, 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 4990/6990. Special Topics in Aerospace Engineering. (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).
- 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.
- $\boldsymbol{ASE}$  7000. Directed Individual Study. Hours and credits to be arranged.
  - $\boldsymbol{ASE}$  8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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 three-dimensional 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 8533. Advanced Numerical Grid Generation. (3) (Prerequisite: ASE 4433/6433 or consent of instructor). Three hours lecture. Structured-unstructured hybrid composite grid configurations, truncation error analysis, direct-indirect grid generation methods, grid refinement, adaptive gridding.

ASE 8990. Special Topics in Aerospace Engineering. (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).

 $\boldsymbol{ASE}$  9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

# Department of BIOCHEMISTRY and MOLECULAR BIOLOGY

Office: 402 Dorman Hall

Professors Boyle (Head), Jenkins\*, Ma, Willeford and Williams\*; Assistant Professors Braasch, Brown, Jung, Li and Wilkinson (\*- 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 2990. Special Topics in Biochemistry. (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).

**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 4000. Directed Individual Study. Hours and credits to be arranged.

BCH 4013/6013. Principles of Biochemistry. (3) (Prerequisites: CH 2503, BIO 1504 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 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 4414/6414. Protein Methods. (4) (Prerequisite: Coregistration in BCH 4603/6603). Two hours lecture. Four hours laboratory. A comprehensive course to teach the student the modern methods of protein biochemistry.

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: Coregistration 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: Coregistration 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: Coregistration 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 4990/6990. Special Topics in Biochemistry. (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).

BCH 7000. Directed Individual Study. Hours and credits to be arranged.

BCH 8000. Thesis Research/Thesis. Hours and credits to be arranged. BCH 8101. Seminar. (1) Review of current literature; individual presentation of research or classical topics.

**BCH 8243. Molecular Biology of Plants. (3)** (Prerequisite: Coregistration 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 presentation. 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 Coregistration 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.

**BCH 8990.** Special Topics in Biochemistry. (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).

BCH 9000. Dissertation Research/Dissertation. (1-9) Hours and credit to be arranged.

# **Department of BIOLOGICAL SCIENCES**

Office: 130 Harned Biology Building

Professors Buddington, Chambers\*, Champlin, Diehl, Downer, Gavini (head), Pulakat, St. Cyr Coats, and Wise; Associate Professors Munn, Taylor and Williams Assistant Professors Ervin and Linder Instructors Fuquay, Holder, Reese and Williamson

**BIO 1001. Biology Laboratory.** (1) Three hours laboratory. Accompanies BIO 1033. May be used also as AP credit to satisfy one hour Biology, Botany, or Zoology laboratory. Selected exercises to illustrate fundamental concepts of biology.

**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 1203 nor for both BIO 1023 and BIO 1033, 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 1033. Biological Science.** (3) Three hours lecture. Students may not have credit for both BIO 1033 and BIO 1023, nor for both BIO 1033 and BIO 1123. Basic principles and modern concepts pertaining to levels of biological organization from cell to biosphere and life forms of biological kingdoms.

**BIO 1123. Animal Biology. (3)** Two hours lecture. Two hours laboratory. For non-science majors. Students many not have credit for both BIO 1123 and BIO 1504. Basic understanding of life processes, diversity, inheritance, reproduction, ecology, and evolution.

**BIO 1203. Plant Biology. (3)** Two hours lecture. Three hours laboratory. (Students may not have credit for both BIO 1023 and BIO 1203.) An introduction to the biology of flowering plants. Topics include plant physiology, anatomy and morphology, development, genetics and evolution.

BIO 1301. Perspectives in Medical Technology. (1) One hour lecture. A survey of all aspects of medical technology. (Fall).

**BIO 1504. Principles of Zoology. (4)** Three hours lecture. Three hours laboratory. For science majors. Students may not have credit for both BIO 1123 and BIO 1504. Introduction to animal biology, including genetics, embryology, physiology, cell biology, ecology and behavior.

- **BIO 2004. Human Anatomy. (4)** Three hours lecture. Three hours laboratory. The study of the structure of the human body. The gross and microscopic anatomy of each organ system will be presented.
- **BIO 2014. Human Physiology.** (4) Three hours lecture. Three hours laboratory. Survey of physiological systems and principles and their interrelationship in humans. Designed for paramedical and pre-nursing students and dietetic majors.
- **BIO 2103.** Cell Biology. (3) (Prerequisites: 6 hours of biology, CH 1223). Three hours lecture. A comparative study of cell structure among plant, animal and bacterial systems. (Fall/spring).
- **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. (Spring).
- **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 2990. Special Topics in Biology.** (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).
- **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 3103. Genetics I. (3)** (Prerequisites: MA 1313. BIO 1504 or BIO 1203, or equivalents). (Same as PO 3103 and GNS 3103).
- **BIO 3104.** Ecology. (4) (Prerequisite: BIO 1504). 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 1504 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 1504 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. (FaII)
- **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 coregistration 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)** (Prerequisite: BIO 1504). Two hours lecture. Six hours of laboratory. The vertebrate animals; relationships of organs and systems; and their phylogenetic significance. (Fall).
- **BIO 3514. Invertebrate Zoology. (4)** (Prerequisite: BIO 1504). Three hours lecture. Three hours laboratory. Invertebrate organisms with emphasis on structure, function, taxonomy, phylogeny and life histories.
- 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 4000. Directed Individual Study. Hours and credits to be arranged.
- **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 4103/6103. Experimental Genetics. (3)** (Prerequisites: BIO 3103 or consent of instructor). Six hours laboratory. Mechanisms of transmission of genetic information with first-hand experience in inducing such mechanisms from experimental data. Emphasis is on lab.
- **BIO 4113/6113. Evolutionary Biology. (3)** Three hours lecture. Historical development of evolutionary theory; variation and natural selection in populations; speciation; current concepts of phylogeny and systematics.

- BIO 4114/6114. Cellular Physiology (4) (Prerequisites: Seven hours of zoology and two semesters of organic chemistry). Three hours lecture. Three hours laboratory. A study of the morphology and function of the cell. (Fall). (Same as PHY 6114).
- BIO 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 GNS 4133/6166).
- **BIO 4203/6203. Taxonomy of Spermatophytes. (3)** (Prerequisites: BIO 1203 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 1203 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 1203 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 4223/6223. Freshwater Algae. (3)** (Prerequisites: BIO 1203). Two hours lecture. Three hours laboratory. Cytology, morphology, physiology, reproduction and ecology of major groups of freshwater algae; laboratories emphasize identification of common freshwater algal genera.
- **BIO 4303/6303. Bioinstrumentation. (3)** (Prerequisite: BIO 4304/6304). Two hours lecture. Two hours laboratory and demonstrations. Theory and practical application of electrical, optical and other instruments employed in microbiology and medical technology. (Spring).
- **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. (Fall).
- **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. (Spring).
- **BIO 4324/6324. 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 PSS 4314)
- 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. (Fall and Spring).
- **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 and BIO 3103 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, 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. (Fall)
- **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 4502/6502. Toxicology.** (2) (Prerequisite: 8 hours biological sciences and 8 hours chemistry [cell biology/physiology and biochemistry recommended]). Two hours lecture. An introduction to the field of toxicology,

including discussion of absorption, metabolism mode of action (acute and chronic), environmental effects, and toxicity testing.

- **BIO 4503/6503. Vertebrate Histology. (3)** (Prerequisite: BIO 1504). Two hours lecture. Three hours laboratory. Study of the microscopic anatomy, structure, and function of major cell types and tissues. (Fall).
- BIO 4504/6504. Comparative Vertebrate Embryology. (4) (Prerequisite: BIO 1504). 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. (Spring).
- **BIO 4513/6513. Ichthyology. (3)** (Prerequisite: BIO 1504 or equivalent). Two hours lecture. Three hours laboratory. Structure, evolution, classification, and life histories of fishes of the world with emphasis on North American freshwater forms. (Fall).
- BIO 4514/6514. Animal Physiology. (4) (Prerequisites: Ten hours of zoology and organic chemistry). Three hours lecture. Three hours laboratory. Function and interrelationship of the systems of the body. (Spring). (Same as PHY 6514).
- **BIO 4523/6523. Mammalogy.** (3) (Prerequisite for undergraduates: BIO 3524 or equivalent). Two hours lecture. Three hours laboratory. Evolution, systematics, and ecology of mammals, with emphasis on North American groups. (Fall).
- **BIO 4543/6543. Ornithology. (3)** (Prerequisites: Eight hours of zoology). Two hours lecture. Three hours laboratory. Recent and fossil avifauna of the world; its origin, distribution, classification, and biology. (Spring).
- **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 4713/6713. Field Botany for Teachers.** (3) (Prerequisite: Three hours of biology). Two hours lecture. Three hours laboratory. Plants in their natural habitats with emphasis on identification, ecological associations, life histories and importance to man and other organisms. (Summer). Note: Will not satisfy any Arts and Sciences core requirement.
- **BIO 4990/6990. Special Topics in Biology. (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).
- **BIO 8011. Seminar.** (1) One hour. Required once of each on-campus M.S. or Ph.D. student. Formal oral presentation of current topics in biology.
- **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 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 8104. Experimental Molecular Biology. (4)** (Prerequisite: Consent of instructor). One hour lecture. Six hours laboratory. Practical experience with the molecular analysis of gene function.
- **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 8123. Physiological Ecology. (3)** (Prerequisite: One semester of physiology or consent of instructor). Three hours lecture. An advanced study of physiological and metabolic adaptations of animals to variable factors in the environment. (Spring, even years).
- **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. (Spring).
- **BIO 8223. Plant Metabolism.** (3) (Prerequisites: BIO 4214 and organic chemistry). Three hours lecture. Photosynthesis, respiration, nitrogen metabolism, and other metabolic processes. (Fall).
- BIO 8403. Advanced Microbial Physiology. (3) (Prerequisite: BIO 4463 or the equivalent). Three hours lecture. Discussion of current concepts regarding the molecular basis of prokaryotic macromolecular biosynthesis and cell division and susceptibility of such processes to inhibition by antibiotics. (Spring, odd years).
- **BIO 8453. Advanced Virology.** (3) (Prerequisite: Cell Biology or equivalent). Three hours lecture. Literature survey in virus research. (Spring, odd years).
- BIO 8463. Advanced Bacterial Genetics. (3) (Prerequisites: BCH 4713 or BIO 4443, or consent of instructor). Three hours lecture. Discussion of current concepts of genetic transfer and regulation in various bacteria. Emphasis will be on use of genetics as an experimental tool. (Fall, even years.)

**BIO 8990.** Special Topics in Biology. (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).

#### **Off Campus**

The courses listed below are offered during the year of clinical training at affiliate hospitals. (See list of affiliate hospitals.)

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.
- **BIO 4602.** Urinalysis. (2) (Prerequisite: Completion of all preprofessional requirements). One hour lecture. Two hours laboratory. A study of urine as a diagnostic tool. (Spring).
- **BIO 4606. Clinical Microbiology. (6)** (Prerequisite: Completion of all preprofessional requirements). Three hours lecture. Six hours laboratory. Isolation and identification of micro-organisms from clinical specimens. Includes bacteriology, virology, mycology and parasitology. Second summer term.
- **BIO 4612. Special Topics. (2)** (Prerequisite: Completion of all preprofessional requirements). Four hours lecture or laboratory. An assigned project as determined by the needs or interests of the student. (Spring).
- **BIO 4614.** Serology and Immunology. (4) (Prerequisite: Completion of all preprofessional requirements). Two hours lecture. Four hours laboratory. A study of the immune system of the human body. Diagnostic procedures using antigen-antibody reactions. (Fall).
- **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. (First summer term.)
- **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. (Spring).
- **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. (Fall)
- **BIO 7000. Directed Individual Study.** Same as GCRL Zoology 561. Hours and credits to be arranged. Directed Individual Study courses usually require prerequisites of BIO 4326/6326.
- BIO 8000. Thesis research/Thesis. Same as GCRL Zoology 561. Hours and credits to be arranged.
- BIO 9000. Dissertation Research/Dissertation. Same as GCRL Zoology 561. Hours and credits to be arranged.

# **BUSINESS INFORMATION SYSTEMS**

(For departmental information, see DEPARTMENT of MANAGEMENT and INFORMATION SYSTEMS.)

- BIS 1012. Introduction to Business Computer Systems. (2) One hour lecture. Two hours laboratory. Overview of business information systems. Integrating computer hardware, software, data, personnel, and procedures is stressed. Instruction in personal productivity packages and the Internet is provided.
- BIS 1733. Visual Basic Programming. (3) (Prerequisite: a grade of B or above in BIS 1012, TKT 1273 or equivalent; or graduate standing). Three hours lecture. Introduction to procedural, event and object-oriented programming to develop business and e-commerce applications.
- BIS 1753. Introduction to Business Applications Using COBOL. (3) (Prerequisite: a grade of B or above in BIS 1733 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 2990.** Special Topics in Business Information Systems. (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).
- **BIS 3233. Management Information Systems.** (3) (Prerequisite: BIS 1012). Three hours lecture. A survey of the components, functions, and processes of Information Systems as they relate to managing modern organization for increased efficiency and competitiveness.
- **BIS 3523. Advanced Languages I. (3)** (Prerequisites: a grade of "B" or above in BIS 1753, 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: a grade of B or above in BIS 1753). Three hours lecture. Introduction to business database applications. Includes data modeling, design techniques, and data collection, storage, manipulation, and retrieval strategies.
- BIS 4000. Directed Individual Study. Hours and credits to be arranged.
- BIS 4113/6113. Business Information Systems Security Management. (3) (Prerequisite: BIS 3233 or consent of instructor). 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 any 9 hours of university-level programming, or graduate standing). 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 grade of B or higher in any 9 hours of university-level 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 and BIS 4753, or graduate standing). Three hours lecture. Theory and application of decision support, business intelligence, integrated collaboration systems, and data mining using advanced computing techniques. Handson experience in developing decision support systems.
- BIS 4753. Structured Systems Analysis and Design. (3) (Prerequisite: a grade of B or above in BIS 1753). 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. Electronic Commerce Seminar. (3)** (Prerequisite: Graduating Senior and 15 hours of BIS courses). Three hours lecture. Preparation for IS careers, management of information systems, technical skill tuning, and technology updates with emphasis on fundamentals of e-commerce technology and e-commerce business models.
- BIS 4990/6990. Special Topics in Business Information Systems. (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).
- BIS 7000. Directed Individual Study. Hours and credits to be arranged.
  - BIS 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- BIS 8112. Managing Information Technology and Systems. (2) (Prerequisite: BIS 8022 or equivalent). 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: BIS 8022 or equivalent). 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) (Prerequisites: Six hours of programming and prerequisite or co-requisite BIS 8112). Three hours lecture. Analysis/design of computer-based information systems using structured methodologies and tools. Emphasis on problem definition, data collection, requirement structuring, solution generation and system design.
- BIS 8313. Advanced Database Design Administration. (3) (Prerequisites: BIS 8213, BIS 8413 and BIS 8613.) 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: Six 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) (Prerequisites: BIS 8213, BIS 8413 and BIS 8613). Three hours lecture. The evaluation, analysis and design of information systems utilizing data communications and networking concepts and techniques. Emphasis is on business applications and related considerations.
- **BIS 8613. MIS Administration.** (3) (Prerequisites: Six hours of programming and prerequisite or co-requisite: BIS 8112). 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) (Prerequisites: BIS 8213, BIS 8413 and BIS 8613; co-requisites or prerequisites: BIS 8313 and BIS 8513). 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 8990.** Special Topics in Business Information Systems. (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).
- BIS 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.
- 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. (3) (Prerequisite: BIS 8213, BIS 8313). In-depth study of current MIS topics. Emphasis will be on project design and demonstration. Topics will change to reflect new directions in MIS.

## **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 2990.** Special Topics in Business Law. (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).
- 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 4000. Directed Individual Study**. (Prerequisite: Junior standing) Hours and credits to be arranged.
- **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 4253/6253. Real Estate Law. (3) (Prerequisite: BL 2413 or consent of instructor). Three hours lecture. The legal principles applicable to real es-

tate, including types of ownership and interests, mortgages, restrictions, and regulations

- **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 4990/6990. Special Topics in Business Law. (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).
- **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 2990.** Special Topics in Business Statistics. (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).
- 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 4000. Directed Individual Study. (Prerequisite: Junior standing). Hours and credits to be arranged.
- BQA 4990/6990. Special Topics in Business Statistics. (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).
- BQA 7000. Directed Individual Study. Hours and credits to be arranged.
- **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 8443. Statistical Analysis for Business Decision-making. (3) (Prerequisites: BQA 3123 and computer proficiency). 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 8990.** Special Topics in Business Statistics. (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).

**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.

## **COMMUNITY COLLEGE**

(For departmental information, see INSTRUCTIONAL SYSTEMS, LEADERSHIP, and WORKFORCE DEVELOPMENT.)

Program Coordinator: Dr. Ed Davis

- 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 8233. Community College Legal Issues. (3) Three hours lecture. In-depth analysis of the legal/policy issues pertaining to students, faculty, and administrations of community colleges.
- 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.

# Department of CIVIL & ENVIRONMENTAL ENGINEERING

Office: 235 Walker Engineering Building

Professors Truax (head), Martin, Rendon, Sinno, and White; Associate Professors Cole, Eamon, and Magbanua; Assistant Professors Howard, Saucier and Zhang

- **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 2990. Special Topics in Civil Engineering.** (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).
- **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. Analytical and graphical methods of structural analysis; stress diagrams; influence lines; deflection; methods of work, moment distribution and slope deflection.

- 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 4000. Directed Individual Study. Hours and Credits to be arranged.
- 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 4303/6303. Stress Analysis. (3)** (Prerequisites: Grade of C or better in EM 3213; credit in MA 3253). Two hours lecture. Three hours laboratory. Stress and strain at a point, theories of failure, shear center, elastic instability, columns, dynamic loads and theory of measurements.
- **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 4323/6323. Failure of Engineering Methods. (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 ME 4123/6123).
- 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; credit or current 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; credit or current enrollment in CE 4601). Three hours lecture. Analysis and design of metal structures, with emphasis on members and joints.
- CE 4633. Concrete Structures. (3) (Prerequisite: Grade of C or better in CE 3603 and CE 3601; credit or current enrollment in CE 4601). Three hours lecture. Theory and problems in the analysis and design of concrete structures
- CE 4653/6653. Timber Design. (3) (Prerequisite: Grade of C or better in CE 3603 and CE 3601; credit or current enrollment in CE 4601). Three hours lecture. Engineering properties of wood. Design of wood structural members and connections. Wood structural systems.
- **CE 4663/6663. Matrix Methods of Structural Analysis. (3)** (Prerequisite: Grade of C or better in CE 4603/6603, or consent of instructor). Three hours lecture. A unified treatment of beams, trusses, frames, and grids. Particular emphasis on stiffness methods.
- 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. AASHTO loading specifications. Designs of structural systems commonly used for bridge construction. 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 theory and practice applied to complex 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 4713. Forensic Engineering.** (3) (Prerequisite: Within 30 CE hours of graduation). Three hours lecture. The practice of forensic engineering, litigation, arbitration and mediation, failure case studies, investigation of failure, forensic engineering procedures.
- CE 4843/6843. Advanced Sanitary Analysis. (3) (Prerequisite: Grade of C or better in CE 3803). 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 hazardous waste materials.
- CE 4990/6990. Special Topics in Civil Engineering. (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).
- CE 4903/6903. Civil Engineering Comprehensive. (3) (Prerequisite: Graduation semester, or consent of instructor). Engineering, ethical and professional practice considerations in the planning, design and construction of civil engineering projects.
- CE 7000. Directed Individual Study. Hours and credits to be arranged.

- CE 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- CE 8133. Traffic Flow Theory. (3) (Prerequisite: Grade of C or better in CE 4143/6143). Three hours lecture. An analysis of the engineering and mathematical principles of traffic flow.
- CE 8323. 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. (Same as ME 8223)
- CE 8433. Advanced Foundations. (3) (Prerequisite: Grade of C or better in CE 4433). 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). Two hours lecture. Three hours laboratory. A study of the physical properties of soil masses as related to foundation engineering.
- 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). 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 8613. Advanced Design in Metals. (3)** (Prerequisite: Grade of B or better in CE 4683/6683 or consent of instructor). Three hours lecture. Principles and methods of design based on the plastic properties of steel.
- 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 8643. Prestressed Concrete. (3) (Prerequisite: Grade of C or better in CE 4633 and CE 4601). Three hours lecture. Design of prestressed concrete structures with emphasis on flexural design of beams and slabs. Description of construction materials and methods.
- CE 8663. Advanced Computational Methods in Structural Analysis. (3) (Prerequisite: Grade of B or better in CE 4663/6663 or consent of instructor). Three hours lecture. Advanced computational methods used in the stiffness analysis of two- and three-dimension structures. Programming strategies and techniques used in computer software development.
- CE 8683. Finite Element Analysis in Structural Engineering. (3) (Prerequisite: CE 4663/6663). 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 8693. Advanced Structural Design. (3) (Prerequisites: Grade of C or better in CE 4623, CE 4633 and CE 4601). Three hours lecture. The analysis and design of complex structural systems. Advanced methods of analysis, including computer methods.
- 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 8893.** Industrial Waste Management. (3) (Prerequisite: Consent of instructor). Three hours lecture. Delineation of industrial wastes; the regulations pertaining to them; and the technologies applied in their being reduced, reused, recycled, treated, and disposed.
- 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 8990. Special Topics in Civil Engineering.** (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).
- CE 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

## **Department of CHEMISTRY**

Office: 1115 Hand Chemical Laboratory

Professors Mead (Head), Oldham, Pittman, Rabideau, Saebo, Wilson and Wipf:

Associate Professors Armbrust, Foster, Henry, Liand, and Sygula; Assistant Professors Beatty, Gwaltney, Thomas and Young; Instructor/Lab Coordinator: Holman; Instructor Beard

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 1053. Experiments designed to illustrate the practical aspects of chemistry.
- **CH 1053. Survey of Chemistry II. (3)** Three hours lecture. 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 22 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. Offered each semester.
- 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 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 2313. Introduction to Analytical Chemistry. (3) (Prerequisites: CH 1221 and CH 1223). Two hours lecture. Three hours laboratory. An introduction to quantitative methods in analytical chemistry and an abbreviated laboratory including titrimetric, spectrometric, separations, and electrochemical methods. For non-chemistry majors.
- CH 2314. Analytical Chemistry I. (4) (Prerequisites: CH 1221 and 1223). Two hours lecture. Six hours laboratory. The principles of quantitative analytical chemistry and a laboratory including gravimetric, titrimetric, spectrometric, separations, and electrochemical methods. Required for chemistry majors.
- CH 2501. Elementary Organic Chemistry Laboratory. (1) (Prerequisite: CH 1221 or CH 1051). Three hours laboratory. A laboratory course to accompany CH 2503.
- CH 2503. Elementary Organic Chemistry. (3) (Prerequisite: CH 1223 or CH 1053). Three hours lecture. A terminal course in organic chemistry. Common aliphatic, aromatic, and heterocyclic compounds.
- **CH 2990. Special Topics in Chemistry. (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).

- 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 4000. Directed Individual Study. Hours and credits to be arranged.
- **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. Physical Chemistry I. (3)** (Prerequisites: CH 1223, PH 2213 and MA 1723). Three hours lecture. A study of the quantitative and theoretical properties of matter. 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. Physical Chemistry II. (3) (Prerequisites: CH 1223, PH 2213 and MA 1723). Three hours lecture. Topics include solid state, surface chemistry, macromolecules, quantum mechanics, spectroscopy, and statistical thermodynamics.
- **CH 4433/6433. Intermediate Physical Chemistry. (3)** (Prerequisite: CH 4423/6423). Three hours lecture. A study of quantum mechanics, molecular spectroscopy, and statistical mechanics.
- CH 4511/6511. Organic Chemistry Laboratory I. (1) (Prerequisites: CH 1221 and CH 1223). Three hours laboratory. A laboratory course to accompany CH 4513/6513 for premedical, biological, and chemical engineering students.
- **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 for majors in chemistry, chemical engineering, premedical, and biological sciences.

- **CH 4521/6521. Organic Chemistry Laboratory II.** (1) (Prerequisites: CH 4511/6511 and CH 4513/6513). Three hours laboratory. A laboratory course to accompany CH 4523/6523 for premedical, biological, and chemical engineering students.
- 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 for majors in chemistry, chemical engineering, premedical, and biological sciences.
- 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 4544/6544. Qualitative Organic Analysis. (4) (Prerequisite: CH 4523/6523). Two hours lecture. Six hours laboratory. A course designed to develop technique in the identification of organic compounds.
- **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 4990/6990. Special Topics in Chemistry. (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).
- CH 7000. Directed Individual Study. Hours and credits to be arranged.
  - CH 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **CH 8711-8741. 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.
- CH 8990. Special Topics in Chemistry. (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).
- $CH\ 9000.$  Dissertation Research/Dissertation. Hours and credits to be arranged.

#### **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) (Prerequisites: CH 4423 and MA 3253). Three hours lecture. An introduction to various methods for studying molecular structure. Methods covered include quantum mechanics, statistical mechanics, molecular spectroscopy, and nuclear chemistry.
- CH 8473. Quantum Chemistry I. (3) (Prerequisites: PH 4723, MA 3353, MA 4153). Three hours lecture. Schrodinger theory, spherically symmetric systems, metrix mechanics, angular momentum and spin, time-independent perturbation theory.

# Dave C. Swalm School of CHEMICAL ENGINEERING

Office: 330 Swalm Chemical Engineering Building

Professors George, Rogers, Schulz, and White (Director); Associate Professors Bricka, Elmore, H. Toghiani and R. Toghiani; Assistant Professors French, Hernandez, Hill, Minerick and Walters

- 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) (Prerequisites: CH 1223 and CH 1221). 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 statistical techniques with the application of modern computational tools available to engineers.
- CHE 2990. Special Topics in Chemical Engineering. (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).
- **CHE 3113.** Chemical Engineering Thermodynamics I. (3) (Prerequisites: CH 1223, MA 2733 and PH 2213, credit or registration in 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) (Prerequisite: MA 2743, PH 2223, C or better in 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)** (Prerequisite: PH 2213). 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)** (Prerequisite: CHE 3203; Co-requisite: CHE 3113). 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) (Prerequisite: C or better in CHE 3203, 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) (Prerequisite: 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 4000. Directed Individual Study. Hours and credits to be arranged.
- **CHE 4113/6113. Chemical Reactor Design. (3)** (Prerequisites: MA 3253, C or better in CHE 3123). Three hours lecture. The fundamentals of chemical reaction kinetics with applications.
- CHE 4134/6134. Process Design. (4) (Prerequisite: IE 3193, C or better in CHE 3123, C or better in 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 4223/6223. Process Instrumentation and Control. (3) (Prerequisites: MA 3253, C or better in CHE 3213, 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: grade of C or better in both 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: MA 3253 and PH 2233). Three hours lecture. Fundamental principles of momentum, heat and mass transport. Relationships between transport processes and the physical property distributions in fluid and solids.
- 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 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 4990/6990. Special Topics in Chemical Engineering. (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).
- CHE 7000. Directed Individual Study. Hours and credits to be arranged.
  - CHE 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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, non-idea 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 8243. Advanced Equilibrium Stage Operations. (3) (Prerequisite: CHE 3223). Three hours lecture. Phase equilibrium. Multi component separations. Analytical and graphical methods. Equipment specification.
- 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 8990. Special Topics in Chemical Engineering. (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).
- CHE 9000. Dissertation Research/Dissertation. Hours and credit to be arranged.

#### **COMPUTATIONAL ENGINEERING**

Office: 8 Engineering Research Center

Professors: Cinnella, Harden, Horstmeyer, King, Marcum, Moorhead, Novotny, Oppenheimer, D. Reese, and J. Thompson
Associate Professors: Banicescu, L. Bruce, Burgeen, Fowler, Haupt, Janus, Lacy, Newman III, O'Hare, and D.Thompson
Assistant Professors: Fang, Gullett, Luke, Rajendran, Remotigue, Sheng and Wu

- CME 2990. Special Topics in Computational Engineering. (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).
- CME 4000. Directed Individual Study. Hours and credits to be arranged.
- CME 4413/6413. Principles and Practice of Computational Field Simulation. (3) (Prerequisite: CME 3413 or senior standing in College of Engineering). Two hours lecture. Two hours laboratory. A broad-based treatment of the principles of computational simulation, with emphasis on applications to realistic engineering problems. Interactive classroom experience coupled with outside projects.
- CME 4990/6990. Special Topics in Computational Engineering. (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).
- CME 7000. Directed Individual Study. Hours and credits to be arranged.
  - CME 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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
- CME 8990. Special Topics in Computational Engineering. (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).
- CME 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

## **Department of COMMUNICATION**

Office: 130 McComas Hall

Anthony, Brown, Defore, J. Durst, W. Durst, Edgerton-Webster, Edmonds, Flick, Forde (head), Fountain, Goodman, Harris, Hill, Huttenstine, Kern, Kleinmann, Mann, McCormick, McDavid, M. Smith, P. Smith, 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 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 Communication Theory. (3) (Prerequisite: CO 1003 or CO 2253). 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 1423. History of the Mass Media. (3) Three hours lecture. The origin and development of newspapers, magazines, radio, television and film in America as a means to mass communications.
- 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.
- ${\bf CO~1543.~Theater~Practicum~\#4.~(3)~Nine~hours~laboratory.~Preparation~for~and~participation~in~department~production~activities.}$
- 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 2343. Writing for Radio, Television, and Film. (3) (Prerequisite: CO 1403). Three hours lecture. Study and practice of the principles and techniques of documentary and dramatic script writing.
- CO 2413. Introduction to News Writing and Reporting. (3) (Prerequisites: CO 1403, two semesters composition, and ability to type). Three hours lecture. 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 2990. Special Topics in Communications. (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).
- 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 3403. Introduction to Photography as Communication. (3)** Three hours lecture. Study and practice of fundamentals of photography as a communicative art.
- 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 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 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 4000. Directed Individual Study. Hours and credits to be arranged.
- 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) (Prerequisite: CO 1223). Three hours lecture. Analysis and evaluation of the verbal and non-verbal dimensions of political communication in the United States since 1609.
- 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 4403/6403. Journalism Ethics. (3) (Prerequisite: CO 2413). Three hours lecture. Examination of ethical problems in contemporary journalism.
- 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 4803/6803. Research in Public Relations and Advertising. (3) Prerequisite: CO 3803 or MKT 3013 or consent of instructor, or graduate standing). 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, CO 4253/6253). Three hours lecture. Studies in using various communication techniques for image building and campaign development for profit and non-profit organizations.
- **CO 4990/6990. Special Topics in Communications. (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).
  - CO 7000. Directed Individual Study. Hours and credit to be arranged.
  - CO 8000. Thesis Research/Thesis. Hours and credit to be arranged.
- 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.
- **CO 8990. Special Topics in Communications. (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).

