

College of Agriculture and Life Sciences

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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 Institute for Genomics, Biocomputing and Biotechnology (IGBB), the College will continue to enhance the study of the life sciences, including biotechnological applications that will have a tremendous impact on education, agricultural production, food, fibers, human and animal health, the environment, and bio-based industrial products.

Students may choose from 17 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:

- a. Fulfillment of all university academic requirements as published in this Bulletin.
- b. Completion of the General Education requirements as published in this Bulletin. (See Listing of Approved General Education Courses)
- c. Completion of all program requirements in the major of choice with an average of "C" or better (2.00 on a 4.00 scale).
- d. 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 and 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. CALS requirements match the requirements for MSU (<http://www.its.msstate.edu/support/desktop/specsstudent/>) except for Landscape Architecture students and Human Sciences students. Please see departmental websites for specific requirements for those programs.

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-Dental
- Pre-Optometry

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:

- Agribusiness
 - Management
 - Policy and Law
 - Production
- Agricultural Engineering Technology and Business
 - Enterprise Management
 - Natural Resources and Environmental Management
 - Precision Agriculture
 - Surveying and Geomatics
- Agricultural Education, Leadership, and Communications
 - Agricultural Education
 - Agricultural Leadership
 - Agricultural Communications
- Agricultural Science
- Agronomy
 - Agricultural and Environmental Soil Sciences
 - Golf and Sports Turf Management
 - Integrated Crop Management
 - Integrated Pest Management
- Animal and Dairy Sciences
 - Business and Industry
 - Production Management
 - Pre-Veterinary/Science
 - Pre-Vet Med Tech
- Biochemistry
 - Bioinformatics
 - Entomology
 - Forensic Sciences
 - Plant Pathology
 - Pre-Dental
 - Pre-MBA
 - Pre-Medicine
 - Pre-Optometry
 - Pre-Pharmacy
 - Pre-Veterinary Medicine
 - Science
- Culinology
- Fashion Design and Merchandising
 - Design and Product Development
 - Merchandising
- Environmental Economics and Sustainability

- Environmental Science in Agricultural Systems

- Food Science, Nutrition and Health Promotion
 - Pre-Health
 - Food Safety
 - Food and Nutrition
 - Food Processing/Business
 - Food Science
- Horticulture
 - Floral Management
 - Floriculture and Ornamental Horticulture
 - Fruit and Vegetable Production
- Human Development and Family Science
 - Child Development
 - Child Life
 - Youth Development
 - Family and Consumer Sciences Teacher Education
 - Family Science
 - Gerontology Certificate
- Landscape Architecture

- Landscape Contracting and Management

- Poultry Science
 - Applied Poultry Management
 - Science and Pre-Vet Science

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

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

- a. a minimum of 54 semester hours with a C average or better in business approved by the College of Business and Industry, or
- b. a minimum of 48 hours with a C average or better in the liberal arts field approved by the College of Arts and Sciences.

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

Pre-Veterinary Medicine

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

can serve as the senior year of the undergraduate curriculum. This “three plus one” program is offered by the College of Agriculture and Life Sciences for Pre-Veterinary students.

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

Animal and Dairy Sciences Pre-Veterinary Medicine Program

Department of Animal and Dairy Sciences

Ms. Erica Carroll, Pre-Veterinary Advisor

2111 ADS Building

Box 9815

Mississippi State, MS 39762

Phone: (662) 325-4344

Biochemistry and Molecular Biology

Pre-Veterinary Medicine Program

Department of Biochemistry, Molecular Biology, Entomology & Plant Pathology

Dr. Aswathy Rai, Pre-Veterinary Advisor

428 Dorman Hall

Box 9540

Mississippi State, MS 39762

Phone: (662) 325-2640

Food Science Pre-Veterinary Medicine Program

Department of Food Science, Nutrition and Health Promotion

Dr. Wes Schilling, Pre-Veterinary Advisor

105 Herzer Dairy Science Building

Box 9805

Mississippi State, MS 39762

Phone: (662) 325-3200

Poultry Science Pre-Veterinary Medicine Program

Department of Poultry Science

Dr. Jessica Wells

1090 Poultry Science

Box 9665

Mississippi State, MS 39762

Phone: (662) 325-3416

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

Writing/Composition		6
Public Speaking or Technical Writing		3
CO 1003	Fundamentals of Public Speaking	
or AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	
Mathematics		6
Microbiology with lab		4
Biological Science with lab		8
BIO 1134	Biology I	
BIO 1144	Biology II	
General/Inorganic Chemistry with lab		8
Organic Chemistry with lab		8
CH 4513	Organic Chemistry I	
CH 4511	Organic Chemistry Laboratory I	
CH 4523	Organic Chemistry II	
CH 4521	Organic Chemistry Laboratory II	
Biochemistry		3
Physics with lab (can be trig-based)		6
Advanced Science Electives		12
Fine Arts		3
Humanities		6

Social/Behavioral Science	6
Total Hours	79

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

International Studies in Agriculture

The International Studies in Agriculture minor within the College of Agriculture and Life Sciences is offered to allow students to enhance their knowledge of an interdependent global food system, the impacts of international agricultural technologies and systems, and the various agricultural educational systems around the world as well as develop skills needed in a global economy. Students will be prepared to make decisions, communicate effectively, and lead in a culturally diverse agricultural environment. Students must complete a minimum of 21 hours from a list of approved courses with a grade of "C" or above in all classes counting toward the minor.