## Department of COUNSELOR EDUCATION, EDUCATIONAL PSYCHOLOGY & SPECIAL EDUCATION

Office: 508 Allen Hall

Head and Major Advisor: Thomas W. Hosie Professors: Dooley, Hendren, Looby, Underwood; Associate Professors: Palmer, Young; Assistant Professors: Sheperis, Hall, Heiselt, 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 2990. Special Topics in Counselor Education. (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).
- **COE 3313. Rehabilitation Services. (3)** Three hours lecture. Concepts, philosophies, and methods of rehabilitation services for physically, emotionally, or mentally disabled people.
- 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 6393, 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 4723/6723. Group Dynamics. (3) Three hours lecture. Experience and instruction in the dynamics of group counseling.
- 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 4990/6990. Special Topics in Counselor Education. (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).
- 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 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 6383. Work Samples in Vocational Assessment. (3) (Prerequisites: CO 8083 or equivalent; and COE 6373 or consent of instructor). Two hours lecture and two hours laboratory. Administration scoring, and interpretation of commercial work samples systems in vocational assessment to include: VALPAR, SINGER, JEVS McCarron-Dial. Development of job simulations and work samples. (Same as EDX 8663).
- COE 7000. Directed Individual Study. Hours and credits to be arranged.
  - COE 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- COE 8013. Counseling Skills Development. (3) (Prerequisite: COE 6013 and 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 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 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 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 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. Community Counseling. (3) Three hours lecture. Overview of the history, philosophy, trends, and practice of community 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 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 8990. Special Topics in Counselor Education. (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).
- COE 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.
- **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.

## **CRIMINAL JUSTICE and CORRECTIONS**

Office: 207 Bowen Hall

Professors Dunaway and Wood; Associate Professor Unnever; Assistant Professor Rader

**COR 2990.** Special Topics in Corrections. (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).

COR 3103. The Criminal Justice System. (3) (Prerequisites: Six hours of social sciences and consent of instructor). Three hours lecture. The interrelationships of law enforcement, prosecution, and the courts, particularly how each affects the correctional process.

COR 3310. Field Work. (1-6) (Prerequisites: SO 4513). One to six hours practicum within selected Corrections agencies, individually supervised performance and self-development in relation to clients, agency workers, and provisions of Correctional services.

COR 3343. Gender, Crime, and Justice. (3) 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).

**COR 3320. Field Work. (1-6)** (Prerequisites: COR 3310). One to six hours practicum within selected Corrections agencies, individually supervised performance and self-development in relation to clients, agency workers, and provisions of Correctional services.

COR 3503. Violence in the United States. (3) Three hours lecture. Indepth study of violence, including types of violence, categories of offenders and victims, it social causes and potential solutions. (Same as SO 3503).

COR 4000. Directed Individual Study. Hours and credits to be arranged.

COR 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).

**COR 4990/6990. Special Topics in Corrections.** (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).

#### **COOPERATIVE EDUCATION PROGRAM**

Office: 335 McCain

Director: Luther B. Epting, Associate Director: John Michael Mathews, Senior Coordinators: Angie Chrestman, Becky Davis, and Edie Irvin

**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 Bridges, Hodges (Head), Philip, Reese and Vaughn; Associate Professors Allen, Banicesu, Boggess, Hansen, and Swan; Assistant Professors Carrer, Dampier, Dandass, Jankan-Kelly, Luke and Ramkumar Instructors Henderson and Hossain

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 2990. Special Topics in Computer Science. (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).

**CSE 3183. Systems Programming. (3)** (Prerequisite: CSE 2383 with a grade of C or better). Three hours lecture. Overview of contemporary systems programming concepts, tools, and techniques. Shell programming, systems administration tools, distributed systems, and Internet concepts.

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 pro-

gramming, 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 4000. Directed Individual Study. Hours and credits to be arranged.
- 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 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: CSE 2383 with a grade of C or better and MA 3113). Three hours lecture. Graphics hardware; algorithms; graphics primitives; windowing and clipping; transformations; 3D graphics; shading; hidden surfaces; standards.
- 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 bio-computing 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 4673/6673. 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 IE 4123/6123 and PSY 4743/6743).
- 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 4990/6990. Special Topics in Computer Science. (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).
- CSE 7000. Directed Individual Study. Hours and credits to be arranged.
  - CSE 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- CSE 8011. 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 verification; 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 8533. Database System Design. (3) (Prerequisite: CSE 4504/6504). Three hours lecture. Query processing; transactions and concurrency control; crash recovery; distributed database issues; security and integrity; contemporary research issues.
- CSE 8543. Current Issues in Database Systems. (3) (Prerequisites: CSE 4504/6504). Three hours lecture. Extensive reading and discussion; advanced data models; query languages; cooperative databases; data mining; data warehousing; user interfaces; web databases.
- 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 8633. Natural Language Processing. (3) (Prerequisite: CSE 4633/6633). Three hours lecture. Automated processing of natural language including syntax, semantics, pragmatics, and disclosure analysis; survey of current literature.
- CSE 8663. Neural Computing. (3) (Prerequisite: CSE 4633/6633). Three hours lecture. Introduction to non-traditional methods of simulating human cognitive processes on the computer. Discussions of connectionism, neural networks, and other models of cognition such as cellular automata.
- 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 8823. Introduction to Combinatorics and Graph Theory. (3) (Prerequisites: CSE 3813, and MA 1723 or consent of instructor). Three hours lecture. Permutations, combinations, generating functions, recurrence relations, inclusion and exclusion, graphs, trees, circuits and cutsets, planar and dual graphs, special topics.
- **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 8990. Special Topics in Computer Science.** (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).
- $\pmb{\text{CSE 9000. Dissertation Research}}$  and  $\pmb{\text{Dissertation}}.$  Hours and credits to be arranged.
- 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 9253. Topics in Software Engineering. (3) (Prerequisite: Consent of instructor.) Three hours lecture. Reading and study of current work related to the area of software engineering. Intended for doctoral students. (May be taken for credit more than once.)
- CSE 9413. Topics in Computer Graphics and Visualization. (3) (Prerequisite: Consent of instructor). Three hours lecture. Reading and study of current work related to the area of computer graphics and visualization. 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)

## **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 5012. Veterinary Informatics and Evidence-based Medicine. (2) (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. This course will include concepts and applications in medical informatics, evidence-based medicine, veterinary problem solving, and critical thinking.
- CVM 5023. Immunology and Mechanisms of Infectious Agents. (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 5033. Veterinary Physiology I. (3)** (Prerequisite: Enrollment in the professional veterinary degree program). Three hours lecture. Presentation of fundamental concepts, principles and issues in veterinary physiology specifically related to cellular, membrane, muscle, cardiovascular, respiratory, and renal physiology.
- CVM 5064. Veterinary Anatomy I. (4) (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 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 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 5074. Veterinary Anatomy II. (4) (Prerequisite: CVM 5064 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 5083. Veterinary Physiology II. (3) (Prerequisite: CVM 5033). Three hours lecture. Presentation of fundamental concepts, principles, and

issues in veterinary physiology specifically related to digestive, endocrine and reproductive physiology.

CVM 5093. 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.

### YEAR 2: Fall

- CVM 5122. Anesthesiology & Pharmacology I. (2) (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Basic principles of drugs action, absorption and metabolism will be covered, along with anesthesiology, including an introduction to patient management, anesthetic induction, and anesthesia equipment.
- 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 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 5142. Equine and Medicine Surgery I. (2)** (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. The principles of diagnosis and the medical and surgical management of multisystemic disorders involving the equine cardiovascular, endocrine, gastrointestinal, immune, and urinary systems.
- **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 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.

## YEAR 2: Spring

- **CVM 5132. Anesthesiology & Pharmacology II.** (2) (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Principles of anesthetic techniques in various species along with systems oriented anesthesia. Mechanisms of antimicrobial action with an emphasis on antimicrobial therapy.
- **CVM 5153. Equine Medicine & Surgery II.** (3) (Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Two hours laboratory. The principles of diagnosis and the medical and surgical management of disorders involving the equine skin, and the muscoskeletal, nervous, opthalmic, and respiratory systems.
- **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 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, patholphysiological mechanisms, control and diagnosis of parasites of importance in veterinary medicine.
- 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 5195. Small Animal Medicine and Surgery II. (5)** (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 Practice. (6) Six hours practicum. Supervised rotation through the Community Practice service of the Small Animal Clinic. 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 5000. Directed Individual Study in Veterinary Medicine. (1-6) Variable hours practicum. (May be repeated for credit). Research projects and/or literature reviews supervised by a faculty mentor in the student's selected area of interest.
- **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 5444. Clinical Small Animal Practice. (4) Four hours practicum. (May be repeated for credit). This rotation provides students opportunities to develop problem solving, psychomotor and interpretive skills in an environment that closely simulates a high-quality private small animal practice.
- 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 5464. Advanced Rotation in Equine Medicine and Surgery. (4) Four hours practicum. (Prerequisite: CVM 5266). (May be repeated for credit). 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 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 5604. Professional Development III. (4)** Four hours lecture. Comprehensive review for National Board Examinations. Will be graded on a Pass/Fail basis.
- **CVM 5612. Laboratory Animal Medicine. (2)** Two hours lecture. An intensive in-depth review of veterinary responsibilities in institutional laboratory animal medicine. The course will emphasize laboratory animal problems seen in research colonies.
- 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 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 5654. Applied Veterinary Parasitology. (4)** Four hours practicum. (Prerequisite: Consent of Instructor). Provides opportunities to use problem-solving 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 5694. Veterinary Cytology. (4)** Two hours lecture. Two hours laboratory. An intensive study of veterinary cytology as it relates to clinical diagnosis and case management.
- 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 5794. Clinical Cardiology. (4) Four hours practicum. (Prerequisite: Consent of Instructor). A review of current literature in clinical cardiology. Includes cardiac ausculation, interpretation of radiographs, performance and interpretation of echocardiograms, and interpretation of electrocardiograms.
- 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 5824. Diagnostic Ultrasound. (4) Four hours practicum. (Prerequisite: Senior Standing or Consent of Instructor). Develop advanced interpretative skills in diagnostic ultrasound. Learn to perform a complete thoracic, abdominal, or musculoskeletal examination on the species of interest.
- **CVM 5834. Anesthesia Care and Techniques. (4)** Four hours laboratory. Phase 2 elective emphasizing review of anesthesia cases and application of anesthesia techniques to the species of choice for each student.
- **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 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 5902. Job Search. (2)** Two hours lecture. A proactive approach to developing a strategy for securing veterinary employment. Practice philosophy, resume preparation, interview skills, evaluation of potential employment, choosing the right position.
- **CVM 5912. Personal, Professional and Financial Success. (2)** Two hours lecture. Develop an initial financial plan for first employment and beyond. Setting and achieving goals, expense budgets, contracts and contract negotiation, financial obligations, and investment strategy.
- **CVM 5922. Veterinary Practice Management. (4)** Two hours lecture. An in-depth study of management and marketing principles in veterinary practice.
- CVM 5990. Special Topics in Vet Med 1. (1-6) Variable hours practicum. (May be repeated for credit). Special topics in veterinary medicine, offers the opportunity to explore selected veterinary topics in depth.

## **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 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 7000. Directed Individual Study. Hours and credits to be arranged.

- CVM 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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 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 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 8133. Avian Necropsy. (3) (Prerequisite: Consent of instructor). Three hour practicum, Identification of avian diseases will be learned through necropsy of birds submitted by the public. Confirmatory diagnostic tests and recommendations for clients are discussed. This course can be taken for repeated credit.
- **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 equivalent). 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 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 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 1504 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 8735. Mechanisms of Disease. (5)** (Prerequisites: Acceptance to Dual Degree DVM/MS Program or Consent of Instructor). Five hour lecture. The course covers basic mechanisms of disease production in mammals. Topics include host response to microbial and toxic injury.
- 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 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 registerable 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 8990. Special Topics in Veterinary Medicine. (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).
- CVM 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

## **DIVISION of TECHNOLOGY**

## MERIDIAN CAMPUS ONLY

- DTF 4000. Directed Individual Study. Hours and credits to be arranged.
- **DTF 4613. Implementation of Technology. (3)** (Prerequisite: Consent of instructor prior to internship). Three hours lecture. Theoretical and applied methods, techniques and analysis of field based technology research. Emphasis on the various research designs and preparation of project proposal.
- **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.
- **DTF 4990.** Special Topics in DTF. (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.)
- DTM 4000. Directed Individual Study. Hours and credits to be arranged.

- **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.
- **DTM 4990. Special Topics in DTM. (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.)

## **Department of FINANCE and ECONOMICS**

Office: 312 McCool Hall

- Professors C. Campbell, Duett, Grimes, and Liano; Associate Professors Blair, Gilmer, Kelly, Millea, Rogers and White; Assistant Professors R. Campbell, Highfield, Nagel, Rezek, and Thomas; Instructors B. Campbell, Luccasen, Polk and Riddle
- 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 2990. Special Topics in Economics. (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).
- 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 3213. Labor Economics. (3) (Prerequisites: EC 2113 and EC 2123.) Three hours lecture. Labor market behavior of households and firms. Emphasizes wage determination, optimal employment decisions, income distribution, unionization, human capital, and discrimination.
- EC 3223. Introduction to Industrial Organization. (3) (Prerequisites: EC 2113 and EC 2123). Three hours lecture. Structure and performance of large corporations, economic effects of antitrust, governmental policy toward competitive practices, regulation of monopoly and natural resources.
- 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. Government and Business. (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.; including the regulation of public utilities and antitrust.
- EC 3513. Economic Systems of the World. (3) (Prerequisites: EC 2113 and EC 2123 or consent of instructor). Three hours lecture. Comparative analysis of economic systems ranging from capitalism to market socialism. Includes emerging market systems of Central and Eastern Europe, Asia, and Latin America.

- EC 4000. Directed Individual Study. Hours and credits to be arranged
- **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 4303/6303. Theory of Economic Development. (3) (Prerequisites: EC 2113 and EC 2123). Analysis of problems involving developing economies as they relate to the world economy: population, trade, agriculture, industry, and technology. Policies for promoting economic growth.
- EC 4313/6313. Introduction to Regional Economics. (3) (Prerequisites: EC 2113, EC 2123, and MA 1463 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 Economic Relations. (3) (Prerequisites: EC 2113 and EC 2123). Three hours lecture. The nature of international trade. International economic theory. Current problems affecting international economic relations.
- EC 4333/6333. Applied Regional Economics. (3) (Prerequisite: EC 4313/6313). 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. Introduction to Public Finance. (3) (Prerequisites: EC 2113 and EC 2123). Three hours lecture. Economics of the public sector. Analysis of government on distribution, allocation, and stabilization functions. Emphasis on public goods, externalities, social insurance, public choice, and taxation.
- EC 4433/6433. Problems in State and Local Finance. (3) (Prerequisites: EC 2113 and EC 2123). Three hours lecture. Fiscal importance and economic effects of state and local budgets; trends in taxation, expenditures, fiscal administration, and budgeting fiscal 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 4990/6990. Special Topics in Economics. (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).
- EC 7000. Directed Individual Study. Hours and credits to be arranged.
  - EC 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- EC 8043. Survey of Economics. (3) (Prerequisite: 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.
- EC 8103. Economics for Managers. (3) (Prerequisites: EC 2113, EC 2123). 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 8423. Public Finance. (3) (Prerequisites: EC 2113, EC 2123 and graduate standing). Three hours lecture. Economics of public sector in capitalist system. Emphasizes government budget influences on distribution, resource allocation, stability, growth; stresses taxation, expenditure, budgeting, public choice and debt management.
- 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.
- EC 8990. Special Topics in Economics. (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).
- $EC\ 9000.$  Dissertation Research/Dissertation. Hours and credits to be arranged.

# Department of ELECTRICAL and COMPUTER ENGINEERING

Office: 216 Simrall Electrical Engineering Building

Professors Rajala (Head), L. Bruce, Donohoe, Grzybowski, Harden, King, Mazzola, Molen, Moorhead, Picone, Winton, and Younan; Associate Professors J. Bruce, Fowler, Koshka, Reese, and Schulz; Assistant Professors Chu, Davis, Du, Follett, Ginn, Jones, Lazarou and Topsakal

- 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 2990. Special Topics in Electrical or Computer Engineering. (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 in two academic years).
- ECE 3144. Circuit Analysis I. (4) (Prerequisites: Credit or registration in ECE 1002, MA 3113, and PH 2223). Three hours lecture. Three hours laboratory. Definitions and fundamental laws of electrical engineering, DC circuit analysis, network theorems, circuit elements, transient analysis, sinusoidal steady-state analysis for single and poly-phase circuits.

- ECE 3153. Circuit Analysis II. (3) (Prerequisites: Grade of C or better in ECE 3144. Credit or registration in MA 3253). Three hours lecture. Transient response of circuits with energy storage devices; magnetically coupled circuits; resonance in parallel and series RLC circuits; two-port circuits; Laplace transforms, system analysis.
- ECE 3163. Signals and Systems. (3) (Prerequisite: Grade of C or better in ECE 3153). 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 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 3243. Electronic Circuits I. (3) (Prerequisites: Grade of C or better in both ECE 3144 and ECE 3714, and credit or registration in ECE 3153). Three hours lecture. Introduction to circuit design using semiconductor devices; diode circuits, operating modes and characteristics of transistor amplifiers, transistor-level logic design for IC technologies.
- ECE 3254. Electronic Circuits II. (4) (Prerequisite: Grade of C or better in ECE 3243). Three hours lecture. Three hours laboratory. Linear transistor circuit design to include: differential pairs, opamp circuits, frequency profiling, feedback, stability, and power electronics. Accompanying lab is of structured self-paced form.
- **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 3144 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 3414. Fundamentals of Energy Systems. (4)** (Prerequisite: Grade of C or better in both ECE 3144 and 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 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 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 3732. Software Tools for Electrical Engineers. (2) (Prerequisites: Grade of C or better in CSE 1233 or equivalent C/C++ programming course, grade of C or better in ECE 3714). One hour lecture. Three hours laboratory. A survey or topics utilizing UNIX-based platforms. Topics include C++, Perl, and various UNIX tools.
- ECE 4000. Directed Individual Study. Hours and credits to be arranged.

- ECE 4223/6223. 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 4243/6243. Introduction to Physical Electronics. (3) (Prerequisite: Grade of C or better in ECE 3243). Three hours lecture. Introduction to quantum mechanics and solid state physics. Physical principles of pn junctions, bipolar transistors, field effect transistors. Applications include electrooptics, integrated circuits, gaseous electronics.
- ECE 4263/6263. Principles of VLSI Design. (3) (Prerequisites: Grade of C or better in both ECE 3724 and ECE 4243). 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 3243). 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 3243). Three hours lecture. Introduction to device fabrication technologies, semiconductor parameter measurement techniques, and the principles of design relative to the LSI technologies.
- ECE 4333/6333. Microwave Theory. (3) (Prerequisite: Grade of C or better in ECE 3324). Three hours lecture. Review of Maxwell's equations; wave propagation; waveguides; impedance matching antennas and arrays; lasers.
- **ECE 4343/6343. Electro-Optics. (3)** (Prerequisite: Grade of C or better in ECE 3243 or consent of instructor). Three hours lecture. Linear system theory of optical processes; Electroptic systems; electro-optical information processing.
- ECE 4413/6413. Digital Signal Processing. (3) (Prerequisite: Grade of C or better in ECE 3163). 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 4473/6473. Introduction to Computer Arithmetic. (3) (Prerequisites: ECE 3724 and credit or registration in ECE 4713/6713). 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 4512. EE Design I. (2) (Prerequisite: Grade of C or better in each of ECE 3163, ECE 3243, ECE 3724/CSE 3124, and ECE 3732; and a grade of C or better in one of either ECE 3324, ECE 3254 or ECE 3414; 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 4521. CPE Design. (1) (Prerequisite: Credit or registration in a CPE Technical Elective). Three hours laboratory. Legal aspects and standards relating to design, professional ethics and other design skills. Prototyping, documentation, and oral presentation of a team-based design project.
- 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: CSE 3324, grade of C or better in ECE 4743, co-registration 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 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 3414). Three hours lecture. Transmission of power from generator to distribution system; transmission line design; load flow; symmetrical components; balanced/unbalanced faults; stability.

- ECE 4621. Power Systems Laboratory II. (1) Laboratory calculations and experiments in relaying, stability, and system protection.
- ECE 4633/6633. Power Distribution Systems. (3) (Prerequisite: Grade of C or better in ECE 3414). 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 3414 and ECE 3254 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 4711. Microprocessor II Laboratory. (1) (Prerequisites: ECE 3721 and credit or registration in ECE 4723). Advanced experiments involving interface logic and programmable I/O devices for microprocessor-based systems. Experiments require design, development, and checkout of hardware and software.
- 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 4733/6733. Advanced Microprocessors. (3) (Prerequisite: credit or registration in ECE 3724/CSE 3124 and ECE 3254). Three hours lecture. The study of architecture, software, and interface techniques utilized by advanced microcomputing systems. Emphasis multiprogramming, multiprocessing and memory management.
- ECE 4743/6743. Digital System Design. (3) (Prerequisites: Grade of C or better in ECE 3724/CSE 3124. Credit or registration in ECE 3243). 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 state-of-the-art design techniques.
- **ECE 4811. Communications and Microwave Laboratory. (1)** (Prerequisite: ECE 3324 and credit or registration in ECE 4813). Laboratory measurements and experiments in communications theory and ultra-high frequency.
- **ECE 4813/6813. Communications Theory.** (3) (Prerequisite: Grade of C or better in ECE 3163). 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 4913/6913. Feedback Control Systems I. (3) (Prerequisite: Grade of C or better in ECE 3163). 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 4921. Feedback Control Systems Laboratory II. (1) (Prerequisite: Credit or registration in ECE 4923). Laboratory procedures in analysis of control systems; compensating networks; analog computer simulator.
- ECE 4923/6923. Feedback Control Systems II. (3) (Prerequisite: Grade of C or better in ECE 3163). 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 3163). Three hours lecture. State space representation. Dynamic systems. Controllability and observability. Full-state feedback observers. Instrumentation: sensors and interfacing.
- ECE 4990/6990. Special Topics in Electrical or Computer Engineering. (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).
- ECE 7000. Directed Individual Study. Hours and credits to be arranged.
  - ECE 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **ECE 8013. Switching Theory I. (3)** (Prerequisites: ECE 3254, ECE 4713/6713, CSE 4113/6113 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 8023. Switching Theory II. (3) (Prerequisite: ECE 8013). Three hours lecture. The study of self-timed circuit design techniques; emphasis on elimination of timing considerations from digital circuit design to improve reliability, desirability and speed.
- ECE 8053. 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 8063. 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 8073. Parallel Computing Architectures II. (3) (Prerequisite: ECE 8063 and/or consent of instructor). Three hours lecture. Study of communication structures and routing methods that are central to concurrent computing, multiple computers, and data flow machines.
- ECE 8113. Linear Systems Analysis I. (3) Three hours lecture. Laplace transformation; systems concepts; Fourier transformation; physical realizability; distributed-parameter systems; time-varying parameter systems; sample data systems.
- ECE 8223. Analog Integrated Circuit Design. (3) (Prerequisite: ECE 3254). Analysis and design of analog integrated circuits. Selected topics on operational amplifiers, A-to-D converters and communication circuits. Bi-polar and MOSFETS.
- ECE 8253. Solid State Electronics III. (3) (Prerequisite: ECE 4263/6263). Three hours lecture. Electrical theory of semi-conductors based on wave mechanical and thermodynamical foundations.
- 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 8373. Adaptive Signal Processing. (3) (Prerequisites: ECE 4773/6773 or consent of Instructor). Three hours lecture. Linear combiners, theory of adaptation with stationary signals, algorithms and structures. Applications included.
- 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 3163 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 3163 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 3163 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; Linear 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 8523. Wafer Scale Integration.** (3) (Prerequisites: Graduate standing and consent of instructor). Three hours lecture. The study of wafer scale integration, a technology that enables the fabrication of monolithic chips as large as a full silicon slice; yield analysis and optimization.
- ECE 8613. Advanced Power Systems Analysis. (3) (Prerequisite: ECE 4613/6613 or equivalent). Three hours lecture. Application of symmetrical components to the analysis of power systems; impedances of transmission lines; unsymmetrical faults; representation of transformers and rotating machines; stability and control.
- **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 8643. Power System Planning. (3) (Prerequisite: Consent of the instructor). Three hours lecture. Load forecasting, generation system reliability and cost analysis, transmission system reliability analysis.
- ECE 8653. Advanced Energy Conversion. (3) (Prerequisite: ECE 3414). Three hours lecture. Development of Analytical Expressions for 3 synchronous and induction machines; d-q axis transformation, transformer analysis. Description and analysis of ac-dc and dc-ac power conversion devices.
- **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 8693. Power Systems Seminar. (3)** (Prerequisite: Consent of instructor). Three hours lecture. Current research and development topics in power system planning and operation.
- ECE 8803. Random Signals and Signs. (3) (Prerequisite: IE 4613 or MA 4523 or equivalent). Three hours lecture. Probability and random processes, auto- and 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. Theory of Optimal Control. (3) Three hours lecture. State variable description of systems; maximum principle of Pontryagin, optimization of linear systems with quadratic performance measures; time optimal and fuel optimal systems.
- ECE 8953. Sampled Data Control Systems. (3) (Prerequisite: ECE 4913/6913). Three hours lecture. Basic theory of sampling; Z-transformation theory and analysis; modified Z-transform; design principles.
- 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.
- ECE 8990. Special Topics in Electrical or Computer Engineering. (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).
- ECE 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

#### **EDUCATIONAL LEADERSHIP**

Office: 100 Industrial Education Building

Program Coordinator: Jerry G. Mathews

(For departmental information, see INSTRUCTIONAL SYSTEMS, LEADERSHIP, and WORKFORCE DEVELOPMENT.)

- **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 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: EDA 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.
- **EDA 8990.** Special Topics in Educational Leadership. (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).

### Department of CURRICULUM and INSTRUCTION

310 Allen Hall

Professors Grace, Hare, McGrath, Minchew, Person, Verhoek-Miller; Associate Professors: Burroughs, Coats, Hamil, Jayroe, Swafford, and Xu; Assistant Professors: Brenner, Brocato, Campbell, Franz, Hopper, Kurz, Pope, Prince, Thompson and Tompkins

#### **ELEMENTARY EDUCATION**

- **EDE 2990. Special Topics in Elementary Education. (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. (Course limited to two offerings under one title within two academic years).
- **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)** (Prerequisite: Admission to teacher education). 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. Admission to Teacher Education required.
- 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 4000. Directed Individual Study. Hours and credits to be arranged.
- **EDE 4113. Teaching Elementary and Middle Level Science.** (3) (Corequisites: 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) (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 4990/6990. Special Topics in Elementary Education.** (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. (Course limited to two offerings under one title within two academic years).
- EDE 7000. Directed Individual Study. Hours and credits to be arranged.
  - EDE 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **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. Seminar-type 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 8493.** Teaching Biological Science in the Elementary Schools. (3) Three hours lecture. Continuation of EDE 8483 with emphasis in training teachers to develop concepts in the biological sciences in inductive methods.
- 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. Teaching Writing K-8.** (3) Two hours lecture. Two hours laboratory. Methods and materials for teaching writing in the elementary and middle school. Formal and informal writing assessments. Writing across the curriculum.
- **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 8990. Special Topics in Elementary Education. (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. (Course limited to two offerings under one title within two academic years).
- **EDE 9000. Dissertation Research/Dissertation**. Hours and credits to be arranged.
- **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.

## **EDUCATIONAL FOUNDATION COURSES**

- **EDF 2990.** Special Topics in Educational Foundation. (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. (Course limited to two offerings under one title within two academic years).
- **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 4990/6990. Special Topics in Educational Foundation. (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. (Course limited to two offerings under one title within two academic years).
- **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 8990. Special Topics in Educational Foundation. (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. (Course limited to two offerings under one title within two academic years)
- **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. Fall, Spring, Summer terms.
- 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. Spring, Summer terms.
- **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**

Office: 100 Industrial Education Building Program Coordinator: Jerry G. Mathews

(For departmental information, see INSTRUCTIONAL SYSTEMS, LEADERSHIP, and WORKFORCE DEVELOPMENT.)

- **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 mod ules: 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.
- **EDL 8990.** Special Topics in Educational Leadership. (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. (Course limited to two offerings under one title within two academic years.)

#### SECONDARY EDUCATION

Office: 314 Allen Hall

(For departmental information, see CURRICULUM and INSTRUCTION.)

- EDS 2990. Special Topics in Secondary Education. (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. (Course limited to two offerings under one title within two academic years)
- **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. Co-requisites: EDF 4243 and RDG 3513). 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 Teach Education, EDS 3411 and EPY 3143. Co-requisites: EDF 4243 and RDG 3513.) 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. Co-requisites: EDF 4243 and RDG 3513). 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 3673. Secondary Language Arts Education. (3) (Prerequisite: Admission to Teach Education, EDS 3411, EDF 3333 and EPY 3143. Corequisites: EDF 4243, EDX 3213 and RDG 3513.) Three hours lecture. Essential knowledge, skills, and attitudes necessary for the successful teaching of the language arts.
- EDS 4000. Directed Individual Study. Hours and credits to be arranged.
- EDS 4633/6633. Methods of Teaching Mathematics. (3) (Prerequisites: Admission to Teacher Education, EDF 4243, RDG 3513 and EDS 3633 Corequisite: EPY 3253). Three hours lecture. Field based. Aims and purposes of teaching mathematics at the secondary level, 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, EDF 4243, RDG 3513, and EDS 3643 Co-requisite: EPY 3253). 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)** (Co-requisite: EPY 3253). 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) (Prerequisite: EDS 3673, EPY 3253). 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, foreign language, speech.
- 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 4990/6990. Special Topics in Secondary Education. (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)
- EDS 7000. Directed Individual Study. Hours and credits to be arranged.
  - EDS 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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 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 8713. Curriculum Adjustments.** (3) Three hours lecture. Adjusting the school curriculum to meet individual pupil differences.
- EDS 8883. Dimensions of Learning I. (3) (Prerequisite: admission to MATS program. EDS 8243, EPY 6313, and EDS 6633 or EDS 6643 or EDS 6653 or EDS 6673). Three hours clinical instruction. Supervised observation and directed teaching in respective field of endorsement.
- **EDS 8893. Dimensions of Learning II. (3)** (Prerequisite: admission to MATS program. EDS 8243, EPY 6313, and EDS 6633 or EDS 6643 or EDS 6653 or EDS 6673). Three hours clinical instruction. Supervised observation and directed teaching in respective field of endorsement.
- **EDS 8990. Special Topics in Secondary Education. (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).
- EDS 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.
- **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 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: 508 Allen Hall

Professors Arnault, Coffey, Devlin, and Obringer

(For departmental information, see COUNSELING, EDUCATIONAL PSYCHOLOGY and SPECIAL EDUCATION.)

- **EDX 2990. Special Topics in Special Education.** (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).
- **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 4000. Directed Individual Study. Hours and credits arranged.
- 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 4990/6990. Special Topics in Special Education. (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. (Course limited to two offerings under one title within two academic years).
- EDX 7000. Directed Individual Study. Hours and credits to be arranged.
  - EDX 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **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 8223. Supervision: Diagnosis of the Educationally Handicapped Practicum.** (3) Two hours lecture, two hours practicum. Provide guided responsibility for conducting diagnostic staffings, supervising testings, and coordinating case study interpretations between staff, home and school.
- **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 8333. Placement Services and Techniques. (3)** Three hours lecture. Academic and job placement as a means of promoting the development and adjustment of students at all levels of education. (Same as COE 8333).
- **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 8413. Personal, Social, and Work Adjustment Counseling. (3)** Two hours lecture. Two hours laboratory. Personal, social, work adjustment counseling and employability skills training for disabled persons and others with special needs. Includes individual, group, and situational techniques. (Same as COE 8413 and TKT 8413.)
- **EDX 8780. Internship in Special Education.** (3-6) Three hours practicum. Supervised observation, participation, and teaching of exceptional chil-

dren in classrooms and resource rooms. Supervised experiences in community, state departments, supervisory positions.

**EDX 8990. Special Topics in Special Education.** (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).

#### **ENGINEERING GRAPHICS**

Office: 260 McCain Engineering Building

Instructor Bostick

- 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 1411. AutoCAD. (1) (Prerequisite: Knowledge of projection graphics). Three hours laboratory. Practical application solutions to engineering graphic problems using a specific computer graphics software package, Auto CAD.
- EG 1443. Technology Graphics. (3) (Prerequisites: EG 1143.) Two hours lecture. Four hours laboratory. Visualization/analysis using descriptive geometry principles applying specifically to technology. Computer aided drafting/design in industrial technology. Reading/drafting working drawings in technology fields.
- 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 2990. Special Topics in Engineering Graphics. (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).
- **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.
- $EG\ 4000.$  Directed Individual Study. Hours and credits to be arranged.
- **EG 4990/6990.** Special Topics in Engineering Graphics. (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).
- EG 7000. Directed Individual Study. Hours and credits to be arranged.
- EG 8990. Special Topics in Engineering Graphics. (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).

## **ENGINEERING MECHANICS**

Office: 330 Walker Engineering

Professors Cinnella, Daniewicz, Edwards, Hortemeyer, Koenig, Newman, Jr., Rais-Rohani, Vizzini;

Associate Professors Bridges, Janus, Luck, Newman III, D. Thompson; Assistant Professors Lacy, C. Olsen, G. Olsen, Sullivan; Instructor Hannigan

**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 2990. Special Topics in Engineering Mechanics. (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).
- **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 MA 2733 and grade of C or better in EM 2433). 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 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 4990/6990.** Special Topics in Engineering Mechanics. (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).
- EM 7000. Directed Individual Study. Hours and credits to be arranged.
  - EM 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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 8223. Elastic Stability. (3)** Three hours lecture. Bending and buckling of beams and columns; numerical methods; minimum of the total potential; bending and buckling of plates.
- **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.
- **EM 8990.** Special Topics in Engineering Mechanics. (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).

## Department of ENGLISH

Office: 316 Lee Hall

Professors Creevy, Hargrove, Lyons, Myers, Patteson, Polk and Raymond (Head); Associate Professors Bentley, Little, Marsh, Murray, and Wolf; Assistant Professors Anderson, Claggett, Crossley, Dodds, Hagenston, Hanshaw, Johnson, O'Donnell, O'Gorman, Torbert, and West; Instructors Bogard, Chrestman, McCool, Price, Spurlock, Stiles 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 15 to 18 take EN 0103, from 19 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 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 consent of the instructor). 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 EN 1183 or 1193). Three hours lecture. The critical and appreciative study of masterpieces in various genres chosen from English and world literature.

**EN 2213. English Literature. (3)** (Prerequisite: Completion of freshman composition). Three hours lecture. A survey of English literature from the beginning to the Romantic Period.

**EN 2223. English Literature.** (3) (Prerequisite: Completion of freshman composition). Three hours lecture. A Survey of English Literature from the Romantic Period to the present.

**EN 2243. American Literature. (3)** (Prerequisite: Completion of freshman composition). Three hours lecture. A survey of American literature from the beginning to Whitman.

**EN 2253. American Literature. (3)** (Prerequisite: Completion of freshman composition). Three hours lecture. A survey of American Literature from Whitman to the present.

**EN 2273. World Literature.** (3) (Prerequisite: Completion of freshman composition). Three hours lecture. Selected writings of Greece, Rome, and Medieval European translation.

**EN 2283. World Literature. (3)** (Prerequisite: Completion of freshman composition). Three hours lecture. Selected writings of the non-English-speaking world from the Renaissance through the Twentieth Century.

**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 2453. The Icelandic Sagas. (3) (Prerequisite: Completion of freshman composition). Three hours lecture: A survey, in English, of the sagas and their relationship to history, mythology, and other medieval literatures. (Same as FL 2453).

EN 2990. Special Topics in English. (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).

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 3414. Advanced Composition. (4)** (Prerequisite: Twelve hours of English). Four hours lecture. An advanced expository writing course and general introduction to research methods and materials in language and literature.

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 freshman composition). 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 WS 3513).

EN 4000. Directed Individual Study. Hours and credits to be arranged.

EN 4223/6223. Principles of Legal Writing. (3) (Prerequisites: Junior standing and completion of English requirements). 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 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 3303 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. Literature of the South. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A critical survey of Southern writers past and present.

**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.

**EN 4353/6353. 20th Century Critical Theory. (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, structural and phonetic changes; conventions of modern usage.

**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 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 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, and how, when, and why people in speech communities use language varieties. (Same as AN 4633/6633 and SO 4633/6633).

**EN 4643/6643. The Eighteenth-Century British Novel. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of major eighteenth-century British novelists.

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 the major nineteenth-century British novelists.

EN 4663/6663. The Twentieth-Century British and Irish Novel. (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. A study of Renaissance literature in England exclusive of Shakespeare's plays.

EN 4713/6713. English Literature of the Seventeenth Century. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Seventeenth-century literature exclusive of Shakespeare's plays.

**EN 4723/6723. The Restoration and Swift. (3)** (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. British poetry, prose, and drama, 1660-1700, and Swift.

EN 4733/6733. Eighteenth-Century Literature. (3) (Prerequisite: Completion of English requirements in the student's major). Three hours lecture. British poetry, prose, and drama of the Eighteenth Century excluding Swift.

EN 4803/6803. Types of Twentieth-Century Drama. (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 Twentieth-Century World Novel. (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. Twentieth-Century Poetry. (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 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. Twentieth-Century American Novel. (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 4990/6990. Special Topics in English. (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).

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 7000. Directed Individual Study. Hours and credits to be arranged.

 $EN\ 8000.$  Thesis Research/Thesis. Hours and credits to be arranged.

**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 Twentieth-Century Literature. (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.

**EN 8990. Special Topics in English. (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).

#### **ENVIRONMENTAL SCIENCE**

Office: 117 Dorman Hall

Professor Massey

ENS 2102. Introduction to Environmental Science. (2) Two 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.

# Department of ENTOMOLOGY and PLANT PATHOLOGY

Office: 103 Clay Lyle Entomology Complex 206 Dorman Hall (Plant Pathology)

Professors Collison (Head), Baker, Baird, Brown, Caprio, Chambers, Nebeker, and Schneider; Associate Professors Lawrence, Ma and Sabanadzovic; Assistant Professors Lu and Musser

**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 2990. Special Topics in Entomology or Plant Pathology.** (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).

**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. Fall semester.

- **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 4000. Directed Individual Study. Hours and credits to be arranged.
- **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 4114/6114. Mycology. (4)** (Prerequisites: BIO 1203 and BIO 1213). Three hours lecture. Three hours laboratory. Survey of the principal fungal classes. Morphology, cytology, and physiology of fungi, and their relations to natural ecosystems, including saprophytic and parasitic (agriculture) fungi. Spring semester, yearly.
- 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 3113). 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. Spring semester.
- **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 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 3113 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. Spring semester.
- **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 3113 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 4990/6990. Special Topics in Entomology or Plant Pathology. (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).
- EPP 7000. Directed Individual Study. Hours and credits to be arranged.
- EPP 7020. Advanced Research and Independent Study Topics. (1-5). Advanced studies and research in the subdisciplines of Entomology and Plant Pathology. Student/Faculty member study contracts are required.
  - EPP 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **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 3113). 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. Fall semester, even years.
- **EPP 8143. Advanced Plant Pathology I. (3)** (Prerequisite: EPP 3113). 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. Fall semester.
- **EPP 8144. Transmission Electron Microscopy. (4)** (Prerequisite: Consent of instructor). One hour lecture. Six hours laboratory. Spring semester. Introduction to the transmission electron microscope, tissue preparation, ultra-microtomy and associated techniques.
- EPP 8173. Clinical Plant Pathology. (3) (Prerequisites: EPP 3113 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. Summer.
- **EPP 8223. Scanning Electron Microscopy.** (3) (Prerequisite: Graduate Student, consent of instructor). Two hours lecture. Three hours laboratory. Fall semester. Introduction to scanning electron microscopy and associated techniques.
- **EPP 8253. Advanced Plant Pathology II. (3)** (Prerequisites: EPP 3113, BIO 4214). 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. Fall semester. 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. Fall semester. Physiological and biochemical actions of pesticides and therapeutic drugs. Pesticide metabolism and resistance. Insecticide synergism. Natural toxins and venoms. (Same as PHY 8333).
- **EPP 8453. Insect Pathology.** (3) Two hours lecture. Two hours laboratory. Fall semester, even-numbered years. A study of abnormal conditions among insects as caused by non-infectious and infectious diseases. Bacteria, fungi, protozoa, nematodes and viruses are examined in detail.
- **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. Fall semester, odd years.
- EPP 8990. Special Topics in Entomology or Plant Pathology. (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).
- EPP 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

#### **EDUCATIONAL PSYCHOLOGY**

#### 508 Allen Hall

- Professors D. Morse and L. Morse; Associate Professor Henington; Assistant Professors Doggett, Elder, Kane, Johnson-Gros; Instructor Browning
- 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 2990. Special Topics in Educational Psychology. (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).
- 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 4000. Directed Individual Study. Hours and credits to be arranged.
- 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 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 4990/6990. Special Topics in Educational Psychology. (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).
- EPY 7000. Directed Individual Study. Hours and credits to be arranged.
  - EPY 8000. Thesis Research/Thesis. Hours and credits to be arranged.

- **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 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 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 8990. Special Topics in Educational Psychology. (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).
- EPY 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.
- 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 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 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 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: ESL Center, 46 Morgan St.

Instructor Watkins (Interim Manager); Lecturers Culbertson, Goettig, McMinn, Stamps and Whitten

- **ESL 5110.** American Language and Culture I. (1-18) (Prerequisite: TOEFL score between 475 and 499 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 500 and 524, 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 525). 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 500). 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 500). 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 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 GBA Finance concentration.)
- FIN 2990. Special Topics in Finance. (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).
- **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 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 4000. Directed Individual Study. Hours and credits to be arranged.
- **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 4990/6990.** Special Topics in Finance. (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).
- FIN 7000. Directed Individual Study. Hours and credits to be arranged.
  - FIN 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **FIN 8052. Survey of Finance. (2)** (Prerequisite: Graduate standing; ACC 8013, and BQA 8033, and EC 8043, equivalent or concurrent enrollment) Two hours lecture. Survey of financial management, analysis, planning, controls, sources/uses of funds, capital budgeting, and working capital with word processing, spreadsheet and database applications.
- **FIN 8112. Capital Acquisition and Allocation. (2)** (Prerequisite: FIN 8052 or equivalent). Two hours lecture. Integration of risk and return concepts, capital structure, cash flow estimation, the capital acquisition process and capital budgeting into one framework.
- **FIN 8122. Corporate Liquidity Analysis.** (2) (Prerequisite: FIN 8052 or equivalent). Two hours lecture. The role working capital plays in the viability of the firm and the financial management tools used to analyze and manage the firm's liquidity position.
- 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 8990. Special Topics in Finance. (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).

- FIN 9000. Dissertation Research/Dissertation. Hours and credits to be arranged
- **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 Emplaincourt (Head), A. Lopez, Wolverton; Associate Professors Jordan and Robbins-Herring; Assistant Professors Krol, Kunz, Harland, Lestrade and Rice; Instructors Little, 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 French, German, and Spanish, and the Placement Tests (PT) Japanese, Latin, and Russian administered by the Department, enabling them to earn up to 8 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 during MSU Senior Invitational and MSU Spring Discovery 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.

- **FL 2453.** The Icelandic Sagas. (3) (Prerequisite: Completion of freshman composition). Three hours lecture. A survey, in English, of the sagas and their relationship to history, mythology, and other medieval literatures. (Same as EN 2453)
- **FL 2990.** Special Topics in Foreign Language. (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).
  - $\label{eq:FL4000.Directed Individual Study} FL\,4000.\, Directed\, Individual\, Study.\, \\ \text{Hours and credits to be arranged.}$
- **FL 4123/6123. Scandinavian Mythology.** (3) (Prerequisite: Junior standing or consent of the instructor). Three hours lecture. A survey of the myths and legends of Scandinavia in English translation. (Same as REL 4123/6123).
- 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)
- **FL 4623/6623. The Vikings. (3)** (Prerequisite: Junior standing or consent of the instructor). Three hours lecture. A survey in English of the Vikings and the Viking Age. (Same as HI 4623/6623).
- **FL 4990/6990.** Special Topics in Foreign Language. (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).
- **FL 8990.** Special Topics in Foreign Language. (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).

#### **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 2990. Special Topics in French. (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).
- **FLF 3114. Advanced French. (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 modern French.
- **FLF 3124. Advanced French. (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.
- 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 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 4000. Directed Individual Study. Hours and credits to be arranged.
- 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. French Classicism. (3)** (Prerequisite: FLF 3513). Three hours lecture. Reading and discussion of selected texts in the novel, drama, and criticism of 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 4213/6213. Historical Grammar. (3)** (Prerequisites: FLF 3114 and 3124 or consent of instructor). A history of the French language from the Strasbourg Oaths to Montaigne.
- **FLF 4990/6990. Special Topics in French. (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).
  - FLF 7000. Directed Individual Study. Hours and credits arranged.
  - FLF 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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).
- **FLF 8990. Special Topics in French. (1-9)** (Prerequisite: Graduate standing). Credit and title to be arranged. This course is to be used on a lim-

ited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years).

#### **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 2990. Special Topics in German.** (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).
- **FLG 3114. Advanced German. (4)** (Prerequisite: FLG 2143 or consent of instructor). Three hours lecture and laboratory. Required of all majors. Advanced instruction in all aspects of modern German.
- **FLG 3124. Advanced German. (4)** (Prerequisite: FLG 2143 or consent of instructor). Three hours lecture and laboratory. Required of all majors. A continuation of FLG 3114.
- **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 4000. Directed Individual Study. Hours and credits to be arranged.
- 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 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 4990/6990. Special Topics in German.** (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).
- FLG 7000. Directed Individual Study. Hours and credits to be arranged
- FLG 8463. Seminar in German Drama of the 20th Century. (3) (Prerequisite: Graduate standing).
- **FLG 8990. Special Topics in German.** (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).

#### **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.
- **FLH 2990.** Special Topics in Greek. (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).
- **FLH 4990/6990.** Special Topics in Greek. (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).
- **FLH 8990.** Special Topics in Greek. (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).

#### **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.
- FLJ 4000. Directed Individual Study. Hours and credits to be arranged.
- **FLJ 4990/6990.** Special Topics in Japanese. (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).
- **FLJ 8990. Special Topics in Japanese.** (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).

#### 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.
- **FLL 2990.** Special Topics in Latin. (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).
- **FLL 4000. Directed Individual Study.** (Prerequisite: Junior standing). Hours and credits to be arranged.
- FLL 4990/6990. Special Topics in Latin. (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).
- FLL 7000. Directed Individual Study. Hours and credits to be arranged.
- **FLL 8990.** Special Topics in Latin. (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).

## **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.
- **FLR 2990. Special Topics in Russian. (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).
- FLR 4000. Directed Individual Study. Hours and credits to be arranged.
- **FLR 4990/6990. Special Topics in Russian.** (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).
- FLR 8990. Special Topics in Russian. (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).

#### **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 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 2990. Special Topics in Spanish. (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).
- **FLS 3111. Advanced Spanish Laboratory I.** (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 I. (3)** (Prerequisite: FLS 2143 or FLS 2125). Three hours lecture. Required of all majors. Advanced instruction in all aspects of modern Spanish. Required of all majors.
- FLS 3121. Advanced Spanish Laboratory II. (1) (Prerequisite: FLS 2143 or consent of department). Three hours laboratory. A laboratory course to accompany FLS 3233 or to be taken separately. 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 II. (3)** (Prerequisite: FLS 3113 or consent of instructor). Three hours lecture. Required of all majors. A continuation of FLS 3113.
- **FLS 3313. Business Spanish I. (3)** (Prerequisite: FLS 2143 or FLS 2125). Three hours lecture. Emphasis on the acquisition and usage of Spanish business terminology and business practices used in foreign trade.
- **FLS 3323. Business Spanish II. (3)** (Prerequisite: FLS 2143 or FLS 2125). Three hours lecture. Designed to provide a functional command of conversational and written Spanish for business correspondence, travel, investments and international business practices.
- 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 3523. 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 the 18th century to the present.
- FLS 4000. Directed Individual Study. Hours and credits to be arranged
- 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 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 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 4423/6423. 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 4443/6443. Modernismo. (3) (Prerequisite: FLS 3513 or consent of instructor). Three hours lecture. A survey of Modernismo in Spanish-American literature (1888-1916).
- **FLS 4523/6523. The Renaissance. (3)** (Prerequisite: FLS 3513). Three hours lecture. Spanish literature and thought of the Renaissance.
- FLS 4543/6543. Survey of Spanish-American Literature. (3) (Prerequisite: FLS 3513). Three hours lecture. A study of representative authors and literary movements up to Modernism.
- 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 4990/6990. Special Topics in Spanish. (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).
- FLS 7000. Directed Individual Study. Hours and credits to be arranged.
  - FLS 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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 8323. Seminar in the Drama of the Golden Age. (3) (Prerequisite: Graduate standing).
- 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 8443. Modernismo.** (3) (Prerequisite: Graduate standing). Three hours lecture. A study of the most relevant modernists and their works (1888-1916).
- 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.
- FLS 8990. Special Topics in Spanish. (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).

# Department of FOOD SCIENCE, NUTRITION and HEALTH PROMOTION

Office: 109 Herzer Building

Professors Mikel (Head), Haque, Hood, Hunt, Marshall, Silva and Thaxton; Associate Professors: Andrews, Byrd, Clary and Tidwell; Assistant Professor Briley, Coggins, Fountain, Hall, Martin, Schilling and Williams

- 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 2990. Special Topics in Food Science and Technology. (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).
- **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.
- **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 operation. (Same as ADS 3142).
- 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 3701. Nutrition Professional Development. (1)** (Prerequisite: Junior standing and consent of instructor). Preparation for nutrition field experience, dietetic internship, and careers.
- FNH 4000. Directed Individual Study. Hours and credits to be arranged.
- **FNH 4114/6114. Analysis of Food Products. (4)** (Prerequisites: 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 4123/6123. Fermented Foods Processing. (3) (Prerequisites: BIO 3304). Two hours lecture. Three hours laboratory. Fundamental concepts of microbial cultures used in various fermented foods, with emphasis on the manufacture of cheese, cultured dairy products, and other foods.
- **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)** (Prerequisites: 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 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 4233/6233. Medical Nutrition Therapy. (3)** (Prerequisites: BCH 3613, FNH 4253 and/or FNH 4293, and BIO 2014 or consent of instructors). Two hours lecture. Two hours laboratory. Treatment of human diseases through nutrient modification.
- **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. Human Nutrition I. (3)** (Prerequisites: BIO 2014 and CH 2503 or equivalent). Three hours lecture. Advanced human nutrition: digestion, metabolism, function, requirements, and recommendations for carbohydrates, lipids, proteins and water. (Same as NTR 4253/6253).

- FNH 4273/6273. Nutritional Assessment. (3) (Prerequisite: BCH 3613 and FNH 4223 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 Foodservice Systems. (3) Three hours lecture. Procuring food and equipment for foodservice systems. Product specifications, cost-effectiveness, value analysis, and quality standards
- FNH 4293/6293. Human Nutrition II. (3) (Prerequisites: BIO 4253/6253 or consent of instructor). Three hours lecture. Advanced human nutrition and metabolism with emphasis on the functions, requirements, and recommendations of the regulatory nutrients (vitamins and minerals) and water. (Same as NTR 4293/6293).
- **FNH 4314/6314. Meats Processing. (4)** Spring semester. Three hours lecture. Two hours laboratory. Survey of the meat industry with emphasis on slaughtering, cutting, curing, cooling, care, storage, and manufacturing meats and meat products. (Same as ADS 4314/6314).
- **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. (Same as NTR 6353 and HS 4353/6353).
- **FNH 4373/6373 Career Success Skills in FNH. (3)** Three hours lecture. Refinement of skills utilized in the delivery of food sciences, 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 3404). 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; grading poultry and eggs; killing, dressing, eviscerating, and packaging poultry; studying methods of retail and wholesale marketing. (Same as PO 4513/6513).
- **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 basis food science and technology principles directed toward seafood and aquaculture food harvesting, processing, marketing, and regulation.
- FNH 4990/6990. Special Topics in Food Science, Nutrition and Health Promotion. (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).
- FNH 7000. Directed Individual Study. Hours and credits to be arranged.

- FNH 8000. Thesis Research/Thesis.
- 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.
- **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) (Prerequisites: 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. (Same as NTR 8233.)
- **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. (Same as NTR 8243.)
- **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. (Same as NTR 8253).
- **FNH 8261. Dietetic Internship Seminar. (1)** (Prerequisite: Admission into the Dietetic Internship/Graduate Studies Program). One hour lecture. Selection of current topics in foods, nutrition or dietetics and in-depth review of current literature for critical analysis presentation.
- FNH 8273. Dietetic Internship Capstone. (2) (Prerequisite: Admission into the Dietetic Internship/Graduate Studies Program). Three hours lecture. Theoretical aspects of dietetics gained through the study of resources, technology, professional standards, and other factors that influence entry-level practice.
- 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 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 byproducts. (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 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 mod-

els applicable to school, community, and work site programs. Investigation of existing programs and current literature.

**FNH 8623. Seminar in School Health. (3)** Three hours seminar. 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.

FNH 8990. Special Topics in Food Science, Nutrition and Health Promotion. (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).

FNH 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

## Department of FORESTRY

Office: 105 Thompson Hall

Professors Dicke, Evans, Ezell, Grace, Grado, Hughes,
Matney, Munn, Shepard (Head), Stuart, and Traugott;
Associate Professors Gaddis, Grebner, Londo, Parker, Roberts,
Rousseau, and Schultz; Assistant Professors Grala, Kushla, Maiers,
Sun, and Yuceer; Adjunct Faculty Barlow, Bonner, Clow, Connor,
Dean, Duzan, Friend, Gardiner, Hodges, Kubiske, MacDonald,
Meadows, Schoenholtz and Vozzo

- FO 1101. Forest Resources Survey. (1) One hour lecture. Survey of the professional resource manager's role and career opportunities in providing forest-based goods and services. Not open to Forest Resources majors with senior standing.
- FO 2111. Dendrology Laboratory. (1) (Co-requisite: FO 2112). Four hours laboratory. Field exercises to promote the recognition and identification of trees and other woody plants.
- **FO 2112. Dendrology. (2)** (Prerequisite: BIO 1203; Co-requisite: FO 2111). Two hours lecture. Introduction to the identification and systematic classification 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 2990.** Special Topics in Forestry. (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).
- **FO 3012.** Introduction to Forest Communities. (2) (Prerequisites: PSS 3303, FO 2112, FO 2111). 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 3123. Forest Ecology and the Global Environment. (3) (Prerequisite: Three hours of courses in the College of Forest Resources or consent of instructor. Co-requisite: FO 3101). Three hours lecture. Introduction to the basic biology, issues, and policy-science interface involving air pollution, deforestation, and other current forest environmental concerns.
- FO 3201. Forest Fire Laboratory. (1) (Co-requisite: FO 3202). Four hours laboratory on alternate weeks. Field applications and demonstrations

of fire control and management techniques that complement theory learned in FO 3202.

- **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 4000. Directed Individual Study. Hours and credit to be arranged.
- **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 4121/6121. Principles of Silviculture Laboratory. (1)** (Co-requisite: FO 4123/6123). Four hours laboratory. Investigative field and laboratory exercises used to complement concepts presented in FO 4123/6123, develop interpretive abilities, and improve reporting skills.
- **FO 4123/6123. Principles of Silviculture.** (3) (Prerequisite: FO 3012; Co-requisite: FO 4121/6121). Three hours lecture. 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 WF 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)** (Prerequisite: FO 4123/6123, FO 4121/6121 or WF 3133 and WF 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. Forest Operations and Harvesting Laboratory. (1) (Co-requisite: FO 3015). Four hours laboratory. Investigative field and laboratory exercises used to complement concepts presented in FO 4233/6233.
- **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 4243/6243. Tree Genetics and Reforestation. (3) (Prerequisites: BIO 1203 and Junior standing). Three hours lecture. Biological, genetic and physiological principles of tree reproduction. Applications to forest management and reforestation, including tree improvement, cloning, seed technology, nursery management and plantation establishment.
- **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. Forestry Law. (3) (Prerequisite: Junior standing or consent of instructor). Three hours lecture. A comprehensive study of the laws relating to forestry and forest operations with emphasis on real property law, environmental law, forest taxation law, and contract law.
- 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) (Prerequisite: 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) (Prerequisite: 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) (Corequisite: 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)** (Prerequisite: 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 4631/6631. Tree Form and Function Laboratory. (1) (Prerequisites: Introductory statistics such as ST 2113 or FO 4213, graduate standing or consent of instructor). (Co-requisite: FO 4633/6633). Three hours laboratory. Introduction to tree physiology measurement techniques and instrumentation, data analysis and interpretation.
- FO 4633/6633. Tree Form and Function. (3) (Prerequisite: BIO 1203). (Co-requisite for 6633: FO 6631). Three hours lecture. Physiology growth, and development of forest trees. Topics include carbohydrate source-sink relations, tree hydraulic architecture, forest canopy-atmosphere gas exchange.
- **FO 4990/6990.** Special Topics in Forestry. (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).
  - $\label{eq:FO-7000} \textbf{FO 7000. Directed Individual Study}. \ \ \textbf{Hours and credit to be arranged}.$
  - FO 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- FO 8111. Graduate Seminar. (1) Review of and discussion of current forestry issues. Presentation of student reports.
- **FO 8133. Forest Ecophysiology.** (3) (Prerequisite: FO 4432/6432, BIO 4214/6214, or Consent of Instructor). Three hours lecture. Fall semester. An exploration of environment-plant interactions, and physiological mechanisms for injury from, and resistance to, environmental stress, with emphasis on forest communities.
- 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. Spring semester. Silvicultural practices in context of the total ecological principles in decision making process. Emphasis on silviculture of bottomland hardwoods.