Students seeking the International Studies in Agriculture minor will be required to complete the following courses:

Core Courses

GA 2103	Seminar in International Studies in Agricultural Systems	3
or AELC 2103	Seminar in International Studies in Agricultural Systems	
AELC 4503	International Agricultural Education	3
FLX 1113	Foreign Language I	3
FLX 1123	Foreign Language II	3
Study Abroad ¹		3

Electives

A minimum of three hours from Category I AND three hours of additional coursework which may come from Category I or II. 6

Category I: CALS Electives that have an International component or that apply broadly to international studies ²

ABE 4843	Sustainable Communities
or LA 4843	Sustainable Communities
AEC 2713	Introduction to Food and Resource Economics
AEC 3213	International Trade in Agriculture
AEC 3233	Introduction to Environmental Economics and Policy
AEC 3413	Introduction to Food Marketing
ENS 2103	Introduction to Environmental Science
FNH 4193	Social-Cultural Aspects of Food
FNH 4333	Food Law
FDM 3573	Historic Costume
LA 1423	History of Landscape Architecture
FDM 4603	Global Sourcing in the Textile and Apparel Industry
LA 1803	Landscape Architecture Appreciation
LA 4113	Design Theory and Criticism.
LA 4653	Study Abroad: Gardens and Urban Spaces
LA 4753	Sustainable Landscape Management
PSS 3633	Sustainable and Organic Horticulture
PSS 4043	International Horticulture

Category II: MSU Campus-wide Electives with an International Focus - see advisor for complete list ³

¹ Three hours (minimum) as a study abroad course or international experience as linked to a degree program-specific course, special topics, directed individual study, internship or other means in the student's curriculum.

² As additional courses in CALS with an international or global focus are developed, they may be added as an elective. Other courses outside of CALS or as transfer hours may be substituted as approved by the minor advisor.

³ Other courses from across MSU or as transfer hours may be substituted as approved by the minor advisor.

Environment and Sustainability Minor

The Environment and Sustainability Minor is a minimum 16-credit hour, multi-disciplinary program open to all undergraduate majors in good standing. From accountants to zoologists, and all majors in between, this minor is designed to enhance your understanding of the complex environmental challenges humanity faces in the 21st century. It will also give students an opportunity to gain hands-on experience in an environmental area of interest.

Students will study the technical aspects of issues such as climate change and energy, and learn how values, beliefs and policies affect how these issues are addressed. Students will also learn about sustainable practices and lifestyle choices that can reduce your own ecological footprint.

Two courses are required of all students: Introduction to Environmental Science (ENS 2103) and either the Introduction to Environmental Science lab (ENS 2101), or the Environmental Science Practicum (ENS 4102), leaving 12 hours for the student to select from three broad categories: Humanities, Social Sciences, and Science & Engineering.

A minimum of 16 hours is required for the minor. ENS 2103 is to be taken by all students, along with either ENS 2101 or ENS 4102, leaving 12 hours the student chooses from a list of electives maintained by the ENS Advisory Committee. The student must take three hours from each of three categories mentioned above. The final course may be chosen from any category not directly related to his/her major. The list of elective options will be periodically reviewed by the ENS Advisory Committee to ensure the list of courses remains current. Courses may be removed or added to the list of electives pending approval of the ENS Advisory Committee, and students should see the ENS Program Coordinator for the current list of electives. Relevant substitutions may be arranged with the approval of the ENS Program Coordinator.

Course Work

ENS 2103	Introduction to Environmental Science	3
ENS 2101 or ENS 4102	Introduction to Environmental Science Laboratory Practicum	1-2
Humanities Elective (see ENS Program Coordinator for list of approved electives)		3
Social Sciences Elective (see ENS Program Coordinator for list of approved electives)		3
Science and Engineering Elective (see ENS Program Coordinator for list of approved electives)		3
Additional elective from any category not directly related to student's major		3
Total Hours		16

For further information and enrollment forms, please contact the ENS minor program coordinator:

Dr. Te-Ming Tseng
Department of Plant and Soil Sciences
316 Dorman Hall
662-325-4725; tt1024@msstate.edu

Environment and Sustainability Certificate

The Environment and Sustainability Minor is a minimum 16-credit hour, multi-disciplinary program open to all undergraduate majors in good standing. From accountants to zoologists, and all majors in between, this minor is designed to enhance your understanding of the complex environmental challenges humanity faces in the 21st century. It will also give students an opportunity to gain hands-on experience in an environmental area of interest. Students will study the technical aspects of issues such as climate change and energy, and learn how values, beliefs and policies affect how these issues are addressed. Students will also learn about sustainable practices and lifestyle choices that can reduce your own ecological footprint.

Two courses are required of all students: Introduction to Environmental Science (ENS 2103) and Introduction to Environmental Science lab (ENS 2101), leaving 12 hours for the student to select from three broad categories: Humanities, Social Sciences, and Science & Engineering.

A minimum of 16 hours is required for the minor. ENS 2103 and ENS 2101 are to be taken by all students, leaving 12 hours the student chooses from a list of electives maintained by the ENS Advisory Committee. The student must take three hours from each of three categories mentioned above. The final course may be chosen from any category not directly related to his/her major. The list of elective options will be periodically reviewed by the ENS Advisory Committee to ensure the list of courses remains current. Courses may be removed or added to the list of electives pending approval of the ENS Advisory Committee, and students should see the ENS Program Coordinator for the current list of electives. Relevant substitutions may be arranged with the approval of the ENS Program Coordinator.

Course Work

ENS 2103	Introduction to Environmental Science	3
ENS 2101	Introduction to Environmental Science Laboratory	1
Humanities Elective (see ENS Program Coordinator for list of approved electives)		3
Social Sciences Elective (see ENS Program Coordinator for list of approved electives)		3
Science and Engineering Elective (see ENS Program Coordinator for list of approved electives)		3
Additional elective from any category not directly related to student's major		3
Total Hours		16

For further information and enrollment forms, please contact the ENS minor program coordinator:

Dr. Te-Ming Tseng

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