- FO 8223. Seminar in Forest and Wildland Resources and Use. (3) Three hours. Biological and social bases for forest and wildland use; conservation and management through applications of science and public policy.
- 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. Master of Forestry Professional Paper. (3) For Master of Forestry 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)** (Prerequisite: 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 8990. Special Topics in Forestry. (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).
- FO 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

## Department of FOREST PRODUCTS

Office: Forest Products Department

Professors Belli (Interim Head), Amburgey, Barnes, Borazjani, Ingram, Kim, Nicholas, Schultz, Seale, Sellers and Steele; Associate Professors Diehl, Hunter, Shmulsky and Zhang; Assistant Professor Shi

- **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 2990.** Special Topics in Forest Products. (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).
- **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 4000. Directed Individual Study. Hours and credits to be arranged.
- **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 4990/6990. Special Topics in Forest Products. (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).
  - **FP 7000. Directed Individual Study**. Hours and credits to be arranged. **FP 8000. Thesis Research/Thesis**. Hours and credits to be arranged.
- **FP 8111. Research Seminar.** (1) Review of current research work in wood science and technology; the scientific method; philosophy of research.
- **FP 8113. Advanced Wood Physics. (3)** (Prerequisite: Consent of instructor). Two hours lecture. Three hours laboratory. Wood-fluid relationships; interfacial properties of wood; thermal and electrical properties of wood; current topics in wood physics.
- **FP 8123.** Advanced Lignocellulosic 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; beidegradation 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 8143.** Ultrastructure of Wood. (3) (Prerequisites: Course in basic wood anatomy and identification, comparable to FP 4014/6014). Two hours lecture. Three hours laboratory. The study of the formation, anatomy, structure and chemical properties of wood and wood fibers with an introduction to microscopic and spectroscopic methods of investigation.
- **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.
- **FP 8990.** Special Topics in Forest Products. (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).
- $FP\ 9000.\ Dissertation\ Research/Dissertation.$  Hours and credits to be arranged.

#### **GENERAL AGRICULTURE**

- **GA 1111. Survey of Agriculture.** (1) One hour lecture. A study of the over-all function, historical beginnings, organization and operation of the agricultural industry in the United States and the world.
- **GA 2990.** Special Topics in General Agriculture. (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).

#### **GENERAL BUSINESS**

- **GB 2990. Special Topics in General Business.** (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).
- **GB 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.
- **GB 3021. Academic Peer Advising II.** (1) (Prerequisites: GB 3011 and consent of Instructor, for Business majors only). One hour lab. Laboratory application of academic peer advising.
- **GB 3031. Academic Peer Advising III.** (1) (Prerequisites: GB 3011, GB 3021, and consent of Instructor, for Business majors only). One hour lab. Laboratory application of academic peer advising.
- **GB** 4853. Business Policy. (3) (Prerequisite: Graduating senior). 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.
- **GB 4990/6990.** Special Topics in General Business. (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).
- **GB 8990.** Special Topics in General Business. (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).

## **GENERAL ENGINEERING**

Office: 250 McCain Engineering Building

Professors King, D. Reese and K. Schulz Instructors Brocato, Green, Nelson, Powe and Rimel

- **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 2990.** Special Topics in General Engineering. (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).
- **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.
- **GE 4990/6990. Special Topics in General Engineering. (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).
- **GE 8990.** Special Topics in General Engineering. (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).
- GE 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

#### **GENETICS**

- (For the interdisciplinary graduate programs in Genetics, consult College of Agriculture and Life Sciences section of this catalog and the Graduate Bulletin.)
- **GNS 2990. Special Topics in Genetics. (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).
- GNS 3103. Genetics I. (3) (Prerequisites: MA 1313 and BIO 1504 or BIO 1203). 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: Coregistration 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 4990/6990. Special Topics in Genetics. (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).
- **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: Coregistration 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 BCH 4713/6713).
- GNS 7000. Directed Individual Study. Hours and credits to be arranged.
  - GNS 8000. Thesis Research/Thesis. Hours and credits to be arranged. GNS 8453. Statistical Genetics. (3) (Same as ADS 8453).
- GNS 8643. Molecular Genetics. (3) (Prerequisites: PO 3103 or BIO 3103 and Coregistration 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 8990.** Special Topics in Genetics. (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).

## **Department of GEOSCIENCES**

Office: 108 Hilbun Hall

Professors Mylroie, Schmitz and Wax;
Associate Professors Brown, Dewey, and Lynch;
Assistant Professors Ambinakudige, Choi, Cooke, Dixon, Dyer,
Kirkland, and Rodgers; Instructors Clary, Gillham, Haby, Haney, Harris,
Miller, J. Mylroie, Ruffin, Sherman-Morris, 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 "Earthlike" planets and moons.
- **GG 2990. Special Topics in Geology. (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).
- **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 4000. Directed Individual Study**. (Prerequisite: Junior standing). Hours and credits to be arranged.
- **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 subsurface 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 4990/6990. Special Topics in Geology. (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).
  - GG 7000. Directed Individual Study. Hours and credit to be arranged.
  - GG 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **GG 8113. Geology I: Processes and Products. (3)** (Prerequisite: Consent of instructor). Three hours 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 8113 or consent of instructor.) Three hours 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 8113 or consent of instructor). Three hours 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 8113 or consent of instructor). Three hours 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 8113 or consent of instructor). Three hours 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 8113 or consent of instructor). Three hours 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 8723. Regional Geology of Western North America.** (3) (Prerequisite: Major in geology). Three hours lecture. A study of physiography, structure, and stratigraphy of western North America.
- **GG 8990. Special Topics in Geology. (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).

#### **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 2990.** Special Topics in Geosciences. (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).
- **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 3313. Introduction to Geodatabases. (3)** (Prerequisite: GR 2313 or consent of instructor). Three hours lecture. Examination of geodatabase structures utilized in Geographic Information Systems. Implementations of GIS components through spatial programming using Visual Basic applications designed for geospatial data.
  - $GR\ 4000.\ Directed\ Individual\ Study.$  Hours and credit to be arranged.
- **GR 4103/6103. Geography of Tourism. (3)** (Prerequisites: GR 1123 or equivalent). Three hours lecture. Study of the spatial aspects of recreation and tourism, with emphasis upon social, economic, and environmental impacts.
- **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 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 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 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 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 4663. Satellite Meteorology. (3)** (Prerequisite: GR 4603 or consent of instructor). Three hours video and online. Study of the history, operations, and applications of satellites in weather analysis. Theory of meteorological mearsurements in determinations of atmosphere structure.
- **GR 4673. Radar Meteorology. (3)** (Prerequisite: GR 4603 or consent of instructor). Three hours video and online. Detailed analysis of the use of Doppler radar in weather operations. Emphasis on Doppler velocity measurements, clear-air return, and sever storm identification and warning.
- **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 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** 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 4990/6990.** Special Topics in Geosciences. (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).
  - **GR 7000. Directed Individual Study**. Hours and credit to be arranged. **GR 8000. Thesis Research/Thesis**. Hours and credit to be arranged.
- **GR 8113. Meteorology I: Observations.** (3) (Prerequisite: Consent of instructor). Three hours 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 8113 or consent of instructor). Three hours video and online. Continuation of Meteorology I. Emphasis on the forecasting of daily weather events and on severe weather. Primarily for K-12 science teachers.
- **GR 8303. Geodatabase Systems. (3)** (Prerequisite: 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 8323. Geography for Teachers.** (3) (Prerequisite: GR 1123 or equivalent). Three hours lecture. Systematic overview of geography designed for in-service teachers. Organized around the National Geography Standards, class lectures are augmented by lessons presented by K-12 teachers.
- **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 8990.** Special Topics in Geosciences. (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).

#### HIGHER EDUCATION

Advisor: Professor Thomas Hosie

(For departmental information, see COUNSELOR EDUCATION.)

- HED 7000. Directed Individual Study. Hours and credit to be arranged
- **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 8153. University and Community College Curriculum Development. (3) Three hours lecture. A study of the practices, trends, and issues in university and community college programs of study and curriculum offerings.
- **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.
- **HED 8990.** Special Topics in Higher Education. (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).

#### Department of HISTORY

Office: 214 Allen Hall

Professors Marcus (Head), Grill and Uziogwe; Associate Professors Damms, Jenkins, and Wu; Assistant Professors Barbier, Delnore, Gangloff, Giesen, Hay, Marshall, Messer, Phillips and Rensing; Instructor Doyle

- 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 1183. Problems in Modern World Civilization. (3)** (Prerequisite: Open through invitation only). An honors course for freshmen. Three meetings each week. Readings, discussions, and reports.

- **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 2990. Special Topics in History. (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).
- 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 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 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 4000. Directed Individual Study. Hours and credits to be arranged.
- **HI 4103/6103.** Colonial America. (3) (Prerequisite: Completion of any 1000-level 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 4233/6233. War, Peace, and Society: The American Experience. (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 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.
- **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.
- **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 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 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 4563/6563. Viet Nam Between Revolution and War, 1940-1990. (3) (Prerequisite: completion of any 1000-level history course or consent of instructor). Three hours lecture. The drama of modern Viet Nam that defined an entire era of decolonization and Cold War division. Historical roots, competing political visions, and sociocultural changes.
- 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 4623/6623. The Vikings. (3)** (Prerequisite: Junior standing or consent of the instructor). Three hours lecture. A survey in English of the Vikings and the Viking Age. (Same as FL 4623/6623)
- 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 4703/6703. England to 1485. (3)** (Prerequisite: Completion of any 1000 level history course). Three hours lecture.
- **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 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.
- **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.
- 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 1000-level 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 4903/6903. The Far East. (3) (Prerequisite: Completion of any 1000level history course). Three hours lecture. A study of the impact of western civilization on China, Japan, and India in the nineteenth and twentieth cen-

HI 4990/6990. Special Topics in History. (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).

HI 7000. Directed Individual Study. Hours and credits to be arranged. HI 8000. Thesis Research and Thesis

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 8990. Special Topics in History. (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).

HI 9000. Dissertation Research and Dissertation.

#### **Directed Readings**

HI 8103. Readings in Colonial American History. (3)

HI 8113. Readings in U.S. History, 1783-1825. (3)

HI 8123. Readings in Jacksonian America. (3)

HI 8133. Readings in the Civil War and Reconstruction. (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 8403. Readings in Ancient History. (3)

HI 8423. Readings in Medieval History. (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 8733. Readings in Colonial Latin America. (3)

HI 8743. Readings in Latin-American Republics. (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 8843. Seminar in Latin American History. (3)

HI 8853. Seminar in European History Before 1789. (3)

HI 8863. Seminar in European History Since 1789. (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 8913. Seminar in Quantitative Methods for Historical Re**search.** (3) (Prerequisite: Graduate standing).

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 Reconstruc-

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

Director: Dr. Nancy McCarley 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

HON 2990. Special Topics in HON. (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).

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. Interdisciplinary Seminar in the Humanities. (3) An investigation of an interdisciplinary problem or theme in man's experience. Lectures, readings, discussions, and reports.

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 4000. Directed Individual Study. Hours and credit to be arranged

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: 128 Lloyd-Ricks; Director: Gary B. Jackson

Professor Taylor; Associate Professors Cheek, Lokken-Worthy and Miller; Assistant Professor Wilmoth; Lecturers: Bardwell, Boutwell, Caston, Duncan and Kizer

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 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 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 the family. (Same as FNH 2233).
- 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 I. (3) (Prerequisite: PSY 1013). Two hours lecture. Two hours laboratory. Developmental characteristics of children with emphasis on the early years; implications for care and guidance. Observation and participation in the Child Development and Family Studies Center.
- **HS 2990. Special Topics in Human Sciences. (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).
- **HS 3000. Field Experience. (1-6)** (Prerequisite: Consent of instructor). Supervised field experience for human sciences students; an internship in an approved, option-related situation.
- **HS 3303. Consumer Economics. (3)** (Prerequisite: Junior Standing or consent of instructor). 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). Three hours lecture. 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 3623. Space Planning. (3) (Prerequisite: HS 2613). Two hours lecture. Two hours laboratory. Physical and socio-economic aspects of planning residential and non-residential spaces.
- 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, observation and participation in the Child Development Center.
- HS 3813. Child Development II. (3) (Prerequisites: HS 2813 and junior standing). Three hours lecture. An intensified exploration of child development theory, research and methodology used in the study of the young child (birth to five). Major emphasis on process of development.
- 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.
- $HS\ 4000.$  Directed Individual Study in Human Sciences. Hours and credits to be arranged.
- **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)** 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 Standing). 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 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. (Same as NTR 6353 and FNH 4353/6353).
- HS 4403/6403. Introduction to Gerontology. (3) 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 techniques; developing teaching plans; 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 4462. Curriculum in Human Sciences. (2) (Prerequisites: Senior standing and admission to Teacher Education). Two hours lecture. Spring semester. Bases for curriculum planning, exemplar curriculum, and customizing curriculums.
- 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 homebased businesses with emphasis on business, marketing, and management skills necessary for operation of these businesses.
- 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) (Prerequisites: CSE 1013 or equivalent). 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. (6-8)** (Prerequisite: Minimum of senior standing, 2.0 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. Art of Parenting. (3) (Prerequisite: Junior standing). 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: PSY 1013 and junior standing). 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: SO 1203 and PSY 1013 or HS 4853). 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 Transactional Approach. (3) (Prerequisite: Three hours Sociology or Psychology and Junior Standing). 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 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 4990/6990. Special Topics in Human Sciences. (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).
- HS 7000. Directed Individual Study in Human Sciences. Hours and credits to be arranged.
- **HS 8990. Special Topics in Human Sciences. (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).

#### **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 2990. Special Topics in International Business. (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).
- **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.
- **IB 4990/6990. Special Topics in International Business. (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).
- **IB 8913. International Business Environment. (3)** (Prerequisites: The equivalent of ACC 2023, EC 2123, FIN 3113, FIN 3123, MGT 4113, and MKT 3013 or consent of instructor). Study of the management problems, strategies, and techniques arising from the international transfer of goods, services, human resources, technology, finance, or ownership.
- **IB 8990.** Special Topics in International Business. (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).

#### **INTERIOR DESIGN**

Office: 121 Etheredge

Program Director and Associate Professor Beth Miller; Associate Professor Margaret Bateman; Instructor Robin Carroll; Visiting Assistant Professor Amy Crumpton

- **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 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 in Interior Design. (3) (Prerequisite: HS 4733 and ID 3614). Two hours lecture. Two hours laboratory. Advanced computer graphic communication in interior design 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. (3)** (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. (3)** (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: HS 4733 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 4644. Interior Design Studio V. (3)** (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.** (3) (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 4663/6663. Professional Procedures and Practices for Interior Designers. (3) (Prerequisite: HS 4613, HS 4623). 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: EG 1513, HS 3643, HS 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 (head), Bullington, Greenwood and Usher; Associate Professor Smyer; Assistant Professors Babski-Reeves, B. Eksioglu, S. Eksioglu, Jin and Strawderman

- **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 2990. Special Topics in Industrial Engineering. (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).
- **IE 3124. Industrial Ergonomics. (4)** (Co-requisite: IE 4613). Three hours lecture. Three hours laboratory. Analysis of work tasks; ergonomic design principles for manual work design, workplace design, and work environment design; work measurement; 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 4000. Directed Individual Study. Hours and credits to be arranged.
- 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 manmachine 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 (aggregate planning, inventory management).
- **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, production scheduling and control systems.
- **IE 4353/6353. Materials Handling. (3)** (Prerequisite: Junior standing in Engineering). 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 4393/6393. Concurrent Engineering.** (3) (Prerequisite: Junior or senior standing). Three hours lecture. An introduction to the implementation, application, and management of concurrent engineering, as well as, the tools and techniques that support new product development.
- **IE 4513/6513. Engineering Administration.** (3) (Prerequisite: Senior 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). 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 4915/6915. Design of Industrial Systems. (5)** (Prerequisites: Grade of C or better in the following courses: IE 3124, 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 4990/6990. Special Topics in Industrial Engineering. (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).
  - IE 7000. Directed Individual Study. Hours and credits to be arranged.
  - **IE 8000. Thesis Research/Thesis**. Hours and credits to be arranged.
- **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 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 8343. Artificial Intelligence in Manufacturing. (3)** (Prerequisite: Computer programming ability and consent of instructor.) Three hours lecture. Introduction to artificial intelligence techniques used in manufacturing. Topics include the application of expert systems, neural networks, machine learning, and discussion of current research.
- **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 8373. Computer Integrated Manufacturing. (3)** (Consent of instructor). Three hours lecture. An investigation of computer integrated manufacturing and the technologies that support its implementation.
- **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. Dynamic Programming.** (3) (Prerequisites: MA 2733 and IE 4613). Three hours lecture. Study of serial and nonserial multistage systems—both deterministic and stochastic. Principles of optimality. Application of dynamic programming to industrial and management problems.
- **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 8783. Neural Networks in Optimization.** (3) (Prerequisites. IE 4733/6733). Three hours lecture. A study of neural network models 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.
- **IE 8990.** Special Topics in Industrial Engineering. (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).
- IE 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

### 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 GBA Finance concentration).
- INS 2990. Special Topics in Insurance. (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).
- 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 4000. Directed Individual Study. (1-3) Hours and Credits to be arranged with instructor.
- 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 4990/6990. Special Topics in Insurance. (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).

#### INTERNATIONAL STUDENT EXCHANGE

Office: 608 Allen Hall

**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 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 LANDSCAPE ARCHITECTURE**

Office: Landscape Architecture Facility

Professors Artunc (Head) and Melby; Associate Professors Cook and Wilkerson; Assistant Professors Brzuszek, Fulford, Schauwecker, Seymour, and Walker; 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 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 nonmajors.)
- LA 2253. 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 2323. Presentation Methods and Media. (3) (Prerequisite: None; recommended: ART 1123 & ART 1213). Six hours studio/lab. Delineation and professional presentation techniques for the practice of Landscape Architecture utilizing traditional and contemporary presentation approaches.
- **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 2423. History of Landscape Architecture. (3) Three hours lecture. Historic developments of Landscape Architecture Profession.
- LA 2433. 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 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 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 2990. Special Topics in Landscape Architecture. (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).
- LA 3544. Landscape Architecture Construction I. (4) (Prerequisite: none; Recommended: ABE 2873 & MA 1323). Two hours lecture. Four hours studio/lab. Course is concerned with land surveying, landscape architecture

grading, road alignments and calculations for cut and fill volumes.

- LA 3555. Landscape Architecture Design Studio I. (5) (Prerequisites: LA 1153, LA 1223, LA 2323, LA 2253 & LA 2453). Two hours lecture. Six hours studio/lab. A landscape architectural design process applied to site planning for small acreages. Emphasis on accommodation and application of design principles to site design elements.
- 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 3644. Landscape Architecture Construction II. (4) (Prerequisite: none; Recommended: LA 3544). 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 3652. Case Studies of Executed Works in Landscape Architecture. (2) (Prerequisite: LA 3655). Special five to ten day on-site observation visit for the study of notable LA projects and construction methods with lectures
- LA 3655. Landscape Architecture Design Studio II. (5) (Prerequisites: LA 1153, LA 1223, LA 2323, LA 2253 & LA 2453). Two hours lecture. Six hours studio/lab. Deals with program and site specific requirements, inventory and analysis, construction detailing, economic issues, social impact, and planting design applied to medium scale projects.
- 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 4000. Directed Individual Study. Hours and credits to be arranged.
- LA 4244. Landscape Architecture Construction III. (4) (Prerequisite: LA 2323). Two hours lecture. Four hours studio. The nature of materials and their physical attributes. Calculations, drawings, and specifications for construction design and details.
- 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 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 4755. Landscape Architecture Design Studio III. (5) (Prerequisites: LA 1153, LA 1223, LA 2323, LA 2253 & LA 2453). Two hours lecture. Six hours studio/lab. The design process applied to intermediate size project, with emphasis on providing shelter for society. Integration of techniques for design development into a holistic process.
- LA 4844. Design of Sustainable Communities. (4) (Prerequisite: none; Recommended: MA 1313 and MA 1323). Three hours lecture. Two hours studio/lab. Nature of materials used in landscape architecture, their physical attributes and liabilities that contribute to their use in a safe and healthy manner.
- LA 4855. Landscape Architecture Capstone Studio. (5) (Prerequisites: LA 3555, LA 3655, LA 4755, LA 3544, LA 3644, LA 4723). Twelve hours studio/lab. A self-directed course that includes an approved terminal project including proposal, analytical design process, master plan, support drawings, and construction documents of selected plan elements.
- LA 4990/6990. Special Topics in Landscape Architecture. (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).
- LA 5544. Golf Course Architecture I. (4) (Prerequisite: LA 4445 and PSS 4414). One hour lecture. Six hours studio. Comprehensive studies of golf course architecture, including analysis, design, irrigation, construction detailing, cost analysis, and management concerns.
  - LA 7000. Directed Individual Study. Hours and credit to be arranged.
  - LA 8000. Thesis Research/Thesis. Hours and credit to be arranged.
- 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.
- LA 8990. Special Topics in Landscape Architecture. (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.)

#### 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; does not count toward a degree.) 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 2013. Speed Reading.** (3) Three hours lecture per week. Development of techniques for increasing rate of comprehension for all types of reading material.
- LSK 2990. Special Topics in Learning Skills. (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).
- LSK 6990. Special Topics in Learning Skills. (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).

#### Department of MATHEMATICS and STATISTICS

Office: 410 Allen Hall

Professors Dang, Ebanks, Gerard, L. Miller, Neumann, Oppenheimer, Qian, Razzaghi (Interim Head), Shivaji, and Xu; Associate Professors Dobson, DuBien, Harvill, Johnson, Kim, Knudson, V. Miller and Smith;

Assistant Professors Fabel, Jonkman, Lim, Lu, Okhuysen, Scarborough, Stocker and Wu; Instructors Crittenden, Daniels, Hughes, King and Walters

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 1303. Quantitative Reasoning. (3) (Prerequisites: ACT Math subscore 20, or grade of C or better in MA 0103. High School Credit in Algebra I, Algebra II, and Geometry, or equivalent. MA 1303 is a general education core alternative to MA 1313; credit may be earned for both MA 1303 and MA 1313 but the completion of same will not satisfy the MSU core requirement of "three hours of mathematics beyond the level of College Algebra".) Three hours lecture. Descriptive statistics, normal and binomial distributions

- sampling, probability, hypotheses testing; logical statements and arguments; graphical solution of systems of equations/inequalities; estimation and approximation.
- 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. Antiderivatives, the definite integral, applications of the definitive 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). Three hours lecture. 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 2990. Special Topics in Mathematics. (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).
- **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 coregistration 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; boundary-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 coregistration in MA 2733). Three hours lecture. A historical development of mathematicians and their most important contributions will be emphasized.
  - MA 4000. Directed Individual Study. Hours and credits to be arranged.
- 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, MA 3253, 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 4313/6313. Numerical Analysis I. (3)** (Prerequisites: CSE 1213 or equivalent, 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. (Same as CSE 4313/6313).
- 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. (Same as CSE 4323/6323).
- 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 4553/6553. Foundations of Analysis For Secondary School Teachers. (3) (Prerequisite: Consent of instructor). Three hours lecture. Elementary set theory; the real numbers as a complete ordered field; mathematical induction; introduction to metric spaces; convergence theorems.
- MA 4563/6563. Theory of Equations for Secondary School Teachers. (3) (Prerequisite: MA 1723). Three hours lecture. Complex numbers; polynomials and their properties; roots of algebraic equations; systems of linear equations; determinants and matrices.
- 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). 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 4990/6990. Special Topics in Mathematics. (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).
- 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 7000. Directed Individual Study. Hours and credits to be arranged.
  - MA 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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, 4353/6353, 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 8393. Numerical Solution of Ordinary Differential Equations II. (3) (Prerequisite: MA 8383). Three hours lecture. A continuation of topics introduced in MA 8383.
- 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 8473. Advanced Numerical Analysis I. (3) (Prerequisite: MA 4933/6933). Three hours lecture. Approximation theory. Theoretical aspects of computational mathematics.
- MA 8483. Advanced Numerical Analysis II. (3) (Prerequisite: MA 8473). Three hours lecture. Approximate solution of linear and nonlinear operator equations.
- 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 8990. Special Topics in Mathematics. (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).

- MA 9000. Dissertation Research. (1-6) Hours and credits to be arranged
- MA 9163. Selected Topics in Combinatorics. (3) (Prerequisites: MA 8133 or consent of instructor). (May be taken for credit more than once). Three hours lecture. Continuation of one or more advanced topics introduced in MA 8133.
- 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.
- MA 9913. Selected Topics in Algebra. (3) (Prerequisite: MA 8123 and consent of instructor). (May be taken for credit more than once). Three hours lecture. Topics to be chosen from such areas as valuation theory; polynominal rings; Noetherian, Prufer, Dedekind, and other domains of classical ideal theory; nonassociative algebraic systems.

#### Department of MECHANICAL ENGINEERING

Office: 210 Carpenter Engineering Building

Professors Steele (head), Adebiyi, Berry, Chamra, Daniewicz, German, Hodge, Horstemeyer, and Marcum; Associate Professors Cain, Felicelli, Li, Luck and Schneider; Assistant Professors Mago, Patton, Srinivasan, Walters and Zdaniuk; 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 2990. Special Topics in Mechanical Engineering. (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).
- ME 3113. Engineering Analysis. (3) (Prerequisites: Computer Literacy, 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 3133. Modeling and Manufacturing. (3) (Prerequisite: Junior standing). Two hours lecture. Three hours laboratory. Intermediate drafting and design techniques using solid modeling software, with special emphasis placed on tolerancing, dimensioning, and manufacturing process selection.
- **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 3701. Experimental Orientation. (1) (Prerequisites: credit or registration in ME 3523 and a technical junior level writing course). Three hours laboratory. Measurements: their accuracy and usefulness; reporting; measurements of pressure, temperature, mass, weight, volume, speed, time, frequency, torque, power, area, force, and displacement.
- $ME\ 4000.$  Directed Individual Study. Hours and credits to be arranged.
- **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 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 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 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. Multi-dimensional 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 4473/6473. Kinematic Theory and Design of Mechanisms. (3) (Prerequisites: ME 3423). Three hours lecture. Advanced kinematic theory of plane mechanisms. Velocity and acceleration analysis, coupler curves, centrodes, precision points, graphical and computer synthesis of 4 bar mechanism.
- ME 4483/6483. Computer-Aided Design. (3) (Prerequisite: ME 4403). Three hours lecture. Role of computers in design process, CAD tools, design software development, numerical methods, finite elements, design optimization, shape description, presentation of design data, data structures.
- ME 4493/6493. Concurrent Engineering. (3) (Prerequisite: Junior or Senior standing). Three hours lecture. An introduction to the implementation, application, and management of concurrent engineering, as well as, the tools and techniques that support new product development.
- 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. Automation of Mechanical Systems. (3) (Prerequisites: ME 3613 and ECE 3283). Three hours lecture. An introduction to the design of automated equipment and processes. Automation of processes using fluid power equipment and industrial controllers.
- ME 4721. Experimental Techniques I. (1) (Prerequisites: ME 3701, EM 3313, and credit or registration in ME 3313). Three hours laboratory. Application of principles of experimental design, statistics, uncertainty analysis, instrument response, data acquisition and data reduction to obtain experimental solutions to problems in engineering.
- **ME 4731. Experimental Techniques II.** (1) (Prerequisite: ME 4721). Three hours laboratory. Continuation of ME 4721. Plan and use the microcomputer to record data and control experiments in traditional mechanical engineering subject areas. Analyze and report results.
- 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 4990/6990. Special Topics in Mechanical Engineering. (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).
- $ME\ 7000.$  Directed Individual Study. Hours and credits to be arranged.
  - ME 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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 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. (Same as CE 8323)
- 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 and Fracture in Engineering Design. (3) Three hours lecture. Stress analysis of cracked components. Prediction and prevention of fatigue failure and fracture.
- 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 8323. Radiative Heat Transfer. (3) Three hours lecture. Thermal radiation through non-absorbing and absorbing media; integral equations for radiative transfer; unified method for radiation-exchange calculations; solar terrestrial, and planetary radiation.
- 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 8403. Principles of Computer-Aided Design and Manufacturing. (3) Three hours lecture. CAD/CAM principles and tools presented in generic and basic forms; engineering and design applications; numerical control part programming and manufacturing.
- **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 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 IE 8713).
- ME 8733. Experimental Procedures. (3) Three hours lecture. Design of experiments; instrumentation; data acquisition; and correlation and evaluation of results.
- ME 8743. Stress Analysis. (3) (Prerequisite: EM 3213). Two hours lecture. Three hours laboratory. Analysis of stress distributions in machine and structural members by the experimental methods of photoelasticity, electrical-resistance strain gages, and brittle coating; dynamic stress analysis.
- **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.
- ME 8990. Special Topics in Mechanical Engineering. (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).
- ME 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

### Department of MANAGEMENT and INFORMATION SYSTEMS

Office: 302 McCool Hall

- Professors Smith (Head), Arnett, Barnett, Chrisman, Cochran, Lehman, A. Pearson, R. Pearson, Shim, Spencer, Taylor, Warkentin and White; Associate Professor Long; Assistant Professors Baker, Carter, Kellermans, Otondo, Shaw, and Templeton
- MGT 2990. Special Topics in Management. (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).
- 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 I. (3) (Prerequisites: EN 1113 and junior standing). Three hours lecture. A study of the role of communications in the modern business organization. Emphasis is given to the basic writing skills applied to various forms of business communications.
- MGT 3323. Entrepreneurship. (3) (Prerequisite: EC 2113). 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). 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.
- $MGT\ 4000.$  Directed Individual Study. (Prerequisite: Junior standing). Hours and credits to be arranged.
- **MGT 4113. Advanced Management. (3)** (Prerequisite: MGT 3114). Three hours lecture. A brief history of management thought and a study in depth of the managerial functions of planning, organizing, controlling.
- MGT 4153. Organization Theory. (3) (Prerequisite: Final semester 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 4553. Collective Bargaining. (3) (Prerequisite: MGT 3513). Three hours lecture. Management and union organization for collective bargaining, issues in current bargaining context, methods and procedures in bargaining, legal-administrative requirements under the NLRA as amended.
- 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 4990/6990. Special Topics in Management. (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).
- MGT 7000. Directed Individual Study. Hours and credits to be arranged.
- MGT 8000. Thesis Research/Thesis. Hours and credits to be arranged.
  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 pro-

duction 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 equivalent). Two hours lecture. Survey of major behavioral skills used by managers to help them understand and influence behavior in an organizational setting.
- MGT 8121. Strategic Management. (1) (Prerequisite: MGT 8063 or equivalent). One hour lecture. A detailed study of strategic management covering such topics as environmental analysis, competition between firms, establishing and sustaining a competitive advantage, and strategy implementation.
- 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 8132. Project Management Field Study. (2) Prerequisites: IE 6533 or equivalent and instructor consent). Two hours lecture. A project based field study requiring the application of specific project management skills in a organized setting.
- 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 8990.** Special Topics in Management. (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).
- $MGT\ 9000.$  Dissertation Research/Dissertation. Hours and credits to be arranged.
- 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 Bryant, Capella, Eshee, LeMay, Sullivan,
Tahai, Taylor and Webster;
Associate Professors Engelland (head), P. Liddell, M. Moore and R. Moore;
Assistant Professors Chakrabarty, G. Liddell, Lueg and Ponder-Lueg;
Instructors Goree and Lam

MKT 2211-2221. PGM Level I Seminar. (1) (Prerequisite: enrollment in the PGM program or permission 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 2311. PGM Level II Seminar. (1) (Prerequisite: completion of Level I of the PGA of America requirements or permission of the instructor). One hour lecture. This course introduces the PGM program and helps students work through Level II checkpoint material as designated by the PGA of America.

MKT 2990. Special Topics in Marketing. (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).

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 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.

 $MKT\ 4000.$  Directed Individual Study. Hours and credits arranged.

**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). 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). 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 Merchandising Management. (3) (Prerequisite: PGM Major, 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 4413. Consumer Analysis and 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 4990/6990. Special Topics in Marketing. (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).

MKT 7000. Directed Individual Study. Hours and credits to be arranged.

MKT 8000. Thesis Research/Thesis. Hours and credits to be arranged.

MKT 8072. Survey of Marketing. (2) (Prerequisite: Graduate standing;
EC 8043, equivalent of concurrent enrollment). Two hours lecture. Survey of
product, price, promotion, and distribution decisions in for-profit and non-

focus on strategic decision making.

MKT 8112. Marketing Management. (2) (Prerequisite: MKT 8072 or equivalent). Two hours lecture. A graduate survey of marketing focused on the strategic analysis and planning necessary to effectively match marketing strategies with changing macro, micro, and organizational environments.

profit settings; external environmental factors affecting marketing decisions;

MKT 8122. Management of Delivery Systems. (2) (Prerequisite: MKT 8072 or equivalent). Two hours lecture. Provides knowledge of operations, purchasing and logistics that is crucial to managing in the modern business world

MKT 8132. Business Research Methods. (2) (Prerequisite: MKT 8072 or equivalent). Two hours lecture. Investigation of the managerial decisions involved with the development of questionnaires, creation of a sampling plan, collection and analysis of data, and presentation of results.

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 8413. Seminar on Consumer Behavior. (3) (Prerequisite: MKT 8313). An analysis of macro and micro consumer behavior. Particular emphasis is placed on the consumer decision process in the market place.

MKT 8533. Research Design and Execution. (3) (Prerequisite: Consent of instructor). Interdisciplinary; designing and executing valid quantitative research projects, development 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 8990. Special Topics in Marketing. (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).

MKT 9000. Dissertation Research/Dissertation. Hours and credits arranged

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: 1st Floor, Middleton Hall

LTC Majure, Major Graham, Major Harbor, MSG Watts, Mr. Bell

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. (Fall).

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. (Spring)

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. (Summer)

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 4000. Directed Individual Study. Hours and credits to be arranged. Maximum of six hours.

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 EDUCATION

Music Building

Professors Michael R. Brown (Head), Edwards-Henry, Hood, Johns and Smith Associate Professors Damm and Pappas Assistant Professors Human, Min and Sebba; Instructors Aarhus, Falcone, Huff and Payton

#### Music

 $\label{eq:multiple} \textbf{MU 1010. Recital Hour. (0)} \ \ \text{Minimum one (1) hour weekly. Performance} \\ \text{and critique experiences in applied music. Required for music majors.}$ 

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.

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.

 $\overline{MU}$  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 guitar-playing 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 2561. Symphonic Band. (1) (Audition required). One to five rehearsals per week. The study and performance of significant symphonic band literature. May be repeated for credit more than once. (Spring semester only)

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 2611. Concert Choir. (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 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 2711. Pop/Jazz Choir. (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 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 2990. Special Topics in Music. (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).

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 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 4000. Directed Individual Study. Hours and credits to be arranged.

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.

MU 4990/6990. Special Topics in Music. (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).

 $MU\ 7000.$  Directed Individual Study. Hours and credits to be arranged.

MU 8990. Special Topics in Music. (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).

#### **Band**

Office: Band Hall

Director: Elva Kaye Lance

MU 2511. Marching Band. (1)

MU 2531. Concert Band. (1) Second Semester Only.

Symphonic Band

MU 2561. Symphonic Band. (1) Second Semester Only.

Wind Ensemble

MU 2571. Wind Ensemble (1)

#### Choral

Office: Choral Building

Director: Bruce Lesley

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 composi-

Chorus

MU 2611. Concert Choir. (1)

MU 2631. Starkville Community Choir. (1)

Vocal Ensembles

MU 2711. Pop/Jazz Choir. (1)

MU 2731. Chambers Singers. (1)

Instrumental Ensembles

Woodwind Ensembles

MU 2011. Woodwind Ensemble. (1)

Brass Ensembles

MU 2851. Brass Ensemble. (1)

Stage Band

MU 2911. Jazz 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
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 1750, 2750, 3750	Organ

#### **MUSIC EDUCATION**

MUE 2990. Special Topics in Music Education. (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).

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 4000. Directed Individual Study. Hours and credits to be arranged.
- 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.
- MUE 4990/6990. Special Topics in Music Education. (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).
- MUE 7000. Directed Individual Study. Hours and credits to be arranged.
- MUE 8990. Special Topics in Music Education. (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).

#### NUTRITION

(For the interdisciplinary graduate programs in Nutrition, consult College of Agriculture and Life Sciences section of this Catalog, and the Graduate Bulletin.)

NTR 4115/6115. Nutrition. (5) Spring Semester. (Prerequisites: CH 2503, CH 2501). Five hours lecture. Nutrition of monogastric and ruminant species. Anatomy, physiology, digestion and absorption pertaining to monogastric and ruminants. Description, functions, sources, deficiency symptoms and requirements of nutrients.

NTR 4233/6233. Medical Nutrition Therapy. (3) (Prerequisites: BCH 3613, HS 4253 and/or HS 4293, and BIO 2014 or consent of instructor). Two hours lecture. Two hours laboratory. Treatment of human diseases through nutrient modification. (Same as FNH 4233/6233).

NTR 4253/6253. Human Nutrition I. (3) (Prerequisites: BIO 2014 and CH 2503 or equivalent). Three hours lecture. Advanced human nutrition: digestion, metabolism, function, requirements, and recommendations for carbohydrates, lipids, proteins and water. (Same as FNH 4253/6253).

NTR 4293/6293. Human Nutrition II. (3) (Prerequisites: NTR 4253/6253 or consent of instructor). Three hours lecture. Advanced human nutrition and metabolism with emphasis on the functions, requirements, and recommendations of the regulatory nutrients (vitamins and minerals) and water. (Same as FNH 4293/6293).

NTR 4990/6990. Special Topics in Nutrition. (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).

NTR 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. (Same as WF 4333/6333).

NTR 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. (Same as HS 4353/6353 and FNH 4353/6353).

NTR 6423. Feed Manufacturing. (3) (Prerequisites: CH 2503 and CH 2501). 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. (Same as PO 4423/6423).

NTR 7000. Directed Individual Study. Hours and credits to be arranged.

NTR 8000. Thesis Research and Thesis.

NTR 8111-8131. Nutrition Seminar. (1) Survey of current literature; preparation, organization, and presentation of papers on selected topics in nutrition.

- NTR 8123. Methods in Nutrition Research. (3) Fall semester. (Prerequisites: NTR 4115/6115 and 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.
- **NTR 8153. Ruminant Nutrition. (3)** (Prerequisite: NTR 4115/6115 or Equivalent). Three hours lecture. In-depth treatment of rumen function and recent concepts in ruminant nutrition.
- NTR 8162. Monogastric Nutrition. (2) Fall semester. (Prerequisite: NTR 4115/6115 or equivalent). Two hours lecture. Monogastric nutritional relationships with special emphasis on swine nutrition. Metabolic functions, dietary requirements, deficiency symptoms and distribution of nutrients in feedstuffs.
- **NTR 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. (Same as FNH 8233).
- **NTR 8243. Community Nutrition. (3)** (Prerequisite: HS 3213). Three hours lecture. Nutrition services and problems in the community. Supervised experience in methods for determining and implementing action programs in nutrition education. (Same as FNH 8243).
- NTR 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. (Same as FNH 8253).
- NTR 8261. Dietetic Internship Seminar. (1) (Prerequisite: Admission into the Dietetic Internship/Graduate Studies Program). One hour lecture. Selection of current topics in foods, nutrition or dietetics and in-depth review of current literature for critical analysis presentation.
- NTR 8273. Dietetic Internship Capstone. (3) (Prerequisite: Admission into the Dietetic Internship/Graduate Studies Program). Three hours lecture. Theoretical aspects of dietetics gained through the study of resources, technology, professional standards, and other factors that influence entry-level practice.
- **NTR 8443. Avian Nutrition.** (3) (Prerequisite: NTR 4115/6115 or equivalent). Three hours lecture. Study of the nutrient functions, dietary relationships, deficiency symptoms, distribution in feedstuffs and quantitative requirements of nutrients.
- NTR 8463. Advanced Animal Nutrition. (3) (Prerequisite: NTR 4115/6115 or prior approval from instructor). Two hours lecture. Two hours laboratory. Develop an understanding of nutritional physiology, metabolism, and utilization of nutrients by animal species.
- NTR 8473. Micro-Nutrient Nutrition. (3) (Prerequisite: NTR 8114 or equivalent). 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.
- NTR 8990. Special Topics in Nutrition. (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).

NTR 9000. Dissertation Research and Dissertation. Hours and credits to be arranged.

#### Department of KINESIOLOGY

Office: 216 McCarthy Gymnasium

Professor Abadie; Associate Professors Chromiak (Interim head), Lamberth; Assistant Professors: Foxworth, Hoyt, Ridpath, Rukavina, and Zullo; Instructors Drye, Funderburk, Joe, Wiley, and Young.

**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 1021. Basic Physical Fitness Concepts.** (1) Two hours laboratory. Basic knowledge, understandings and values of physical fitness. Emphasis on individualized fitness evaluation procedures and diversified program construction.

**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 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-majors 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 1112. 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 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 1122. 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 1123. 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 1131. Fitness Walking/Jogging.** (1) Two hours laboratory. An exercise and activity class emphasizing walking and/or jogging to develop and maintain fitness, weight control and flexibility.
- **PE 1132. 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 1142. Teaching Rhythms.** (3) One hour lecture. Two hours laboratory. Instruction, demonstration, skill development, and teaching techniques in the areas of square, folk, and contemporary dance.
- **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 1213. Introduction to Exercise Science.** (3) Three hours lecture. This course is designed to provide students and overall understanding of the professions within Exercise Science.
- **PE 1221. Volleyball. (1)** Two hours laboratory. Emphasis is on rules, knowledge, and team tactics necessary to successfully participate in an organized game.
- **PE 1223. Personal Health.** (3) Three hours lecture. An introductory survey of the multiple dimensions of health. Focus is upon healthy behaviors across the lifespan as well as environmental and social influences.
- **PE 1231. 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 1233. Introduction to Lifetime Leisure.** (3) Three hours lecture. A comprehensive examination of leisure from psychological, sociological, economical and historical contexts. Includes an exploration of individual and group activities appropriate for lifetime involvement.
- **PE 1241. Tennis (1)** Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game.
- **PE 1271. Fitness and Conditioning.** (1) Two hours laboratory. This course provides the student with necessary cognitive and laboratory experiences to make personal decisions specific to fitness and conditioning. (May be taken up to four times for credit).
- **PE 1313.** Introduction to Physical Education. (3) Three hours lecture. Interpretation of the meaning of physical education based on the significant facts of the biological sciences.
- **PE 1361. Strength Training. (1)** Two hours laboratory. Principles and practice of strength training with particular emphasis on specificity of design and management of load, repetitions, rate of exercise and recovery time.
- **PE 1461. Badminton.** (1) Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game.

- **PE 2001. Practicum in Health and Physical Education. (1)** Two hours laboratory. This course is designed to provide a laboratory experience for health and physical education majors in actual teaching situations.
- **PE 2003. Foundations of Health Education. (3)** 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.
- **PE 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.
- **PE 2613. Exercise Electrocardiography. (3)** (Prerequisite: BIO 1004 or BIO 2014). 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.
- **PE 2990.** Special Topics in Physical Education. (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).
- 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 3173. Measurement and Evaluation in Exercise Science. (3)** Three hours lecture. Emphasis is placed on fitness assessment and statistical interpretation of data related to fitness.
- **PE 3183.** Psychology of Sport and Exercise. (3) Three hours lecture. Psychological principles applied to leadership in sport and exercise settings.
- **PE 3213.** Emergency Health Care. (3) Three hours lecture. First Aid procedures which include shock, wounds, CPR, resuscitation, poisoning, transportation, hemorrhaging, splinting, burns, respiratory problems, etc. are taught and practiced.
- **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 3273. Athletic Training. (3)** (Prerequisites: BIO 1004 or 2004). Two hours lecture. Two hours laboratory. Prevention and treatment of injuries prevalent in athletics, physical education and adult fitness programs.
- **PE 3303.** Exercise Physiology I. (3) (Prerequisite: BIO 1004 or BIO 2014). Two hours lecture. Two hours laboratory. Examines the physiological aspects of muscular work, nervous system function, and metabolism, and their application to exercise, fitness, training, injury and fatigue.
- **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; fundamental 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 3623. Exercise Physiology II. (3)** (Prerequisite: PE 3303). Three hours lecture. Examines the cardiovascular, respiratory, endocrine, immunologic, and osteogenic aspects of physiology and their application to acute and chronic exercise throughout the lifespan.
- PE 3633. Rehabilitation Techniques in Sport. (3) (Prerequisite: PE 3273). Two hours lecture. Two hours laboratory. Investigate aspects of phys-

- iotherapy utilized in treatment of injuries. Course will be supported with assistance of Oktibbeha County Hospital.
- **PE 3643. Applied Anatomy.** (3) (Prerequisite: BIO 1004 or 2004). Three hours lecture. Provide in-depth analysis of muscle structure, muscle function, adaption of muscle to resistance training, and effects of disuse.
  - PE 4000. Directed Individual Study. Hours and credits to be arranged.
- **PE 4113/6113. Fitness Programs and Testing Procedures.** (3) (Prerequisite: PE 3303 and PE 3173). Two hours lecture. Two hours laboratory. Provides study of and practice in conducting adult fitness programs and fitness testing procedures.
- **PE 4133.** Exercise Programs for Special Populations. (3) Three hours lecture. This course describes the methods of prescribing exercise programs for individuals with special medical conditions.
- **PE 4153/6153.** Training Techniques for Exercise and Sport. (3) (Prerequisite: PE 3303). Three hours lecture. Training techniques used for exercise and sport and their acute and chronic effect upon the body.
- 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 emphasize 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 4183. Exercise and Weight Control. (3)** 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.
- **PE 4210. Fitness Management Internship. (1-6)** (Prerequisite: senior status, PE 3623, PE 4113, PE 4133, PE 4183 and PE 4233). Hours and credits to be arranged. A supervised observation and teaching experience in a fitness/health enhancement facility.
- **PE 4233. Biomechanics. (3)** (Prerequisites: BIO 1004 or BIO 2004). Three hours lecture. Analysis of body mechanics; relationship and application of principles of movement to teaching physical education.
- **PE 4313-4316. Sports Communication Internship. (3,6)** (Prerequisite: Consent of instructor). Hours and credits to be arranged. A supervised observation and practicum experience in a sports communication setting.
- **PE 4410. Clinical Exercise Physiology Internship. (1-6)** (Prerequisite: PE 2603, PE 2613, PE 3303, PE 3623, PE 3633, PE 3643, PE 4113, PE 4133; senior status). A supervised observation and teaching experience in clinical exercise physiology setting.
- **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 program; scheduling, financing, and public relations
- **PE 4603. Exercise in Health and Disease.** (3) (Prerequisites: PE 3303 and PE 2603). Three hours lecture. Focus on the pathophysiology and risk factors of diseases and associated health problems attributable to physical inactivity.
- **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 and Athletics. (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 physical education and athletics in the schools.
- **PE 4883/6883.** School Health Education (3) (Prerequisite: 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)** (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). Supervised observation and directed teaching in respective field of endorsement.
- PE 4990/6990. Special Topics in Physical Education. (1-9) Credit and title to be arranged. This course is to be used on a limited basis to offer devel-

- oping subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years).
  - PE 7000. Directed Individual Study. Hours and credits to be arranged. PE 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **PE 8113.** Curriculum Construction in **PE.** (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 8123. Physical Education and Sport Programs.** (3) Three hours lecture. Study of principles, problems, human relationships, and procedures in supervision. Involves theories of leadership, programs, and philosophies of the profession.
- PE 8163. Seminar in Physical Education. (3) The course gives a complete review of current literature in Health, Physical Education, and Recreation.
- **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.
- **PE 8243.** Cardiorespiratory Exercise Physiology. (3) (Prerequisite: PE 3303). 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.
- **PE 8253. Doping and Supplemental Use in Sports. (3)** (Prerequisite: PE 3303 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.
- **PE 8263.** Exercise Biochemistry. (3) (Prerequisites: PE 3303). Three hours lecture. Functioning, interrelationships and adaptations of the systems of the body during acute and chronic exercise.
- **PE 8273. Laboratory Instrumentation.** (3) (Prerequisite: PE 3303). Six hours laboratory. A course in the function, calibration and operation of physical education laboratory instruments.
- PE 8283. Environmental Exercise Physiology. (3) (Prerequisite: PE 3303; suggested prerequisite or co-requisite PE 8243). 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.
- PE 8303. Research in Exercise Science and Sport. (3) A study of research methods and techniques; the preparation of the research proposal specific to exercise science and sport; and familiarization with APA writing guidelines
- PE 8313. Interpretation of Data in Exercise Science and Sport. (3) Three hours lecture. Measurement, analysis and interpretation of data in exercise science and sport.
- PE 8323. Science and Practice of 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 modifications.
- **PE 8423. Graded Exercise Testing. (3)** (Prerequisite: PE 3303). Two hours lecture. Two hours laboratory. Methods of supervising graded exercise testing, including interpretation of basic electrocardiography.
- **PE 8710. Internship. (3-6)** (Prerequisite: Consent of the Department Head). Opportunity for practical experience in business, fitness/wellness and sports organizations.
- PE 8803. Sport Law (3) Three hours lecture. The analysis and application of the legal foundations, concepts and issues impacting the sports industry.
- **PE 8823.** The Sport Product. (3) Three hours lecture. An examination of the uniqueness of the sport product and the importance of effective advancement and visibility of the sport product.
- **PE 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.
- **PE 8883. Sports Ethics. (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 sports industry.
- **PE 8990.** Special Topics in Physical Education. (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).

#### Department of PHYSICS and ASTRONOMY

Office: Hilbun Hall

Professors Novotny (Head), Foley, Lestrade, Ma, Monts, Su, and Winger; Associate Professors Arnoldus, and Dunne;

Assistant Professors Afanasjevs, Clay, Dutta, Ermer, Kim, and Wang; Adjunct Lindner, Luthe, Singh, Y. Su, Tao, and Wang; 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 microcomputers 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: MA 1713). Three hours lecture. Calculus-based course emphasizing Newtonian mechanics and conservation laws. Honors section also available through invitation only.
- **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 2990.** Special Topics in Physics. (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).
- **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 4000. Directed Individual Study. Hours and credits to be arranged.
- 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 4990/6990. Special Topics in Physics. (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).
  - PH 7000. Directed Individual Study. Hours and credits to be arranged. PH 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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 prin-

ciples, 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.

PH 8990. Special Topics in Physics. (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).

**PH 9000. Dissertation Research/Dissertation.** Hours and credits to be arranged.

#### Department of PHILOSOPHY and RELIGION

Office: 13 Morgan Street

Professors Seger, Jacobs, Clifford and Holt; Associate Professor Estes; Assistant Professors Hardin and Phillips

**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 2990.** Special Topics in Philosophy. (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).

**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 3213. Syllogism. (3)** (Prerequisite: PHI 1113). Three hours lecture. A concentrated study of the categorical syllogism, with emphasis on recent extensions of it.

**PHI 4000. Directed Individual Study.** (Prerequisite: PHI 1103, PHI 1113, or PHI 1123). Hours and credits to be arranged.

**PHI 4123/6123. Existentialism and Postmodernism. (3)** (Prerequisite: 3 hours PHI or junior standing). Three hours lecture. A study of the 20th century philosophical movements of existentialism and postmodernism.

**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 4990/6990. Special Topics in Philosophy. (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).

PHI 7000. Directed Individual Study. Hours and credits to be arranged.

**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)

**PHI 8990.** Special Topics in Philosophy. (1-9) Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter. (Courses limited to two offerings under one title in two years).

#### 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 6114. Cellular Physiology. (4) (Same as BIO 4114/6114).

PHY 6335. Anat. & 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 8000. Thesis Research/Thesis.

- 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.
- PHY 8990. Special Topics in Physiology. (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).
  - PHY 9000. Dissertation Research/Dissertation.

#### **Department of POULTRY SCIENCE**

Office: 114 Hill Poultry Science

Professors Morgan (Head), Chen, Hargis\*, Lott, May\*, McDaniel, Peebles, Sadler\*, Thaxton and Vizzier; Associate Professors Chamblee and Kidd; Assistant Professor Branton\*

- PO 2990. Special Topics in Poultry. (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).
- **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, BIO 1504, or BIO 1203, 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 in-

- dustry techniques utilizing basic microbiological methodologies including aseptic technique, isolation of pure coloines and identification of unknown samples.
  - PO 4000. Directed Individual Study. Hours and credits to be arranged.
- **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. (Same as NTR 6423).
- **PO 4513/6513. Poultry Processing.** (3) Two hours lecture. Two hours laboratory. Operation and study of modern processing equipment; grading poultry and eggs; killing, dressing, eviscerating, and packaging poultry; studying methods of retail and wholesale marketing. (Same as FNH 4513/6513).
- PO 4523/6523. Commercial Broiler Processing Technology. (3) Three hours lecture. Study of preparation of live broiler chickens for retail sales, 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 4990/6990. Special Topics in Poultry. (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).
- 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 7000. Directed Individual Study. Hours and credits to be arranged. PO 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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)
- PO 8823. Physiology of Digestion and Metabolism. (3) (Prerequisites: CH 4523/6523). Three hours lecture. The chemistry and physiology of digestion and absorption; the fate of absorbed products in the body. (Same as PHY 8823).
- PO 8990. Special Topics in Poultry. (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).
- PO 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

## Department of POLITICAL SCIENCE and PUBLIC ADMINISTRATION

Office: 105 Bowen Hall

Professors Breaux (Head), Feig, Shaffer, and Wiseman; Associate Professors Emison, Travis, and Wall; Assistant Professors Goodman, Radin, Staniserski, and Stich

#### **Public Policy and Public Administration**

- PPA 7000. Directed Individual Study. Hours and credits to be arranged.
- **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).
- 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 work-place, 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 8990. Special Topics in Public Policy Administration. (1-9) Credit and title to be arranged. This course is to be used on a limited basis to of-

- fer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years).
- PPA 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.
- 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 2990. Special Topics in Political Science.** (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).
- **PS 4000. Directed Individual Study.** (Prerequisite: Junior standing). Hours and credits to be arranged.
- **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.
- **PS 4990/6990. Special Topics in Political Science. (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).

#### **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 WS 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.
- 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 military and their relation to elite formation and political integration.
- 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 4573/6573. South and Southeast Asian Politics. (3) (Prerequisites: PS 1513 and junior standing). Three hours lecture. An evaluation of the traditional and contemporary political institutions, behavior and ideas of the countries of South and Southeast Asia.
- 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 7000. Directed Individual Study. Hours and credits to be arranged.
  - PS 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- PS 8113. Seminar in State Government and Politics. (3) (Prerequisites: PS 4113 and nine hours of related courses, or consent of instructor). Three hours lecture. The examination of selected concepts in the policies, politics, machinery and/or powers of state government.
- **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 8303. Seminar in International Relations.** (3) (Prerequisites: PS 1313 and nine hours of related courses, or consent of instructor). Special research dealing with major international problems.
- **PS 8413.** Seminar in Political Theory. (3) (Prerequisites: PS 2403 and nine hours of related courses, or consent of instructor). Three hours lecture. Seminar on selected aspects of political theory from the ancient to the modern period.
- 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 8990.** Special Topics in Political Science. (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).
- 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 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 PPA 9413)
- **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 Byrd, Collins (Head), Jenkins\*, Kingery, Matta, Nagel, Reddy, Reichert, Reynolds, Shaw, Triplett, Varco, and Williams\*; Associate Professors Baldwin, Cox, DelPrince, Harkess, Lang, Massey, Rankins, Stewart and Wallace; Assistant Professors Collins, Gu, Munshaw, Peterson, Trader and Williams; Instructor McDougald (\* adjunct)

- **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 2990. Special Topics in Plant and Soil Sciences. (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).
- **PSS 3023. Retail Floristry Operation and Management. (3)** (Prerequisites: ACC 2023, MGT 3114, and MKT 3013). Three hours lecture. To identify and understand the basic principles of retail floristry management and the operation of a florist shop.
- **PSS 3043. Fruit Science. (3)** Three hours lecture. Principles and practices involved in the production of deciduous trees and small fruits. Fall semester, odd years.
- 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. Fall and Spring semesters. 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. Fall and Spring semester. 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. Advanced Floral Design I. (3)** (Prerequisite: PSS 2343). One hour lecture. Four hours laboratory. Application of design theory and principles to specific operations encountered in retail floristry.

**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. Advanced Floral Design II. (3)** 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 3923. Plant Propagation.** (3) (Prerequisite: BIO 1203). Two hours lecture. Two hours laboratory. Basic principles in the propagation of horticultural plants. Spring semester.

PSS 4000. Directed Individual Study. Hours and credits to be arranged.

**PSS 4103/6103. Forage and Pasture Crops. (3)** Two hours lecture. Two hours laboratory. Fall semester. 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 4123/6123. Grain Crops. (3)** (Prerequisite: Junior standing). Two hours lecture. Two hours laboratory. Spring semester, odd-numbered years. Corn, small grain, practice in commercial grading given in laboratory.

PSS 4133/6133. Fiber and Oilseed Crops. (3) (Prerequisite: Junior standing). Three hours lecture. Spring semester. 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. Spring semester, odd years.

PSS 4223/6223. Seed Production. (3) (Prerequisite: Junior standing). Two hours lecture. Two hours laboratory. Fall semester (odd years). Principles and practices, special emphasis on production of varietally pure seeds; agronomic factors in harvesting, drying, storage, treating and marketing seed.

PSS 4243/6243. Seed Technology. (3) (Prerequisite: Senior standing). One hour lecture. Four hours laboratory. Spring semester (odd years). Seed development and morphology; germination; vigor and other special tests for seed quality; maintenance of seed viability; and seed quality control system.

PSS 4253/6253. Seed and Grain Conditioning and Storage. (3) (Prerequisite: Senior standing). Two hours lecture. Two hours laboratory. Fall semester. Physical and biological principles involved in the conditioning and storage of seed and grain with emphasis on systems used, operational procedures, management and economic considerations.

PSS 4313/6313. Soil Fertility and Fertilizers. (3) (Prerequisites: PSS 3303 and Junior standing). Three hours lecture. Spring semester. 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. Spring semester. 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 4343/6343. Greenhouse Management. (3)** (Prerequisites: BIO 1203 and PSS 3303 and PSS 3301). Two hours lecture. Two hours laboratory. A detailed review and explanation of principles and practice of greenhouse operation and management. Fall semester.

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. Nursery Management. (3)** (Prerequisites: PSS 3923, PSS 2423, and PSS 3473). Two hours lecture. Two hours laboratory. The production and handling of ornamental nursery stock. Spring semester, even-numbered years.

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 4411-4441/6411-6441. 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. Fall semester. 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 4603/6603. Soil Chemistry. (3)** (Prerequisite: PSS 3303). Two hours lecture. Three hours laboratory. Fall semester, even-numbered years. Introduction to the basic chemistry of soils, including: mineral weathering/formation, ion exchange; adsorption, oxidation/reduction, acidity, salinity/al-kalinity, 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. Spring semester, odd-numbered years.

**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. Spring semester.

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. Spring semester. 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 4990/6990. Special Topics in PSS. (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).

 $\boldsymbol{PSS}$  7000. Directed Individual Study. Hours and credits to be arranged.

PSS 8000. Thesis Research/Thesis. Hours and credits to be arranged.

**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. Spring semester, even numbered-years. 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. Spring semester, even-numbered years. 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. Spring semester (even years). 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 8314. Clay Mineralogy. (4)** (Prerequisite: Approval of instructor). Two hours lecture. Four hours laboratory. Spring semester, even-numbered years. Crystal structure and reaction mechanisms of clay minerals weathering. X-ray diffraction, thermal, and chemical studies of clay minerals.

PSS 8323. Advanced Soil Chemistry. (3) (Prerequisite: CH 4413 and preferably CH 4423 or approval of instructor). Three hours lecture. Spring semester, odd-numbered years. 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. Fall semester, even-numbered years. 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. Modeling Watershed Hydrology (3) (Prerequisite: PSS 3301/3303 or CE 4513 or consent of instructor). Two hours lecture. Three hours laboratory. Simulation modeling of watershed hydrology and point/non-point source pollution, including data availability and quality, calibration/verification, sensitivity analysis, TMDL calculations, and other modeling issues.

**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. Fall semester, even-numbered years. 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. Spring semester, odd-numbered years. 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. Plant Growth and Development. (3)** (Prerequisites: BIO 4214/6214 and CH 2503). Three hours lecture. Auxins, gibberellins, and other growth regulating substances, photoperiodism, thermoperiodicity. Fall semester, odd-numbered years.

PSS 8554. Plant Genetic Engineering. (4) (Prerequisite: PSS 6444 or PSS 6443 and BCH 6713). Two hours lecture. Four hours laboratory. A study of molecular techniques, product development, applications and implications of plant improvement through genetic engineering.

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. Fall semester, even-numbered years.

**PSS 8613. Methods of Horticultural Research.** (3) (Prerequisite: Graduate standing). One hour lecture. Four hours laboratory. Techniques and instrumentation in plant research.

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. Fall semester, odd-years.

**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.

PSS 8990. Special Topics in PSS. (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).

PSS 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

#### Department of PSYCHOLOGY

Office: 110 Magruder Hall

Professors Bradshaw, Carskadon, Doane, Giesen, Klein (Head), Morse, Spirrison, and Wells-Parker; Associate Professors Adams-Price, Armstrong, Fee, Jacquin, and McCarley; Assistant Professors Eakin, Sinclair and Williams

**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 2990. Special Topics in Psychology. (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).
- **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 3103. Introductory Psychological Statistics. (3)** (Prerequisite: PSY 1013, MA 1313). Three hours lecture. Techniques and practices in statistical analyses used in psychological experimentation and evaluation.
- **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 3103). 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 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 4000. Directed Individual Study**. Hours and credits to be arranged.
- **PSY 4103/6103. Psychometrics. (3)** (Prerequisite: PSY 3103). Three hours lecture. Theory, problems, skills, and techniques of psychological measurement. Emphasis on construction, evaluation, item analysis, reliability and validity techniques in the improvement of measures of human behavior. Laboratory hours to be arranged.
- PSY 4123/6123. Quantitative Techniques In Psychology Using Computers. (3) (Prerequisites: PSY 3103 or equivalent, and consent of instructor). A survey of major quantitative techniques in psychology and related behavioral sciences made possible by modern computers.
- **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 3313 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. Integrative Capstone. (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 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). In-depth 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 4990/6990. Special Topics in Psychology. (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).
- PSY 7000. Directed Individual Study. Hours and credits to be arranged.
- PSY 8000. Thesis Research and Thesis. Hours and credits to be arranged.
- **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 3103). Three hours lecture. Three hours laboratory. Advanced experimental design and methods with emphasis on analysis of variance.
- **PSY 8223. Systems and Theories of Psychology. (3)** (Prerequisite: PSY 4323/6323). Three hours lecture. Study of the basic systems and theories relevant to current psychology.
- **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 3313). 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.
- PSY 8990. Special Topics in Psychology. (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).
- PSY 9000. Dissertation Research and Dissertation. (1-13) Hours and credits to be arranged.

#### RADIO — T.V. — FILM

(See Communication)

#### READING EDUCATION

(See Elementary Education)

- **RDG 2990.** Special Topics in Readings. (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.
- 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 vocabulary, 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: 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: 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). 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 4990/6990. Special Topics in Readings. (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.
- **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 8413. Reading in the Public Schools.** (3) Three hours lecture. Materials and methods employed in individual and group procedures for the teaching of reading in public schools.
- **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 8523. Reading Comprehension Process and Instruction. (3)** Three hours lecture. Understanding the reading comprehension process. Research-based methods for teaching comprehension. Field-based application.
- **RDG 8573. Diagnosis of Reading Problems. (3)** The selection, utilization and interpretation of instruments used to diagnose disability and outline remedial procedures.
- **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 junior- and senior-high school students. A study of machines, materials, and techniques used in developmental reading for high school youth.
- **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.
- **RDG 8990.** Special Topics in Readings. (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.

#### **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.
- **REL 2990. Special Topics in Religion.** (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).
- **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 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.
- 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).
- 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 4000. Directed Individual Study**. Hours and credits to be arranged.
- **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).
- **REL 4990/6990.** Special Topics in Religion. (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).
  - REL 7000. Directed Individual Study. Hours and credits to arranged.
- **REL 8990. Special Topics in Religion.** (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).

#### REAL ESTATE and MORTGAGE FINANCING

Office: 312 McCool Hall

(For departmental information, see FINANCE and ECONOMICS)

- **REM 2990.** Special Topics in Real Estate & Mortgage Finance. (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).
- **REM 3253. Real Property Evaluation (Appraisal). (3)** (Prerequisite: REM 3333 or consent of instructor). Three hours lecture. Methods, evaluation procedures, and techniques of appraising commercial and residential real property under various value-influencing conditions; case problems for appraisal.
- **REM 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.
- **REM 3353. Real Estate Finance. (3)** (Prerequisites: REM 3333 or consent of instructor). Three hours lecture. Direct investment in real estate. Sources of funds; risk analysis; typical policies and procedures of investing and financing investment real estate.
- **REM 4000. Directed Individual Study.** (1-3) Hours and credits to be arranged with Instructor.
- **REM 4253.** Mortgage Financing. (3) (Prerequisites: REM 3333 or FIN 3123 or consent of instructor). Three hours lecture. Indirect investment in real estate. Institutional sources of funds, mortgage market mechanisms, mortgage derivatives and mortgage underwriting.
- REM 4990/6990. Special Topics in Real Estate & Mortgage Finance. (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 cours-

es. (Courses limited to two offerings under one title within two academic years).

# Department of SOCIOLOGY, ANTHROPOLOGY, and SOCIAL WORK

Office: 200 Bowen Hall

Distinguished Professor: C. Rent
Professors Bartkowski, Cosby, Dunaway (Head), Frese,
Gill, Howell, Jones, Levin, Wood and Xu;
Associate Professors Boyd, Parisi, Ray and Unnever;
Assistant Professors Blanchard, Cossman, Hempel, Morrison and Rader

- **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 WS 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 AN 2203).
- **SO 2990. Special Topics in Sociology. (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).
- **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)** 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 COR 3343).

- SO 3503. Violence in the United States. (3) Three hours lecture. Indepth study of violence, including types of violence, categories of offenders and victims, its social causes, and potential solutions. (Same as COR 3503).
- **SO 3603. Criminology. (3)** (Prerequisites: SO 1103 and 3313 or equivalent or consent of instructor). A study of the causes of crime, disorganized communities and homes conducive to delinquency, boys' gangs, organized crime, prison, probation, parole, and crime prevention programs.
  - SO 4000. Directed Individual Study. Hours and credits to be arranged.
- **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)** (Prerequisite: SO 3603). 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 COR 4233/6233).
- **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 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 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)** (Prerequisite: SO 3603). Three hours lecture. Survey of contemporary correctional system and practices. Emphasis placed on the formal organization and functioning of penal systems.
- **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 4990/6990. Special Topics in Sociology. (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).
  - SO 7000. Directed Individual Study. Hours and credits to be arranged.
  - SO 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **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 8203. Data Management in the Social Sciences. (3) Three hours lecture. Acquisition, management, and manipulation of social science data sources, comprehensive statistical package instructions, basic computation and analysis, and relation between sociological theory and data analysis.
- **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 8603. Seminar in Modernization.** (3) (Prerequisites: Six hours in social sciences). Three hours lecture. Structural, institutional and behavioral factors and processes affecting the modernization of traditional societies. Evaluation of causal factors and theoretical perspectives.
- **SO 8673. Seminar in Social Impact Analysis. (3)** (Prerequisites: SO 4173/6173 or AN 4173/6173). Three hours lecture. Examination of the requirements of, methodologies for, and issues in, social impact assessment. Attention is given to practical working experience with techniques.
- **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 8990.** Special Topics in Sociology. (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).
- SO 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.

#### **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). Three hours lecture. 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 2990.** Special Topics in Statistics. (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).
- 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 4000. Directed Individual Study. Hours and credits to be arranged. 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 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 4990/6990. Special Topics in Statistics. (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).
  - ST 7000. Directed Individual Study. Hours and credits to be arranged.
  - ST 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- **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 8423. Multivariate Analysis. (3) (Prerequisites: ST 8413 and ST 8613). Three hours lecture. Theory of multivariate statistical methodology including multivariate normal and Wishart distributions, Hotelling's T", classification, multivariate analysis or variance and covariance, canonical correlation, and principal components.
- 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 8543. Stochastic Processes. (3)** (Prerequisite: ST 8533). Three hours lecture. Continuation of ST 8533, including semi-martingales, Markov processes, second-order processes, diffusion processes, stochastic integrals, stochastic differential equations, and branching processes.
- ST 8603. Applied Statistics. (3) (Prerequisite: ST 8214 and ST 8253 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 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.
- **ST 8990.** Special Topics in Statistics. (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).
- ST 9000. Dissertation Research/Dissertation. Hours and credits to be arranged.
- **ST 9493. Topics in Multivariate Statistics. (3)** (Prerequisite: Consent of instructor). (May be repeated for credit). Advanced readings in multivariate statistics; course content varies depending on current issues.
- ST 9533 Probability Theory. (3) Prerequisite: ST 4543/6543 and MA 8633). Three hours lecture. A measure-theoretic presentation of the theory of probability including independence and conditioning, convergence theorems, characteristics functions, martingales, and Brownian motion.
- **ST 9593. Topics in Probability Theory. (3)** (Prerequisite: Consent of instructor). (May be repeated for credit). Advanced readings in probability theory or stochastic processes: course content varies depending on current issues.
- **ST 9693. Topics in Linear Models. (3)** (Prerequisite: Consent of instructor). (May be repeated for credit). Advanced readings in linear models; course content varies depending on current interests.
- ST 9723. Nonparametric Statistical Inference I. (3) (Prerequisite: ST 9733). Three hours lecture. A theoretical study of nonparametric statistics and robust statistical procedures. Topics may include: order statistics, empirical C.D.F.'s, M-estimates, rank statistics, optimality considerations, and asymptotic distribution theory.
- **ST 9733. Statistical Inference. (3)** (Prerequisites: ST 4573/6573 and consent of instructor). Three hours lecture. Topics include: sufficiency, completeness, and uniqueness, convex loss functions, minimax estimation, Bayesian estimation, decision theory, symmetry and invariance, and sequential testing.
- **ST 9793. Topics in Statistical Inference. (3)** (Prerequisite: Consent of instructor). (May be repeated for credit). Advanced readings in statistical inference; course content varies depending on current interests.
- **ST 9893. Topics in Design of Experiments. (3)** (Prerequisite: Consent of instructor). (May be repeated for credit). Advanced readings in the design and analysis of experiments; course content varies depending on current interests.

#### **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 2990. Special Topics in Social Work.** (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).
- **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 2323 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 3023, and 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 Practice III. (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 4000. Directed Individual Study**. (Prerequisites: Six hours of social work, junior standing, and consent of instructor). Hours and credits to be arranged. Independent research of problems related to social work.
- 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 4713. Social Work Senior Seminar. (3)** (Prerequisite: SW 3523). Critical evaluation of current issues in social work practice; examination of career opportunities; and assessment of personal educational preparation for practice.
- **SW 4990/6990.** Special Topics in Social Work. (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).
- 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.

#### **THEATRE**

(See Department of Communication)

## Department of INSTRUCTIONAL SYSTEMS, LEADERSHIP, and WORKFORCE DEVELOPMENT

Office: 100 Industrial Education Building
Professors Cornelious (Interim Head), Blackbourn, Blendinger,
Forde, Olinzock; Associate Professors Adams, Okojie and Mathews;
Assistant Professors Brandenburg, Davis, Du, Durrington, Stumpf, Wyatt,
Xie and Yu; Instructors Giordano, Keel, Love, Mize and Seiler

#### **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 2413. Administrative Office Procedures. (3) (Prerequisite: TKB 1122 or instructor's consent). Three hours lecture. Principles and practices involved in preparation for administrative support positions.
- 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 2990.** Special Topics in Business Technology. (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).
- **TKB 3133. Office Management. (3)** (Prerequisite: Junior standing). Three hours lecture. Planning and directing functions of offices; executive duties, selection and training of office employees; selection of office equipment and supplies.
- 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.
- TKB 4990/6990. Special Topics in Business Technology. (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).

### INDUSTRIAL TECHNOLOGY

- **TKI 1213. Introduction to Industrial Technology. (3).** Three hours lecture. Study of fundamental industrial safety and health principles preparing the student for working in industry.
- **TKI 1223. Wood, Polymer, and Composite Processing.** (3) Two hours lecture. Two hours laboratory. The planning, operation, and control of the processing of natural and synthetic polymers and associated composites.
- **TKI 1813. Basic Industrial Electricity and Electronics I. (3)** (Prerequisite: MA 1313). One hour lecture. Four hours laboratory. Study of fundamental direct current industrial electrical and electronic principles with experimentation and project construction.
- **TKI 2113/ Introduction to PLC/CNC Programming. (3).** Three hours lecture. Study of fundamental methods in the programming of industrial PLC and CNC controllers, with regard to language and logic.
- **TKI 2323. Forging, Welding and Founding. (3)** (Prerequisite: Concurrent or credit in TKI 1813). 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 2813. Basic Industrial Electricity & Electronics II. (3)** (Prerequisites: MA 1313 and TKI 1813). One hour lecture. Four hours laboratory. Study of fundamental alternating current, industrial, electrical and electronic principles with experimentation and project construction.
- **TKI 2990. Special Topics in Industrial Technology. (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).
- **TKI 3043. Industrial Safety. (3)** Three 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)** Three hours lecture. The application of psychological principles to teacher-pupil relationships, employer-employee relationships, and other human relationships in business and industry.
- **TKI 3103.** Advanced Industrial Electricity and Electronics. (3) (Prerequisite: TKI 1813). One hour lecture. Four hours laboratory. Continuation of TKI 1813. Study of and experimentation with industrial electronic, transistor, and integrated circuitry.
- **TKI 3183.** Machine Metal Processing. (3) Six hours laboratory. Machine tool (drill, grinder lathe, mill and shaper) operations; bench metals, precision measurements, calculations, and chipless machining; project construction.
- **TKI 3223. Industrial Materials Technology.** (3) (Prerequisite: CH 1043). Two hours lecture. Two hours laboratory. An investigation of the mechanical and characteristic properties of industrial materials. The influence of these properties on manufacturing and product service requirements.
- **TKI 3343. CAD/CAM. (3).** 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 3363. Motion and Time Study. (3)** (Prerequisite: TKI 3083). 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. (for non-I.E. students). (Same as IE 3113).
- **TKI 3383. Forecasting and Cost Modeling. (3).** (Prerequisite: MGT 3114). 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 4103. Industrial Control Systems. (3)** (Prerequisite: TKI 3103). 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 1113 and TKI 3103). 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 4103). 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). Three hours lecture. Scientific and applied approaches to energy conversion, trans-

- mission, utilization, and conservation. Internal-external combustion, nuclear, fluid, hydroelectric, solar, etc. Current energy problems; lab demonstrations; activities.
- **TKI 4223/6223. Quality Assurance. (3)** (Prerequisites: BQA 2113 and ACC 1203). Three hours lecture. Concepts and procedures to design, plan, assure and audit quality and quality systems.
- **TKI 4233/6233. Maintenance Management. (3)** (Prerequisite: TKI 4223/6223). 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: TKI 3363). One hour lecture. Four hours laboratory. Interpretation of modern industry duplicates the life cycle of an industrial enterprise in a laboratory environment.
- **TKI 4303/6303. Industrial Robotics. (3)** (Prerequisite: TKI 4103). Two hours lecture. Two hours laboratory. A study of industrial robotics and applications for production supervisors.
- **TKI 4363/6363. Manufacturing Systems.** (3) (Prerequisites: TKI 4223/6223 and MGT 3114). Three hours lecture. Understanding and application of the basic concepts of modern manufacturing process management systems, with regards to quality, just-in-time, lean manufacturing and six sigma.
- **TKI 4990/6990. Special Topics in Industrial Technology.** (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).

## **TECHNOLOGY TEACHER EDUCATION**

- **TKT 1273. Computer Applications. (3)** Three hours lecture. The process of incorporating computer applications.
- **TKT 2990.** Special Topics in Technology Teacher Education. (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).
- **TKT 3001. Practicum in Technology Teacher Education.** (1) One hour practicum. Field-based observation of secondary technology students and participation in classroom activities.
- **TKT 3153. Teaching Business Technology.** (3) (Prerequisite: Admission to teacher education). 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: TKB 4283 and TKB 4543). 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 4000. Directed Individual Study. Hours and credits to be arranged.
- 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 vocational-technical 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 4623/6263. Differences in Workforce 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 Technical 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 4623. Delivery 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 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 in Vocational/Technical 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.
- TKT 4990/6990. Special Topics in Technology Teacher Education. (1-9) Credit and title to be arranged. This course is to be used on a limited basis

- to offer developing subject matters. (Courses limited to two offerings under one title within two academic years).
  - TKT 7000. Directed Individual Study. Hours and credits arranged.
  - TKT 8000. Thesis Research/Thesis. Hours and credits to be arranged.
- 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 Technical 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. Career Planning and Occupational Decision-making. (3) Three hours lecture. The course examines workforce education, analyzes market trends and considers strategies for gathering occupational data for decision-making.
- 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 ISWE. (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 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 8990. Special Topics in Technology Teacher Education. (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).
- $TKT\ 9000.$  Dissertation Research/Dissertation. Hours and credits to be arranged.
- 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.

#### **TRANSPORTATION**

Office: 324 McCool

(For departmental information, see MARKETING, QUANTITATIVE ANALYSIS and BUSINESS LAW.)

**TR 2990. Special Topics in Transportation. (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).

**TR 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.

TR 4000. Directed Individual Study. Hours and credits to be arranged.

TR 4233. International Transportation. (3) Three hours lecture. Understanding the role of transportation in global logistics and the global economy

TR 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.

**TR 4333. International Supply Chain Management. (3)** Three hours lecture. Analysis of supply chains and the importance to the global economy.

**TR 4990/6990.** Special Topics in Transportation. (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).

### **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 2990. Special Topics in Animal Health Sciences. (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).

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.

## Department of WILDLIFE and FISHERIES

Office: 109 Thompson Hall

Professors Avery, Burger, D'Abramo, Demarais, Jackson, Kaminski, Leopold (Head), Li, Miranda\*\*, Schramm\*\*, Tucker; Associate Professors Dibble, Jones, Minchew, Vilella and Wise; Assistant Professors Goodwin\*, Greenway, Griffin\*, Hunt, Jones, Mischke, Minnis, Reinecke\*, Riffell and Tietjen (\* - adjunct faculty; \*\* - U.S.D.I.)

WF 1101. Wildlife and Fisheries Profession. (1) (Prerequisite: Freshman or Sophomore standing). One 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.

WF 1213. Introduction to Wildlife and Fish Conservation. (3) Three hours lecture. A survey of wildlife and forest conservation, stressing biological principles and management practices for renewable resources.

WF 2990. Special Topics in Wildlife & Fisheries. (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).

WF 3000. Internship in Wildlife, Fisheries or Aquaculture. (1-4) (Prerequisite: Junior standing). Professional work experience with governmental or private agencies. (Hours and credits to be arranged).

WF 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.

WF 3131. Applied Aquatic and Terrestrial Ecology Laboratory. (1) (Co-requisite: WF 3133). Four hours laboratory, alternate weeks. Demonstration of ecological concepts and methodologies in the classroom and in the field

WF 3133. Applied Aquatic and Terrestrial Ecology. (3) (Co-requisite: WF 3131). Three 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.

WF 3141. Seminar in Wildlife and Fisheries. (1) (Prerequisite: Junior standing). One hour lecture. Current topics and job opportunities in the field of wildlife and fisheries.

WF 4000. Directed Individual Study. Hours and credit to be arranged.

WF 4013. Introduction to Aquaculture. (3) Correspondence course introducing basic principles of aquaculture production and management. Designed primarily for extension, education and other professionals and prospective fish producers.

WF 4121. Wildlife and Fisheries Biometrics Laboratory. (1) (Prerequisite: ST 3123; Co-requisite: WF 4122). Four hours laboratory, alternate weeks. Application of basic statistical analytical tools to address wildlife and fisheries management/research questions.

WF 4122 Wildlife and Fisheries Biometrics. (2) (Prerequisite: ST 3123; Co-requisite: WF 4121). Two hours lecture. Application or basic statistical analytical tools to address wildlife and fisheries management/research questions.

**WF 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.

WF 4153/6153. Principles of Wildlife Conservation and Management. (3) Two hours lecture. Four hours laboratory on alternate weeks. Principles of game management; habitat improvement; wildlife techniques; public relations.

WF 4173/6173. Fish Physiology. (3) 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.

WF 4183/6183. Principles and Practices of Aquaculture. (3) 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.

WF 4193/6193. Crustacean and Molluscan Aquaculture. (3) Two hours lecture. Four hours laboratory, alternate weeks. General biology and methods associated with the various phases of culture of crustacean and molluscan species grown throughout the world.

WF 4213/6213. Wildlife Damage Management. (3) (Prerequisites: WF 3133/3131 or consent of instructor). Two lectures per week, labs alternate weeks. Principles and practices of wildlife damage management with emphasis on damage identification and damage prevention and control methods.

WF 4221/6221. Limnology Laboratory. (1) (Prerequisite: WF 3133 or consent of instructor; Co-requisite: WF 4222/6222). Four hours laboratory skills required to evaluate freshwater ecosystems.

WF 4222/6222. Limnology. (2) (Prerequisite: WF 3133 or consent of instructor; Co-requisite WF 4221/6221). Two hours lecture. The physical, chemical and biological processes underlying the function and productivity of freshwater ecosystems.

WF 4243/6243. 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.

WF 4253/6253 Application of Spatial Technologies to Wildlife and Fisheries Management (3) (Prerequisite: Sr. 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.

WF 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 CVM 4263/6263).

WF 4313/6313. Fisheries Management. (3) (Prerequisite: WF 3133 or WF 3131 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.

- WF 4323/6323. Wildlife Nutrition and Physiology. (3) 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.
- WF 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. (Same as NTR 6333).
- WF 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.
- WF 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.
- WF 4363/6363. Wildlife and Fisheries Administration and Communication. (3) (Prerequisite: Junior standing) Two hours lecture. Three and one-half hours lab, alternate weeks. Administrative and communicational techniques and skills in the workplace and political environments of wildlife and fisheries organizations.
- WF 4373/6373. Principles and Practice of Conservation in Agricultural Landscapes. (3) (Prerequisites: WF 1213 or consent of instructor). 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.
- WF 4383/6383. Wetlands Ecology and Management. (3) 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.
- WF 4394/6394. Waterfowl Ecology and Management. (4) (Prerequisite: WF 3133, WF 3131, WF 4153, senior 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.
- WF 4463/6463. Human Dimensions of Fish and Wildlife Management. (3) (Prerequisite: Jr./Sr. 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.
- WF 4473/6473. Wildlife and Fisheries Practices. (3) (Prerequisite: Senior standing). 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.
- WF 4483/6483. Seminar in Tropical Biology. (3) (Prerequisites: WF 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.
- WF 4484/6484. Upland Avian Ecology and Management. (3) (Prerequisites: WF 3133 and WF 3131 and WF 4153 and senior 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.
- WF 4494/6494. Large Mammal Ecology and Management. (3) (Prerequisites: WF 3133/3131 and WF 4153 and senior standing). Three hours lecture. Four hours laboratory, alternate weeks. Ecological principles and applied methods used in the management of large mammals.
- WF 4990/6990. Special Topics in Wildlife & Fisheries. (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).
  - WF 7000. Directed Individual Study. Hours and credit to be arranged. WF 8000. Thesis Research/Thesis. Hours and credit to be arranged.
- WF 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.
- WF 8144. Theory of Wildlife Population Ecology. (4) (Prerequisite: WF 3133, ST 3133 or consent of instructor.) Three hours lecture. Two hours laboratory, weekly. Theory of wildlife population ecology including population growth, population regulation, predation, and competition. Basic methods of data collection and population sampling.

- WF 8154. Quantitative Applications in Wildlife Population Ecology. (4) (Prerequisite: WF 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.
- WF 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.
- WF 8223. Management of Impounded River Ecosystems (3) (Prerequisites: WF 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.
- WF 8243. Conservation Biology. (3) (Prerequisites: WF 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.
- WF 8273. Advanced Fisheries Management. (3) (Prerequisites: WF 4133/6133 and WF 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.
- WF 8343. Conceptual Ecology and Natural Resource Management. (3) (Prerequisites: WF 8012 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.
- WF 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.
- WF 8413. Advanced Fishery Science. (3) (Prerequisites: WF 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.
- WF 8990. Special Topics in Wildlife & Fisheries. (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).
- $WF\,9000.\,Dissertation\,\,Research/Dissertation.\,\,Hours$  and credits to be arranged.

# **WOMEN'S STUDIES**

Office: 224 Allen Hall

- WS 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).
- WS 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)
- WS 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).

# IV. FACULTY, EMERITI and STAFF 2006-2007

### **GILES DISTINGUISHED PROFESSORS**

Dr. Terry L. Amburgey
Dr. Janice E. Chambers
Dr. Arthur G. Crosby
Dr. Louis R. D'Abramo
Dr. Nancy Duvall Hargrove
Dr. B. Keith Hodges
Dr. Robert L. King
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- BRIAN D. WARD, Extension Associate I, Plant and Soil Sciences, B.S., Mississippi State University, 1998
- CYNTHIA A. WARD, Executive Director, Center for Educational Partnerships, Ed.D., Mississippi State University, 1982
- JUDITH W. WARD, Area Extension Agent IV, Union County Extension Service, M.E.D., University of Mississippi, 1990

- MARY FRANCES WARD, On-Site Coordinator, Curriculum & Instruction, M.S., University of Southern Maine, 1973
- ROBBIE SCOTT WARD, Technical Writer, Dean of Engineering, B.A., University of Southern Mississippi, 2003 RUSSELL W. WARD, Assistant System Administrator, Computer Science
- and Engineering
- WALLACE BARRY WARD, Systems Analyst, Enterprise Information Systems, M.S., University of Southern Mississippi, 1985
- KERRI HILL WARDLAW, Computer Systems Administrator, Student Health Center, B.B.A., Mississippi State University, 1998
- MILTON C. WARDLAW, Extension Associate I, Plant and Soil Sciences, B.S., Mississippi State University, 1997
- AMY B. WARE, Extension 4-H Agent II, Montgomery County Extension Service, M.S., Mississippi State University, 2004
- CYNTHIA C. WARE, Research Associate II, CVM MS Aquatic Diagnostic Lab, M.S., Delta State University, 2000
- LEE E. WARE, Research Associate II, Mississippi State Chemical Lab, B.S., Alcorn State University, 1982 BRADY G. WARREN, Coordinator of Info Systems, FWRC - Director,
- B.S., Mississippi State University, 1988
- ROSIE WASHINGTON, MASEP Instructor, MASEP, B.S., MS Valley State University, 1974
- CINDY C. WASSON, Academic Coordinator, Geosciences, BED, Mississippi State University, 1985
- LOUIS L. WASSON, Research Associate II, GeoResources Institute, M.S., Mississippi State University, 1985
- ROY D. WATKINS, LARAC Manager, CVM LARAC
- SHERAN R. WATKINS, Extension 4-H Agent II, Harrison County Extension Service, M.A., University of Phoenix, 2005
- MELISSA R. WATSON, IT Consultant, User Services
- RHONDA H. WATSON, Librarian, Delta Research and Extension Center, M.S., Delta State University, 1978
- VANCE H. WATSON, VP DAFVM/Dean/Director, V P for Ag, Forestry & Vet-Med, Ph.D., Mississippi State University, 1969
- JO ANN WATTS, Senior Research Associate, Research Curriculum Unit, M.E.D., Louisiana Tech University, 1981
- ARLES E. WEATHERLY, Sr Director of Development, MS State University Foundation, B.A., Mississippi State University, 1939
- RUSSELL BENJAMIN WEATHERS, Migrant Recruiter, Foreign Lan-
- ANITA L. WEBB, County Extension Director III, Scott County Extension Service, B.S., USM Long Beach Campus, 1981
- MARGARET DEREE WEBB, Clinic Nurse, SHC Clinical Care, AS, Meridian Community College, 1979
- MARGARET N. WEBB, Extension 4-H Agent III, Lafayette County Extension Service, M.S., Mississippi State University, 2004
- SYBLE L. WEEKS, Manager, Dining Services-Chick-Fil-A, B.S., Mississippi State University, 1978
- JOSHUA RYAN WELCH, Field Engineer, Ctr for Advanced Vehicular Systems, M.S., Mississippi State University, 2004
- PAUL C. WELCH, Director, Support Services, M.B.A., Mississippi State University, 1975
- BONNIE COOK WELLS, Research Associate I, Delta Research and Extension Center, B.S., University of Southern Mississippi, 2003 KENNETH R. WELLS, Coordinator of Computer System, CVM MS Vet-
- erinary Diagnostic Lab
- ROBERT HOUSTON WELLS, Editor/Operations Coord., Delta Research and Extension Center, M.S., University of Southern Mississippi, 2003
- RYAN M. WERSAL, Research Associate I, GeoResources Institute, B.S., Minnesota State University, 2002
- JAMES L. WEST, Dean & Professor, School of Architecture, M.A., University of Florida, 1979
- LAURA ELLING WEST, Managing Editor, Publications MS Quarterly, MLS, University of North Carolina, 1993
- ANDREW G. WHETSTONE, Research Associate II, T. K. Martin Center for Tech & Dis, M.S., Louisiana Tech University, 1994
- AMANDA J. WHITE, Research Associate I, CVM Pathobiology/Population Med Dep, B.S., Texas A&M University, 2002
- BERNARD W. WHITE, Manager Operations, Research Support, M.S., Mississippi State University, 1985
- DEMETRIA SHANTA WHITE, Research Associate I, Ctr for Educational Training Tech, MSIT, Mississippi State University, 2003
- EVA M. WHITE, Program Coordinator, Holmes Cultural Diversity Center, Ed.S., Mississippi State University, 2003
- JULIE BROUSSARD WHITE, Extension 4-H Agent II, Lowndes County Extension Service, M.S., Mississippi State University, 2003
- LOUISE F. WHITE, Sponsored Program Manager, Sponsored Program Accounting
- MARK R. WHITE, Assist Basketball Coach, Athletics Men's Basketball, M.A., Austin Peay State University, 1989

- MERLINE M. WHITE, Coordinator Service, Physical Plant Administration MICHAEL W. WHITE, Dean of Student, Dean of Students, M.E.D., Mississippi State University, 1971
- THOMAS E. WHITE, Systems Analyst, Information Tech Infrastructure, B.S., Mississippi State University, 1978
- STEPHEN J. WHITLOCK, Associate Director, Student Housing Administration, M.S., University of Alabama -Huntsville, 2004
- ANDREW FREDERICK WHITTINGTON, Research Associate I, Agricultural Economics, M.S., Mississippi State University, 2006
- DANIELLE RENAE WHITTINGTON, Dance Instructor, T. K. Martin Center for Tech & Dis, AA, Pearl River Community College, 2003
- JEREMY RAY WICKHAM, Programmer Analyst, Enterprise Information Systems, B.S., Mississippi State University, 2003 AMANDA L. WILBERDING, Research Associate I, Coastal Research &
- Extension Center, M.S., University of Southern Mississippi, 2004
- LINDA N. WILEMON, Area Extension Agent IV, Prentiss County Extension Service, M.E.D., Mississippi State University, 1963
- BRIDGET V. WILLEFORD, Research Associate I, Lab Animal Veterinarian, DVM, Mississippi State University, 2001
- FRANCES W. WILLIAMS, Extension 4-H Agent I, Pike County Extension Service, B.A., Southern University at New Orl, 1988
- GLEN E. WILLIAMS, County Extension Director IV, Oktibbeha County Extension Service, M.S., Purdue University, 1977
- JENNIFER B. WILLIAMS, Systems Programmer, Information Tech Infrastructure, B.S., Mississippi State University, 2005
- JERRY T. WILLIAMS, Associate Editor, Publications MS Quarterly, B.A., Texas Christian University, 1945
- JOHN S. WILLIAMS, Safety Consultant II, Center for Safety and Health, M.B.A., Mississippi State University, 1995
- LINDA CHRISTINE WILLIAMS, Compliance Administrator, Regulatory
- Compliance, B.A., University of Georgia, 1996 MICHELE L. WILLIAMS, Postdoctoral Associate, CVM Basic Science Department, Ph.D., Mississippi State University, 2003
- NANCY S. WILLIAMS, Extension Associate III, Agricultural Communications, M.S., University of Tennessee-Knoxville, 1973
- NICOLE M. WILLIAMS, Human Resources Generalist, Human Resources Management, B.A., Michigan State University, 2001
- ROBERT L WILLIAMS, Project Coordinator, V P for Ag, Forestry & Vet-Med, Ph.D., Mississippi State University, 1977
- ROBERT STEPHEN WILLIAMS, Research Associate I, John C. Stennis
- Institute of Govt, MPPA, Mississippi State University, 1999 SANDRA L. WILLIAMSON, Fiscal Officer, Vice President for Research, BSBA, University of Southern Mississippi, 1988
- GINA A. WILLS, Extension 4-H Agent III, Union County Extension Service, M.S., Mississippi State University, 1996
- DELFINA ACOSTA WILSON, Extension Associate II, School of Human Sciences, MAT, Mississippi State University, 2005
- GUY R. WILSON, Extension 4-H Agent II, Washington County Extension
- Service, M.S., Mississippi State University, 2002 JEFFREY C. WILSON, Area Extension Agent III, Lowndes County Extension Service, M.S., Auburn University, 2002
- JULIE C. WILSON, Research Associate II, Food Sci Nutrition Hlth Promo,
- M.S., Mississippi State University, 1983 LOWELL S. WILSON, Superintendent, Research Support, B.S., Mississippi
- State University, 1975
- MARILYN JANE WILSON, IT Consultant, User Services
- RAYMOND L. WILSON, Senior Systems Analyst, Information Tech Infrastructure, M.S., Mississippi State University, 1991
- ANITA L. WINGER, Computer Services Assistant, General Library, B.S., Tennessee Temple University, 1987
- STEPHEN R. WINTERS, County Extension Director IV, Grenada County Extension Service, MAGR, Mississippi State University, 1983 ANN SHELAINE WISE, County Extension Director II, Prentiss County
- Extension Service, B.S., Mississippi University for Women, 1979
- STANLEY G. WISE, County Extension Director III, Union County Extension Service, B.S., Mississippi State University, 1974
- WILLIAM M. WISEMAN, Professor and Director, John C. Stennis Institute of Govt, Ph.D., Mississippi State University, 1986
- GLENN G. WIYGUL, Educational Technology Spec, The Learning Center, Ph.D., Mississippi State University, 1986
- JOEY WILLIAM WOMACK, Sr. IT Consultant, User Services, B.S., University of Southern Mississippi, 2002
- MARK S WOODREY, Research Associate III, Coastal Research & Extension Center, Ph.D., University of Southern Mississippi, 1995
- AMANDA H. WOODS, County Extension Director II, Marion County Extension Service, B.S., Mississippi State University, 2000
- ANNETTE WOODS, Extension Associate II, Agricultural Communications, M.F.A., Mississippi State University, 2002
- LESLIE HUNTER WOOLINGTON, Safety Officer, Physical Plant Administration, B.S., Mississippi State University, 1999

- JAMES R. WOOTEN, Research Associate I, Ag & Bio Engineering, M.S., Mississippi State University, 1996
- GREGORY D. WORD, Extension Associate II, Agricultural Communications, BFA, Mississippi State University, 2002
- JERRI MAXINE WRIGHT, Business Manager, Curriculum & Instruction, B.S., Mississippi University for Women, 1996
- LARI H. WRIGHT, Coordinator, Student Housing -Conference Housing, B.B.A., Mississippi State University, 2004
- RONALD SCOTT WRIGHT, Research Associate II, Plant and Soil Sciences, M.S., Mississippi State University, 2001
- JIXIANG WU, Postdoctoral Associate, Plant and Soil Sciences, Ph.D., Mississippi State University, 2003
- LYNN R. WYMAN, Business Manager, Vice President for Research, B.A., University of St Thomas, 1987
- YUNJU XIA, Research Associate II, Inst for Clean Energy Technology, M.S., Vanderbilt University, 1992
- HUI XIAN, Research Associate I, Ctr for Advanced Vehicular Systems, M.S., Mississippi State University, 2004
- QINGMIN XU, Postdoctoral Associate, Chemistry, Ph.D., Foreign Institution, 2002
- QIUHAN XUE, Research Associate II, Computational Simulation & Design, M.S., Mississippi State University, 2002
- PEILIN YANG, Postdoctoral Associate, Ag & Bio Engineering, Ph.D., University of California-Davis, 2006
- ANGELA RICHARDSON YARBROUGH, Family Nurse Practitioner, Student Health Center, MSN, Mississippi University for Women, 2004
- CHARITY YARBROUGH, Regional Coordinator, Center for Educational Partnerships, B.S., Mississippi State University, 2004
- FUQIANG YE, Computer Support Specialist, Dean of Engineering, M.S., Mississippi State University, 2005
- BETTY P. YEATMAN, Distance Ed & Loan Coordinator, Financial Aid YOUNGMO YOON, Research Associate II, Food Sci Nutrition Hlth Promo, Ph.D., Mississippi State University, 2002
- ARLES M. YOUNG, County Extension Director III, Quitman County Extension Service, M.S., Mississippi State University, 1970
- MARCUS ROTEZ YOUNG, Extension Associate I, Northwest District Extension Office, B.S., Mississippi State University, 2005
- FANG-YU YUEH, Research Scientist I, Inst for Clean Energy Technology, M.S., Mississippi State University, 1985
- CESAR ARIEL ZAMORA, Programmer Analyst, Enterprise Information Systems, M.A., Webster University, 2005
- DON A. ZANT, Director of Internal Audit, Office of Internal Audit, B.S., Lubbock Christian University, 1989
- CHANGWEN ZHOU, Research Associate III, Mississippi State Chemical Lab, Ph.D., Foreign Institution, 1988
- IGOR ZHUK, Research Associate II, Ctr for Advanced Vehicular Systems, M.S., Foreign Institution, 1982
- SEAN BERNARD ZIEGELER, Research Associate III, GeoResources Institute, M.S., Mississippi State University, 2002
- JUNHUANG ZOU, Postdoctoral Associate, Biochemistry & Molecular Biology, Ph.D., Foreign Institution, 2005
- ARLES DONALD ZUMWALT, Research Associate III, Poultry Science, M.S., Mississippi State University, 1996
- LAUREN N. ZUMWALT, Fiscal Officer, CVM Office of the Dean, BSBA, University of Southern Mississippi, 1988

#### 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

# V. OTHER DIVISIONS, UNITS, and AGENCIES

# A. MAJOR DIVISIONS and STAFFS

#### **FINANCE and ADMINISTRATION**

Responsible for Human Resources management; finance, operation and maintenance of the physical plant; campus landscape; support services; the operation of auxiliary enterprises, including the laundry, dining services and University-owned faculty and staff housing.

Michael J. McGrevey, Chief of Staff

#### **CONTROLLER and TREASURER'S OFFICE**

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.

Christopher Clifford, Director of Budget and Finance

J. Wayne Bland, M.C.S., Controller and Treasurer

Ronald S. Brown, C.P.A., Associate Controller for Sponsored Programs, Treasury Services, Student Accounting/Receiveables, and Collections

Betty Gentry, B.S., Assistant Controller for Treasury Services Jane Kinard, B.P.A., Assistant Controller for Accounts Receivable and Services

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

#### **CONTINUING EDUCATION**

(For functions, organizations, and programs of the Division of Continuing Education, see PART II. THE COLLEGES and SCHOOLS.)

Mark Binkley, Ph.D., Director of Continuing Education

#### **FOREST and WILDLIFE RESEARCH CENTER**

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 was assigned the mission to conduct research and technical assistance programs relevant to the efficient management, utilization, and protection and enhancement of the forest, wildlife, fisheries, and 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 forest 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 Department of Forestry, the Department of Wildlife and Fisheries and the Department of Forest Products. The agency's base research program involves approximately 275 separate research activities and covers project work in 14 research areas in forestry, forest products, wildlife, and fisheries. This research program serves a diverse number of clients which includes forest landowners, forest-based industries, federal agencies, other state agencies, private agencies and various forest resources user groups. Faculty in the Forest and Wildlife Research Center hold joint appointments for teaching purposes in the College of Forest Resources.

# Forest and Wildlife Research Center

George M. Hopper, Ph.D., Professor of Forestry, Director Keith L. Belli, Ph.D., Professor of Forestry, Associate Director

#### Forestry

James P. Shepard, Ph.D., Professor and Dept. Head

# **Forest Products**

Keith L. Belli, Ph.D., Interim Department Head

#### Wildlife and Fisheries

Bruce D. Leopold, Ph.D., Professor and Head

# MISSISSIPPI AGRICULTURAL and FORESTRY EXPERIMENT STATION

The Mississippi Agricultural and Forestry Experiment Station 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 and fiber 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 the Experiment Station is maintaining a continuum of research discovery and education to keep Mississippi's agricultural producers viable and competitive in a global economy.

Experiment Station Headquarters (MSU Campus) The Leveck Animal Research Center, the Bearden Dairy Research Center, the R.R. Foil Plant Science 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 and Technology, Human Sciences, Poultry Science, the Social Science Research Center, Veterinary Medicine, and the aquaculture unit of wildlife and fisheries.

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 nutrient management. The Truck Crops Branch Station at Crystal Springs serve a populous urbanrural 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 and McNeill conduct research on beef cattle, field and forage crops, agro-forestry, and ornamentals.

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 & 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 region. The Pontotoc Ridge-Flatwoods Branch Station at Pontotoc emphasizes sweet potato production, peaches and other fruits, 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 in-

clude 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 Wetlands and Global Change Monitoring Station); NOAA/National Weather Service; MS Department of Agriculture and Commerce; MS 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 Crops 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 aquacultural 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

Robert H. Foglesong, Ph.D., President Vance H. Watson, Ph.D., Director Clarence E. Watson, 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

William D. Batchelor, Ph.D., Professor and Head

# **Animal and Dairy Science**

Terry E. Kiser, Ph.D. Animal Scientist and Dept. Head

# **Biochemistry and Molecular Biology**

John A. Boyle, Ph.D., Head and Molecular Biologist

# **Entomology and Plant Pathology**

Clarence H. Collison, Ph.D., Head of Department

# Food Science, Nutrition and Health Promotion

\*\*W. Benjy Mikel, Ph.D., Professor and Head;

#### **Human Sciences**

Gary B. Jackson, Ph.D., Director

### **Plant and Soil Sciences**

Michael Collins, Ph.D., Agronomist and Head

# **Poultry Science**

G. Wallace Morgan, Ph.D., Head of Department

# **Research Support Units**

Black Belt Branch Station, Brooksville Frank E. Boykin, Manager

# **Experimental Statistics**

Patrick D. Gerard, Ph.D., Associate Statistician

#### **Social Science Research Center**

Arthur G. Cosby, Ph.D., Director

#### **Veterinary Medicine**

A. Jerald Ainsworth, Ph.D., Immunologist

#### Wildlife and Fisheries

Bruce D. Leopold, Ph.D., Professor and Head

#### Central MS Research and Extension Center, Raymond

F. T. Withers, Jr., M.S., Extension/Research; Professor & Head

#### Delta Research and Extension Center, Stoneville

James W. Smith, Ph.D., Head

Charles E. Snipes, Ph.D., Assistant Head

# Southern Regional Aquaculture Center, Stoneville

C. S. Tucker, Ph.D., Director

North Mississippi Research and Extension Center, Verona Joe E. Street, Ph.D., Head

North Mississippi Branch Experiment Station, Holly Springs

Northeast Mississippi Branch Experiment Station, Verona

Pontotoc Ridge-Flatwoods Branch Experiment Station, Pontotoc

Prairie Research Unit, Prairie

**Brown Loam Branch Experiment Station, Raymond** 

Coastal Plain Branch Experiment Station, Newton

South MS Branch Experiment Station, Poplarville

Truck Crops Branch Experiment Station, Crystal Springs

Coastal Research and Extension Center, Biloxi

#### 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 in cooperation 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**

Robert H. Foglesong, Ph.D., President of the University Vance H. Watson, Ph.D., VP DAFVM/Dean/Interim Executive Director

Melissa J. Mixon, PhD. Associate Vice President and Extension Professor

Will McCarty, Ph.D., Associate Director and Extension Professor George M. Hopper, Ph.D., Dean/Director/Professor/Extension Professor

Susan L. Holder, Ed.D., State Program Leader, 4-H Youth Development

Beverly R. Howell, Ph.D., State Program Leader, Family & Consumer Sciences; Professor, Human Sciences

#### **Agricultural Economics**

Steven Turner, Ph.D., Professor and Head

#### Agricultural and Biological Engineering

William D. Batchelor, Ph.D., Professor and Head

#### **Animal and Dairy Science**

Terry E. Kiser, Ph.D., Professor and Head

#### **Center for Governmental Technology**

P. C. (Mac) McLaurin, Jr., M.A., Extension Professor and Leader

#### Central Mississippi Research & Extension Center, Raymond

Dwayne L. Wheeler, M.Ex, Extension/Research Professor and Head

#### Coastal Research and Extension Center, Biloxi

Patricia R. Knight, Ph.D., Extension/Research Professor and Head

#### **Computer Applications and Services**

Dan Brook, Ed.D., Department Head

#### Delta Research and Extension Center, Stoneville

Joe E. Street, Ph.D., Extension/Research Professor and Head

#### **Entomology and Plant Pathology**

Clarence H. Collison, Ph.D., Professor and Head

#### Family and Consumer Sciences

Beverly R. Howell, Ph.D., State Program Leader

#### Food Science, Nutrition and Health Promotion

William Benjamin Mikel, Ph.D., Professor and Head

#### Forestry

George M. Hopper, Ph.D., Director James P. Shepard, Ph.D., Professor and Head

# 4-H—Youth Development

Susan L. Holder, Ed.D., State Program Leader

#### GeoResources Institute

David R. Shaw, M.S., Ph.D., Director Charles L. Hill, M.S., Deputy Director

#### **Human Sciences**

Gary B. Jackson, Ph.D., Director and Associate Professor Ronnie White, Ed.D., Extension Professor and Leader

# **Industrial Outreach Services**

Joe David Jordan, Ph.D., Director and Extension Professor

# North Mississippi Research and Extension Center, Verona

M. Alan Blaine, Ph.D. Extension/Research Professor and Head

# Office of Agricultural Communications

Thomas W. Knecht, Ed.D, Head

Ned Browning, Ph.D., Associate Extension Professor and Leader

#### **Plant and Soil Sciences**

Michael Collins, Ph.D., Professor and Head

#### **Poultry Science**

George Wallace Morgan, Jr., Professor and Head

#### Sea Grant Advisory Services

C. David Veal, Ph.D., Leader, Sea Grant, and Head, Coastal Research and Extension Center, Biloxi

# **Southern Rural Development Center**

Lionel J. Beaulieu, Ph.D., Director, SRDC Alan Barefield, Associate Director

# Wildlife and Fisheries

Bruce D. Leopold, Ph.D., Professor & Department 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 professional and paraprofessional employees in county and area agent positions is 216.

#### **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. In addition to providing more than 2,051,615 volumes selected to support the teaching and research efforts of students and faculty, the library subscribes to more than 18,103 periodicals. The Special Col-

lections 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 2 a.m., Sunday through Thursday, and until 8 p.m. on Friday and Saturday.

The College of Architecture and the College of Veterinary Medicine maintain their own library holdings but operate as branches of Mitchell Memorial Library.

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, B.S., 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 enhance 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 and Internet 2 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, B.S., M.S., Head, Information Technology Services Rene Hunt, B.A., M.C.S., Director, Enterprise Information Systems Timothy Griffin, B.S., Director, Information Tech. Infrastructure Matt Raven, B.S., M.S., Ph.D., Director, ITS User Services

#### OFFICE of INSTITUTIONAL RESEARCH

http://www.msstate.edu/dept/oir/

The Office of Institutional Research collects, analyzes, and reports information needed for orderly planning and provides background information needed for the formulation of policy decisions to the President, Vice Presidents, and others.

The office analyzes and prepares reports for the President, Vice Presidents, Deans and others, relevant to evaluating faculty workload, student credit hours produced and departmental data that are vital in the allocation of university resources.

The office assists the university community through its research, consulting, and survey activities. A major component of these activities is the Evaluation and Test Service. This service, utilizing optical scanning equipment, scores and analyzes more than 150,000 faculty-constructed tests and processes an equal number of questionnaires and student evaluation of instruction each year.

The office is a primary contact with State and Federal agencies, educational groups, other institutions of higher education, and individuals for the purpose of information and data exchange. A major activity of the office is maintaining a responsive and productive relationship with these external entities.

Julie C. Fulgham, Interim 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

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: Intellectual Property and Technology Licensing, 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, Electron Microscope Center, GeoResources Institute, Institute for Neurocognitive Science and Technology, Research and Curriculum Unit, Social Science Research Center (Mississippi Alcohol Safety Education Program), T.K. Martin Center for Technology and Disability. 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.

Colin G. Scanes, Ph.D., Vice President for Research and Economic Development Sandra H. Harpole, Ed.D., Associate Vice President for Research Melvin C. Ray, Ph.D., Associate Vice President for Economic Development

# **OAK RIDGE ASSOCIATED UNIVERSITIES (ORAU)**

Since 1949, students and faculty of Mississippi State University have benefitted from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 91 colleges and universities and a contractor for the U.S. Department of Energy located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education, the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the ORISE Catalog of Education and Training Programs which is available at http://www.orau.gov/orise/educ.htm, or by calling either of the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scientist Program, and various services to chief research officers.

For more information about ORAU and its programs, contact:
Colin G. Scanes, Ph.D., Vice President for Research and Economic
Development and ORAU Counselor for MSU
Monnie E. Champion, ORAU Corporate Secretary (865-576-3306);
or visit the ORAU Home Page (http://www.orau.org)

# INTELLECTUAL PROPERTY and TECHNOLOGY LICENSING (IPTL)

Office: 403 Bost Extension Building http://iptl.msstate.edu

The mission of the Office of Intellectual Property and Technology Licensing is the identification, protection, marketing, and licensing of intellectual properties developed by Mississippi State University faculty, staff, and students. This mission originates from Public Law 96-517, better known as the Bayh-Dole Act, which stipulates that inventions developed under sponsorship from the federal government and assigned to the university must be actively transferred to the private sector for the benefit of the general public.

Charles Rivenburgh, M.B.A., Director

# LABORATORY ANIMAL VETERINARIAN (LAV)

Office: 2008A Wise Center

Laboratory Animal Veterinarian is a University-wide resource that provides compliance monitoring, veterinary care, technical support, and program planning for animals used in biomedical and some agricultural teaching, testing, and research. The research, overseen by the Vice President for Research, is advised by the University Institutional Animal Care and Use Committee and conforms with local, state, and Federal regulations and guidelines for animal care and use.

Lucy H. Senter, DVM, M.S., DACLAM, Director of Lab Animal Resources and University Veterinarian

# **RADVANYI CHAIR in INTERNATIONAL STUDIES**

Office: 55 & 57 Magruder

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 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

# REGULATORY COMPLIANCE OFFICE (RCO)

Office: 8A Morgan

The Regulatory Compliance Office is responsible for regulatory compliance matters that affect the research, instruction, and extension programs of the institution. Primary emphasis is on facilitation of the following: Biosafety, Radiological Safety, Hazardous Waste Management, Human Use in Research (IRB), Animal Care and Use (IACUC). Each area has a compliance officer and/or coordinator to assist and pro-

vide information to researchers regarding regulatory issues for research activities, facilitate committee reviews, and monitor compliance.

# SPONSORED PROGRAMS ADMINISTRATION

Office: 133 Etheredge Hall

Sponsored Programs Administration (SPA) is the component of the Office of Research 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 include: disseminate funding information; assist faculty in locating potential funding opportunities; assist faculty in contacting funding agencies; assure compliance with proposal guidelines; provide proposal budget cost analysis; facilitate in obtaining appropriate departmental and collegiate approvals; coordinate institutional compliance with government regulation; act as administrative liaison with the administrative officers of external sponsors; and, assist faculty and staff in administrative problem-solving associated with their sponsored projects.

Marc McGee, 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. 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 applied scientific and engineering consultation to industries and individuals residing in or doing business in the state. Charges are assessed for major projects such that they will be self-supporting but nonprofit. The guiding principle in such services shall be that they contribute to the economic growth of Mississippi or to the welfare of its citizens.

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

Paul J. Brignac, Ph.D., Associate State Chemist; Director of Ouality Assurance

Patricia B. Reeves, B.S., Director, Chemical Regulatory Division Jose Rodriguez, Ph.D., Director, Petroleum Products Division William E. Holmes, B.S., Director, Advanced Instrumentation

# **CENTERS and INSTITUTES**

#### **CENTER for ADVANCED VEHICULAR SYSTEMS (CAVS)**

http://www.cavs.msstate.edu

CAVS is an interdisciplinary center that provides engineering research, development and technology transfer teams focused on complex technical problems, such as those associated with human mobility. Our development efforts provide short-term solutions relevant to regional manufacturers while the research builds longer-term knowledge needef for sustained economic development. At the same time students gain valuable project experience that compliments their formal classroom learning. These activities are creating a base for economic and community growth.

Our model is to identify and nurture niche technical areas that can grow into mainstream topics. By this mechanism, CAVS will become a first-rank academic research center. A key feature is the shift to more of a venture capital mind set, where opportunities are identified by research ers, critical clusters are created and grown into self-sustaining research areas. Accordingly, CAVS is applying an "investment" mentality, using its core funding to support entrepreneurial efforts identified by the outreach, economic development, and researcher teams. Our technical clusters are focused as follows: Human and Systems Engineering, Computational Manufacturing and Design, Alternative Power Systems, Hybrid Vehicle Design: Challenge X, Materials Processing, Computational Systems and Cyberinfrastructure, Advanced Learning Technologies, Mobile Computing, Testing and Characterization, Extension and Outreach Services, Commercialization and Technology Transfer.

Randall M. German, Director, Center for Adv Vehicular Systems Zachery Rowland, M.S., Deputy Dir., Ctr for Adv Vehicular Sys. C. Dean Norman, Ph.D., Director, Center for Advanced Vehicular Systems – Extension

#### **CENTER for EDUCATIONAL and TRAINING TECHNOLOGY**

Office: 309 Bost http://www.cett.msstate.edu

The Center for Educational and Training Technology was created in 1996 to provide for the development and implementation of innovative software tools and information technologies as well as staff development training in the use of those tools and information technologies through an interdisciplinary approach involving a wide cross section of units, departments, and colleges from Mississippi State University, state and federal agencies, and corporate America. The ultimate goal is to enhance teaching and learning at all educational levels through effective integration of emerging and innovative technologies. The Professional Development and Technology Group and the Interactive Multimedia Development Group compose the two major divisions of the Center.

R.D. Brook, Ed.D., Director

#### **CENTER for SAFETY and HEALTH**

Office: Suite B, 2151 Hwy 18; Brandon, Mississippi 39042

The Center for Safety and Health is a federal grant program. It was created in 1970 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, medium, and 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/ Program Manager Charles M. Savage, B.S., Associate Director

#### **CENTER for SCIENCE, MATHEMATICS and TECHNOLOGY**

Office: 23 President's Circle

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

#### **ELECTRON MICROSCOPE CENTER**

Office: Clay Lyle Entomology Complex

The Electron Microscope Center is a University-wide facility administratively under the Mississippi State University Office of Research. The purposes of the Electron Microscope Center are: (1) to provide the Mississippi State University academic and research community access to specialized electron microscopy and confocal equipment, (2) to give professional consultation on research problems related to electron microscopy, and (3) to provide instruction and assistance in the use of electron microscopy and confocal equipment.

# **GEORESOURCES INSTITUTE (GRI)**

Office: HPCC, Research Park http://www.gri.msstate.edu

The GeoResources 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, and recently has expanded to include geospatial applications in any suitable domain, such as climate, weather, and oceanography to support state and local government issues, and economic development.

The GeoResources Institute currently supports the research efforts of faculty from 22 departments within 6 Colleges/units within Mississippi State University, and collaborates with other public and private research institutions

The mission of the Institute is to understand Earth's natural and managed systems to provide comprehensive solutions for socioeconomic and environmental requirements. Its vision is to be a world leader in advancing the state-of-the-art in development and integration of spatial technologies and resource management.

GRI's objectives are to:

- $\cdot Increase the fundamental understanding of Earth's natural and managed resource systems through use of geospatial technologies.\\$
- · Develop resource management capabilities and visualization techniques to enhance computationally-intensive decision support systems.
- · Increase the productivity of renewable resources through the application of science and advanced technologies.
- · Develop management strategies to enable sustainable economic development, human and natural community viability, and resource conservation.
- · Develop advanced computational systems capable of knowledge discovery and simulating and visualizing geospatial environments.
- · Utilize research and technologies to improve local, regional, and national socioeconomic development.
- $\cdot$  Develop and maintain an informed public receptive to the use of geospatial information.

David R. Shaw, Ph.D., Director Charles L. Hill, M.S., Deputy Director Robert J. Moorhead, Ph.D., Associate Director for High Performance Computing Lori M. Bruce, Ph.D., Associate Director for Research

# RESEARCH and CURRICULUM UNIT for WORKFORCE DEVELOPMENT and VOCATIONAL and TECHNICAL EDUCATION

Office: 103 Russell Street http://info.rcu.msstate.edu/

The Research and Curriculum Unit for Workforce Development and Vocational and Technical Education (RCU) is jointly sponsored by the Mississippi Department of Education, Office of Vocational and Technical Education, and the Office of Research of Mississippi State University.

The mission of the RCU is to provide leadership in state workforce development efforts and coordinate those efforts with secondary and community/junior college vocational technical education curriculum development. The RCU cooperates with other state agencies in uniting and coordinating workforce development efforts. It provides instructional leadership in vocational and technical education activities, working with statewide curriculum frameworks and initiatives. Professional development activities are provided for educators across the state, enhancing their ability to provide optimal utilization and implementation of materials and research findings for the classroom. Research activities include assistance with state-wide vocational-technical assessments, reporting, and innovations. The RCU staff works with personnel from local school systems, community/junior colleges, state universities, the Mississippi Department of Education, the U.S. Office of Education, and other agencies and organizations.

Patricia Abraham, Ed.D., 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 fact-finding 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.

Charles L. Hill, Director

#### SOCIAL SCIENCE RESEARCH CENTER

Office: 1 Research Blvd., Suite 103 http://www.ssrc.msstate.edu

The Social Science Research Center (SSRC) (www.ssrc.msstate. edu) 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 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

# T.K. MARTIN CENTER for TECHNOLOGY and DISABILITY

Office: T.K. Martin Center

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

#### TRANSPORTATION RESEARCH CENTER

Office: 235 Walker Hall

The Transportation Research Center (TRC) was established in 1997. The primary function of TRC is to conduct scholarly research designed to advance the current state of technologies in the State of Mississippi, and to provide educational opportunities to the Mississippi Department of Transportation (MDOT) personnel for the advancement of their professional careers. The TRC acts in coordination with the MDOT Division of Research to screen proposals submitted to TRC and jointly awards the research contracts. TRC provides on-campus administration of the research projects, and provides credit and non-credit instructional programs as requested by MDOT.

Thomas D. White, Ph.D., Director

# FOREST and WILDLIFE RESEARCH CENTER SPATIAL INFORMATION TECHNOLOGIES LAB

http://www.cfr.msstate.edu/forestry/sitl/sitl.htm

The Spatial Information Technologies Laboratory (SITL) is located in the College of Forest Resources/Forest and Wildlife Research Center (CFR/FWRC). It fulfills a commitment to excellence in research and teaching in Spatial Information Technologies (SIT) from a natural resource perspective. The SITL houses computational resources that make it unique for forestry research in Mississippi. These resources include high-performance UNIX and PC workstations; a complete array of GIS, image processing, and statistical analyses software packages; large format scanners; and numerous color printers and plotters. GPS units and accompanying software are used in the collection of field data locations.

The data available at the SITL for natural resource-related work include a complete GIS of Mississippi obtained from the Mississippi Automated Resource Information System (MARIS), digital satellite data coverage of the entire state, and an archive of recent and historic aerial photography and maps of large parts of the state and region. Research projects include the use of satellite imagery in forest inventory systems, combining high-resolution imagery with LIDAR data for forest tract assessment, and classifying forest stand attributes using aerial and satellite acquired imagery from various resolutions.

The SITL supports resident instruction in the Department of Forestry through courses such as Spatial Technologies in Natural Resource Management, Remote Sensing Applications, and GIS for Natural Resource Management. Graduate programs are offered that lead to Masters and Doctor of Philosophy degrees with a concentration in SIT.

For more information on the SITL contact: Dr. David L. Evans, Department of Forestry  $\,$ 

# 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 four research centers in the School of Architecture; three located on the Starkville campus and one in Biloxi. The Carl Small Town Center provides research and service assistance to small towns through downtown redevelopment and other community design initiatives addressing 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 aims to apply state-of-the-art visualization technology to design problems in order 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 plan-

ning departments, neighborhood groups, and non-profit organizations in providing leadership and design assistance to Mississippi Gulf Coast communities damaged or destroyed by Hurricane Katrina.

Faculty research activities focus on programming, planning and design, anthropometric modeling and evaluation, architecture theory and history, visual imagery, post-occupancy evaluation, and the technological evaluation of materials and methods, energy efficiency, and construction.

James L. West, M. Arch., A.I.A., Dean

Jane Britt Greenwood, M.Arch., A.I.A., Interim Associate Dean and Director of Research

Larry R. Barrow, D. Des., A.I.A., Director, Digital Research and Imaging Laboratory

Kimberly A. Brown, M. Arch., A.I.A., Director, Carl Small Town Center

David Perkes, M. Arch., Director, Jackson Community Design Center

John Garner, Ph.D., Co-Director, Educational Design Institute

#### **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.

Philip B. Oldham, Ph.D., Dean, College of Arts and Sciences

### **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 problem-solving 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.

Ratnasingham Shivaji, Ph.D., Director

#### THE COBB INSTITUTE of ARCHAEOLOGY

Office: Cobb Institute Building

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 program in archaeology offered through the Department of Sociology, Anthropology and Social Work and the Department of Philosophy and Religion. 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, Ph.D. Director

# **INSTITUTE for the HUMANITIES**

Office: 209 Allen Hall

In order to organize the scholarly activities in the area of the humanities, the Institute for the Humanities (IH) has been established. Support for scholarly work in the humanities has been obtained from the National Endowment for the Humanities, from the Mississippi State University Development Foundation, and from private sources. Staff members have been authors of books and articles and have presented papers at meetings of learned societies.

The research staff consists of four faculty members from the departments of Art, Communication, English, Foreign Languages, History, and Philosophy and Religion.

Donald J. Mabry, Ph.D., Director

# THE JOHN C. STENNIS INSTITUTE of GOVERNMENT

Office: The Depot Building

The John C. Stennis Institute of Government performs a threefold mission: (1) to enhance the efficiency and effectiveness of Mississippi State and local government through basic and applied research, training, technical assistance and service; (2) to provide technical assistance and research for both rural development in Mississippi and regional activities in the Southeast; and (3) to promote civic education and citizen involvement in the political process. The Stennis Institute's programs relating to state and local government include the State Executive Development Institute for key state officials, the Governing Institute for Mayors, and technical assistance to state agencies and local governments. The Institute's research on rural development includes an assessment of local officials' perceptions of state economic development activities. The Stennis Institute's civic education programs include participation in the Congressional Insight program, as well as a variety of state and national programs.

Funds for The Stennis Institute of Government come partially from interest on more than \$1.7 million that has been raised by the Mississippi State University Development Foundation as a memorial to Senator John C. Stennis, but primarily from grants and contracts from outside sources.

W. Martin Wiseman, Ph.D., Director

#### UNIVERSITY/INDUSTRY CHEMICAL RESEARCH CENTER

Office: 1115 and 3338 Hand Lab

The University/Industry Chemical Research Center (UICRC) began doing contract work for industries in 1982. The UICRC has the following major goals: 1) to assist Mississippi industry by performing chemical research to aid in their product development; 2) to work on chemistry related problems for any industry; 3) to teach graduate and undergraduate students techniques of industrial chemistry; 4) to help attract chemical based industry into the state; and 5) to help train B.S., M.S., and Ph.D.

Chemists and attract visiting scholars and postdoctoral fellows for specific functions for industry.

The UICRC conducts grant and contract research and can work with most industries to develop mutually satisfactory agreements involving any necessary secrecy arrangements. It is also possible to work on short or long term projects and to arrange feasibility studies before binding contracts are written.

Keith T. Mead, Director Charles U. Pittman, Ph.D., Research Director

#### **COLLEGE of BUSINESS and INDUSTRY**

#### **DIVISION of BUSINESS RESEARCH and SERVICES (DBRS)**

Office: 240 McCool Hall

Business Research and Services is an integral part of the College of Business and Industry. This office is comprised of four distinct and varied units.

The Division of Business Research (DBR) is one of the major research organizations of the University. Established in 1939 to study scientifically the business, economic and governmental problems of the state, this unit has seen continued growth. DBR serves the college as the coordinating center for contracted/grant research by faculty of the College. The Mississippi Statistical Abstract, a varied compendium of statistics about Mississippi, is an annual publication of this unit.

The Division of Business Services (DBS) provides training and services to the business community. Custom-designed seminars and consulting services are provided on a contractual or fee basis for private firms, governmental agencies, international groups, and non-profit associations.

Small Business Development Center (SBDC) at Mississippi State University was organized in 1984. SBDC provides counseling to small business owners, as well as those interested in starting a business, primarily in Oktibbeha County and the surrounding counties. Assistance is provided through direct consulting, training seminars, and referrals to other agencies or individuals.

Technology Resource Institute (TRI) is charged with the mission of promoting university public/private partnership that will enhance economic development throughout the state. This Institute provides assistance with business analysis, planning, production, marketing, finance solutions, research projects, feasibility studies, and community planning. The staff serves as liaison with appropriate faculty or service agencies and assists in resolving business issues.

Danny P. Hollingsworth, D.B.A., Interim Dean

G. Stephen Taylor, Ph.D., Director, Technical Resource Institute Thomas M. Adkins, Associate Director/ External Liaison Resource

Referral Center R.S. "Sonny" Fisher, Director, Small Business Development Center

#### **COLLEGE of EDUCATION**

# **BUREAU of EDUCATIONAL RESEARCH and EVALUATION**

Office: 328 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.

The major functions of the Bureau 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.
  - 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.

Iva. B. Ballard

#### **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

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 research and training programs.
  - J. Elton Moore, Ed.D., CRC, Director and Professor of Counselor Education

Brenda Cavenaugh, Ph.D., CRC, Research Director and Research Professor

B.T. Kimbrough, M.A., Training Director and Senior Research Associate

#### **COLLEGE of ENGINEERING**

# CENTER FOR DoD PROGRAMMING ENVIRONMENT and TRAINING (PET)

Office: 2 Research Boulevard

The Programming Environment and Training (PET) activity is responsible for gathering and deploying the best ideas, algorithms, and software tools emerging from the national high performance-computing infrastructure into the DoD user community as part of the DoD High Performance Computing Modernization Program. MSU is the prime contractor for a university/industry team in this effort which falls under the Service portion of MSU's tripartite mission.

The PET contract marshals bold and innovative university/industry/government expertise to provide the essential user support that is necessary to address the wide variety of research and development demands arising from the science/technology and test/evaluation programs supporting DoD's weapons development and war fighting support systems.

MSU's leadership partner in the PET effort is the Ohio Supercomputer Center. Other members of the MSU-led coalition include the University of Texas, the University of Tennessee, the University of Alabama at Birmingham, the University of Hawaii, Jackson State University, Computer Sciences Corp, and SAIC.

Joe Thompson, Ph.D., Director

### **INSTITUTE FOR CLEAN ENERGY TECHNOLOGY (ICET)**

(formerly Diagnostic Instrumentation and Analysis Laboratory)

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 improving process efficiency, resource recovery, and life-cycle/environmental impacts of energy systems. The recent change in name to ICET from the Diagnostic Instrumentation and Analysis Laboratory (DIAL) is reflective of the university's recognition that the mission of the unit has expanded to serve as a bridge between basic science and large scale engineering applications for sustainable energy systems. This includes solving important problems in energy, the environment, industrial processes, and infrastructure.

Since 1979, this unit has established a tradition of excellence in characterization science and engineering. The original mission of the unit was to enhance its customers' performance through characterization (including advanced imaging and laser-based techniques). Current initiatives within the expanded scope at ICET includes 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 non-traditional educational experiences through a multidisciplinary approach to research

Roger L. King, Ph. D., P.E., Interim Director Charles A. Waggoner, Ph. D., Deputy Director

# HIGH PERFORMANCE COMPUTING COLLABORATORY (HPC2)

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 five 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)

Center for Computational Sciences (CCS)

Center for DoD Programming Environment and Training (PET)

Computational Simulation and Design Center (SimCenter)

GeoResources Institute (GRI)

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.

David Marcum, Ph.D., Director, Computational Simulation and Design Center

Randall German, Director, Center for Advanced Vehicular Systems Ratnasingham Shivaji, Ph.D., Director, Center for Computational Sciences

Joe F. Thompson, Ph.D., Director, Center for DoD Programming Environment and Training

David Shaw, Ph.D., Director, GeoResources Institute

# COMPUTATIONAL SIMULATION and DESIGN CENTER (SIMCENTER)

Office: 2 Research Boulevard http://www.simcenter.msstate.edu

The mission of the Computational Simulation and Design Center (SimCenter) is to serve Mississippi State University, U.S. government and industry through research and development of advanced computational modeling, simulation and design of physical systems to solve real world problems.

The SimCenter was formed in July of 2000 as part of the Engineering Research Center (ERC, now HPC $^2$ ) within the College of Engineering at MSU. The SimCenter was formerly the Computational Fluid Dynamics Laboratory at MSU's National Science Foundation Engineering Research Center. Its research advanced the NSF ERC mission by reducing the time and cost required for complex field simulations of increased fidelity and scope for practical engineering analysis and design problems using high-performance computing. This achievement was made possible by advances in unstructured grid generation, accurate solution algorithms, scalable parallel computing, large-scale solution visualization, design optimization algorithms, user interfaces, and fully integrated simulation and design systems.

The SimCenter has conducted modeling and simulation demonstrations of this advanced technology for design and analysis of submarines, surface ships, rotary and fixed-wing aircraft, launch vehicles, tactical missiles, automobiles, turbomachinery and blood pumps for sponsors such as DoD, NASA, Nissan and many others. The SimCenter has a critical mass of computational research, development, and application specialists who comprise a focused multidisciplinary team. This team will continue to leverage basic and applied research and education in computational engineering to develop new enabling technology for computational modeling, simulation, analysis and design.

David Marcum, Ph.D., Director Montgomery Hughson, Ph.D., Deputy Director

#### **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 semiconductor technology. 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.

Michael S. Mazzola, 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 CENTER for ADVANCED SEMICONDUCTOR PROTOTYPING (MCASP)

Office: 103 Edwards Laboratory

The Mississippi Center for Advanced Semiconductor Prototyping (MCASP), a unit within the Center for Advanced Vehicular Systems, was established in 1999 to serve as a prototyping laboratory serving both government and private industry for wide-bandgap semiconductor devices. Mississippi State University is a leader in wide-bandgap Silicon Carbide technology, and MCASP helps to move this important new semiconductor technology from the research laboratory to the military and commercial sectors.

MCASP is temporarily housed in the Edwards Laboratory, a standalone facility on the east side of the MSU campus, while a new facility is being constructed in the Mississippi Research and Technology Park, just north of the MSU campus. The principal equipment of MCASP is a Chemical Vapor Deposition system for growing state-of-the-art epitaxial semiconductor layers, Lam 9900 Plasma Enhanced Chemical Vapor Deposition System, Lam 9400 Inductively Coupled Plasma Etching System, Varian E-Beam Deposition System, Hitachi 808C Electron Microscope, a GCA 630B Wafer Stepper, and a fully automated Keithey Semiconductor Test and Characterization system. MCASP maintains active collaborations with industry, government, and academia world wide. Further information is available at www.mcasp.msstate.edu or by calling (662) 325-2500.

Michael Mazzola, Ph.D., 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 (RFRL)

Office: Starkville Airport, 114 Airport Road

The Raspet Flight Research Laboratory (RFRL) is one of the premier university flight research facilities in the country. Established at Mississippi State University over 50 years ago by Dr. August Raspet, this aeronautical research laboratory possesses a rich heritage in full-scale flight vehicle development and test, advanced composites development and fabrication, computer controlled manufacturing, and test of prototype composite applications. The RFRL is an integral part of the Department of Aerospace Engineering. In addition to externally funded research, the RFRL has historically made significant contributions to the educational goals of the department and the University as a superior training ground and research facility for MSU students at the graduate and undergraduate level. Among universities engaged in aeronautical research, the RFRL is distinguished as one of the very few with the capability to design, build, and test prototypes of full-scale manned and unmanned aircraft. The RFRL has engaged in a broad spectrum of composite prototyping and flight test activities over the past years to include development and fabrication of the first turbine powered composite aircraft, the first all-graphite turbofan business jet (Honda UA-5 1989), a close range UAV for Westinghouse (1990), a one-third-scale mock-up of X-30 National AeroSpace Plane (NASP) (1992) and a series of LoFlyte wind tunnel models (1994). Currently RFRL is focusing on the Unmanned Aerial Vehicle (UAV) area and is developing an Ultra Light UAV sensor platform.

#### D. SERVICE UNITS

# DIVISION of AGRICULTURE, FORESTRY, and VETERINARY MEDICINE

#### **BIOMEDICAL RESEARCH CENTER**

The Biomedical Research Center, established in FY 1994 focuses on use of animal models for new and advanced areas of technology; such as, for bone regeneration and repair, for testing dietary fiber substitutes, for active compounds for human dietary substitutes, for periodontal disease, and for osteoporosis. The Center also collaborates in its research efforts with major biomedical and pharmaceutical firms developing and evaluating new products and technology for human health care. This research will lead to the commercialization of drugs that contribute to the quality of life for middle-age and geriatric people. In addition, the BRC has tested dietary substitutes that have anti-cancer and cardiovascular benefits. Appropriate new animal models are developed and standardized in the area of drug evaluation.

J. Gregg Boring, DVM, Director, boring@cvm.msstate.edu

# **CENTER for ENVIRONMENTAL HEALTH SCIENCES**

Office: r1102 Wise Center

The Center for Environmental Health Sciences provides a focus for university activities directed towards maintaining and improving 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, training, and service 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 chemi-

cals 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, the Mississippi Agricultural and Forestry Experiment Station, and the Bagley College of Engineering. Major disciplines represented are biochemical toxicology, neurotoxicology, immunotoxicology, analytical chemistry, pharmacology, water quality, computational toxicology, and food safety. 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., Director

#### FLOW CYTOMETRY FACILITY

Office: Wise Complex, Room R2217

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 support of scientists at Mississippi State University and consultation on research problems involving flow cytometry. The facility is staffed by two trained technicians.

Lesya Pinchuk, M.D., Ph.D., Director

#### **OTHER UNITS**

#### **FOOD SCIENCE INSTITUTE**

http://www.dafvm.msstate.edu/foodsci/

The Food Science Institute was authorized by the Board of Trustees of the Institution of Higher Learning in 1968 and designated as the "Flag-ship" 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.
- Serve as an economic engine for the state with constant industry interaction to enhance cutting edge technology adoption.
- 3) 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 life and culture of the South, past and present. In addition to the four regular issues, the journal publishes an online "Checklist of Scholarship on Southern Literature."

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

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.
- Regulation of Professional Services Sections 69-19-1 through 69-19-11.
- Mississippi Pesticide Law Sections 69-23-1 through Sections 69-23-27.
- Mississippi Pesticide Application Act Sections 69-23-101 through 69-23-133.
- 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.
- 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.
- Mississippi Fertilizer Law, Sections 75-47-1 through 75-47-
- Mississippi Soil and Plant Amendment Law, Sections 69-24-1 through 69-24-27
- Mississippi Agricultural Liming Materials Act, Sections 69-39-1 through 69-39-19.

#### **Headquarters Staff:**

Michael D. Tagert, M.S., Director
Harry Fulton, M.S., State Entomologist and Apiarist
Butch Alpe, B.S., Deputy Director
Tommy McDaniel, M.S., Director, Pesticide Division
Benny Graves, M.S., Director, Plant Pest Division
Fabian Watts, M.S., Director, Seed Division
Harry Ballard, M.S., Branch Director, Feed and Fertilizer & Lime
Steve Moore, M.S., Branch Director, Pesticide Registrations
Patti Drapala, M.P.P.A., Director, Public Relations
Kenneth Calcote, B.S. Branch Director, USDA Programs
Denise Clanton, B.S., Branch Director, Boll Weevil Program

#### 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 WSI, Weather Central, and Accuweather graphics production machines a Baron 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

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 Division of Plant Industry.

Fabian Watts, M.S., Director/Seed Division

# USDA AGRICULTURAL RESEARCH SERVICE Southern Insect Management Research Unit

The mission of the Integrated Pest Management Research Unit is to expand the knowledge of the biology of various cotton insects and turn this knowledge into sound, profitable technology for detecting, estimating, suppressing or eradicating populations of pest species. In the technologies developed, a major emphasis is placed on alternative control methods that avoid dependence on pesticides alone. The current program is in keeping with the ARS position on Integrated Pest Management.

Eric J. Villavaso, Ph.D., Research Entomologist

#### **USDA CROP SCIENCE RESEARCH LABORATORY**

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 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 the Forestry Building. Basic and applied research on the physiology and technology of seeds of forest tree species is conducted by the staff of the Tree Seed Project. The Forestry Inventory and Analysis Unit Personnel conduct the continuing forest resources survey for the midsouth states. The Wood Products Insect Research Unit personnel conduct basic and applied research on termites.

Center for Bottomland Hardwoods Research - Seed Research

J. A. Vozzo, Ph.D., Plant Physiologist

Forest Inventory and Analysis

David V. Few, B.S., Supervisory Forester

Wood Products Insect Research

Terence L. Wagner, Ph.D., Supervisory Research Entomologist; Project Leader

#### USDA SOUTH CENTRAL POULTRY RESEARCH LABORATORY

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

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 be-

tween 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.

Scott Barras, Ph.D., Project Leader/Supervisory Wildlife Biologist

# **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 individuals or government agencies.

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 50 books each year. Primary areas of interest are Mississippi history, literature, and culture, 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.

# MISSISSIPPI STATE UNIVERSITY ENROLLMENT SUMMARY ENROLLMENT SUMMARY

# Non-Duplicated Enrollment - Starkville Campus Only Fall and Spring Semesters 2005-2006

	Men	Women	Total	-		Men	Women	Total
Agriculture & I					ineering	20.4	<b>CO</b>	
Freshmen	58 109	90			hmen	284	68 38	
Sophomores		93		1	homores	243		
Juniors	158	133		Juni Seni		322	55	
Seniors	308	263				673	139	
Graduates	152	107	1 471		duates	365	90	2 277
Total	785	686	1,471	Tota	.1	1,887	390	2,277
Architecture				Fore	est Resource	s		
Freshmen	46	74		Fres	hmen	28	6	
Sophomores	37	57		Sopl	homores	17	4	
Junior	53	64		Juni	ors	61	4	
Seniors	119	155		Seni	ors	107	27	
Graduates	14	3		Grac	duates	83	38	
Total	269	353	622	Tota	1	296	79	375
Arts & Science	s			Vete	rinary Medi	icine		
Freshmen	172	402			Year	27	30	
Sophomores	202	294		Seco	ond Year	22	53	
Juniors	250	345		Thir	d Year	27	50	
Seniors	484	683		Four	rth Year	20	24	
Graduates	274	264		Grad	duates	21	39	
Total	1,382	1,988	3,370	Tota		117	196	313
Business & Ind	ustrv			Und	eclared & Iı	nterdiscipl	inary	
Freshmen	197	139			ergraduate	618	505	
Sophomores	259	167			duate	92	116	
Juniors	355	186		Tota		710	621	1,331
Seniors	592	365			_	,		-,
Graduates	133	87						
Total	1,536	944	2,480	Tota	1 Session 20	005-2006	(Fall and Si	oring Semester)
	-,		_,	1011	. 50001011 20	8,108	7,363	15,471
Education								
Freshmen	59	146						
Sophomores	111	177		Tota	l Summer 2	.005		
Juniors	246	372				3,358	3,244	6,602
Seniors	441	733						
Graduates	269	678						
Total	1,126	2,106	3,232					

# DISCLOSURE STATEMENT - Student Right-to-Know Act (P.L. 101-542)

# **Graduation Rate of Entering Freshmen**

Mississippi State University provides the following information regarding our institution's graduation/completion rates in compliance with the Higher Education Act of 1965, as amended. The rates reflect the graduation status of students who enrolled during the 1997-98 school year and for whom 150% of the normal time-to-completion has elapsed. During the 1999-2000 school year, 2,035 first-time, full-time, degree-seeking undergraduate students entered Mississippi State University. After six years (as of August 31, 2005), the proportion of students who had graduated from our institution or completed their programs was 56 percent.

While reviewing this information, please understand: (1) The graduation/completion rate is based on 6 years of attendance; that equates to 150% of our longest programs; (2) Since we are a four-year 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; and (4) Students who died or were totally and permanently disabled were also excluded. This information will be updated once annually and will be presented via our Web system at http://www.msstate.edu/dept/registrar/php/index.php and in our annual Bulletin of Mississippi State University.

Questions related to this report should be directed to the University Registrar, Mississippi State University, P.O. Box 5268, Mississippi State, MS 39762; (662) 325-2663; registrar@registrar.msstate.edu.

#### Other Right-to-Know Information

The information Mississippi State University is required by federal law to provide can now be found at the Web addresses below:

University Policies Relating to Students and Student Records\* - http://www.msstate.edu/dept/audit/mainindex.html

\*All MSU students are responsible for knowing and abiding by these policies.

Consumer Information Regarding Student Financial Aid - http://www.sfa.msstate.edu/policies/

Mississippi State University Annual Security Report\*\* - http://www.msstate.edu/web/security.html

\*\*This report includes statistics for the previous 3 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 desire a paper copy of any of the above information, please contact the Dean of Students Office at (662) 325-3611.

# FALL 2005 ON-CAMPUS ENROLLMENT

SOUTHEASTERN STATES			INTERNATION	NAL STUD	ENTS	
WOM	MEN MEN	TOTAL		OMEN	MEN	TOTAL
	248 329	557	Antigua Argentina	0 2	1	1 2
	42 43	85	Bahamas	0	2	$\frac{2}{2}$
	44 55	99	Bahrain	1	0	1
8	47 79	126	Bangladesh	2	3	5
	19 25	44	Belarus	1	0	1
	86 98	184	Belize	0 1	1 4	1 5
	16 17 25 11	33 36	Brazil Cambodia	0	1	1
	25 11 291 373	36 664	Cameroon	0	1	1
	63 52	115	Canada	8	5	13
	8 27	35	Cayman Islands		1	1
$\mathcal{E}$	889 1,109	1,998	Chile	0	1 52	1
10111	1,107	1,,,,0	China Colombia	40 4	2	92 6
			Costa Rica	0	1	1
UNITED STATES - OUTSID	DE THE SOUTH	EAST	Dominica	1	0	1
	MEN MEN	TOTAL	Ecuador	1	0	1
Alaska 2	1	3	Egypt	1	0	1
Arizona 3		7	El Salvador Eritrea	0	1 1	1 1
California 16	5 15	31	Ethiopia	0	1	1
Colorado 6	6	12	France	3	11	14
Connecticut 0	4	4	Gambia	1	0	1
Delaware 3	3	6	Georgia	0	1	1
Hawaii 0		1	Germany	2	1	3
Idaho 2		4	Ghana Guatemala	0	1 1	1 1
Illinois 20		55	Honduras	1	1	2
Indiana 6		18	Hong Kong	1	0	1
Iowa 3		7	Hungary	2	1	3
Kansas 3		7	India	38	136	174
Maine 4		5	Indonesia	0	4	4
Maryland 11		19	Ireland Italy	0	1 1	1 1
Massachusetts 2 Michigan 5		6 20	Jamaica	1	3	4
Minnesota 4		9	Japan	3	7	10
Missouri 17		61	Jordan	1	2	3
Montana 1		2	Kenya	0	1	1
Nebraska 2		6	Korea, South	22 0	33 1	55
Nevada 1	0	1	Kuwait Liberia	0	1	1 1
New Hampshire 2		6	Malaysia	1	1	2
New Jersey 6		16	Mexico	1	2	3
New Mexico 2	2	4	Mongolia	1	0	1
New York 11	1 10	21	Namibia	1	0	1
North Dakota 0	1	1	Nepal Netherlands	2	3 2	5 2
Ohio 15		32	Nicaragua	0	1	1
Oklahoma 2	0	2	Nigeria	1	4	5
Oregon 2		3	Norway	0	1	1
Pennsylvania 8		22	Pakistan	8	4	12
Rhode Island 0		2	Peru Philippines	1 4	3 1	4 5
South Dakota 0		1	Poland	1	2	3
Utah 0 Vermont 1	2 0	2 1	Romania	2	0	2
Washington 2		4	Russia	4	2	6
West Virginia 2		3	Saudi Arabia	3	3	6
Wisconsin 9		27	Slovakia	3	2 3	5 4
Wyoming 0		0	South Africa Sri Lanka	1	3	3
Dist Columbia 0		0	Suriname	0	1	1
U.S. Citizens in			Taiwan	8	13	21
Foreign Nations 6	7	13	Thailand	7	3	10
Total Outside			Trin & Tobago	0	1	1
Southeast 17	79 265	444	Turkey Ukraine	7 1	7 2	14 3
			United Arab En	_	1	1
			United Kingdor		2	3
			Venezuela	3	4	7
MISSISSIPPI			Vietnam	0	2	2
Men	5,584		Yugoslavia Zambia	1	1 1	2
Women	5,809		Total Internat'l	0 199	361	560
Total	11,393		- Juliani I	-//	501	200
			Total University	7,076	7,319	14,395
				- ,	. ,	,

#### Offices to Assist You

# (All postal addresses are Mississippi State, Mississippi 39762.)

Admissions and General Information (requirements and application forms): 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

Vice President for Research, P.O. Box 6343; (662) 325-3570

Continuing Education (non-credit and credit courses; independent and correspondence study); Director of Continuing Education, P.O. Box 5247; (662) 325-3473

Meridian Campus, 1000 Hwy 19 North, Meridian, MS 39307; (601) 484-0100

#### **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, and to obtain copies of them at their own expense, the actual charges not to exceed the cost to the University for reproducing 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 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.

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 May 22, 2002). 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>

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