The University of Arkansas

Dale Bumpers College of Agricultural, Food and Life Sciences

Department of Crop, Soil, and Environmental Sciences

Crop Science
Degree Program

Undergraduate Handbook
2025-2026

April 2025

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Department of Crop, Soil, and Environmental Sciences

(Information adapted from the CSES Departmental Website)

The Department of Crop, Soil, and Environmental Sciences at the University of Arkansas has a long and honored tradition of excellence in teaching, research, and service. The Department has produced a large number of successful graduates currently employed in the public and private sectors. We strive to have our best teachers in the introductory classes and to have faculty who are actively pursuing research in their respective disciplines teaching the classes related to their specialty.

The Crop Science Major

Within the Crop, Soil, and Environmental Sciences Department students can major in two-degree programs, Crop Science, and Environmental, Soil and Water Science. The degree check sheet for the Crop Science major is given on page 6. The major provides the student with basic and applied courses that allow our graduates to be highly competitive in the job market.

Why is Crop Science important?

- Sustainable agriculture is critical to future generations
- Bioenergy production presents new challenges
- Biotechnology offers the opportunity to increase agricultural production
- Food demand is increasing worldwide
- Land availability for food and biofuels production is decreasing

Why should I be interested?

The Crop Science major is for students interested in issues dealing with all facets of crop production. The major crops of Arkansas include soybean, rice, cotton, wheat and pasture grasses which are studied in detail. The major provides a strong science background, as well as a practical education.

Career Opportunities?

Food, fiber, and bioenergy production are intensifying to supply the world's increasing population, along with greater challenges to protect air, soil and water quality. Students who graduate with a degree in Crop Science can work in such areas as:

Local, State, or Federal Governmental Agencies:

- Arkansas Soil and Water Conservation Commission
- Cooperative Extension Service
- State Plant Board
- United States Department of Agriculture (USDA)
- Natural Resource Conservation Service (NRCS)
- Forest Service (FS)
- International development agencies

Private Sector

- Crop consulting/Certified crop adviser
- Bioenergy production companies
- Farm management
- Precision agriculture advising
- Seed/grain industries
- Chemical/pesticide industries
- Research scientist
- Educator
- Retail business management/owner
- Technical representative

Academia/Research- Many students go on to Graduate School to further their education

- Crop Scientist
- Seed Technologist
- Plant Breeder
- Crop Physiologist
- Weed Scientist
- Research Technician

Certification Possibilities **–** Coursework prepares the student to take the Certified Crop Adviser examination. Preparation courses for the certification exams are offered as Special Topics (CSES 402v).

Minor Fields for Crop Science Majors

Students majoring in Crop Management are required to select a minor in **Pest Management** or **Agricultural Business** (see check sheets). In addition, you have sufficient elective hours to develop a second minor of your choosing. Other minors offered by the CSES Department are **Crop Biotechnology and Environmental, Soil and Water Science.** Check sheets for these CSES minors are included in this document. *Please remember that students must declare their minor(s) in the AFLS Dean's Office (AFLS E108) to have it officially entered into the ISIS system.*

Bumpers College Minors. Nineteen minors are offered by the Bumpers College. In addition to the minors offered in the CSES department, other options include: Agricultural Education; Agricultural Systems Technology Management; Entomology; Food Science; Global Agricultural, Food and Life Sciences; Horticultural Production; Journalism; Landscape Design and Urban horticulture; Plant Pathology and Turf Management.

Fulbright College Minors. Thirty-seven minors are offered by the Fulbright College including: Biology, Chemistry, Communication, and foreign languages.

Walton College Minors. The Walton College offers a Business Administration Minor for non-business students. Eight minor concentrations are offered including: General Business, Finance, International Business, Management, Marketing, Transportation and Logistics.

University Minors. A campus-wide minor in Sustainability, Soil Sciences, and Natural resources management and Agricultural Business.

Advising Responsibilities

In the Bumpers College and in the Department of Crop, Soil, and Environmental Sciences at the University of Arkansas we are committed to strong, effective advising. Effective advising is a partnership between the student and the faculty advisor. Each person has responsibilities.

Advisor Responsibilities	Student Responsibilities
know degree requirements	be responsible for self
know resources & services to direct students	be familiar with deadlines
understand the sequence of courses	know degree plan requirements
provide guidance & advice	use your University of Arkansas email
	use available resources
	communicate with advisor & instructors to develop positive relationships

UA Advising Goals

"Academic advising is an active, ongoing partnership between the advisors and students grounded in teaching and learning. Advising is based on students gaining accurate and appropriate information and direction to help make their educational experience relevant, coherent, and meaningful. It is a process that assists students in connecting with the University of Arkansas, making thoughtful decisions related to their academic experiences, and maximizing their education and career opportunities. Quality academic advising is essential to achieving the University's vision." (AFLS Academic Advising Syllabus)

For more information about advising in Bumper's College, see:
https://bumperscollege.uark.edu/current-students/advising.php

DEPARTMENT OF CROP, SOIL, AND ENVIRONMENTAL SCEINCES

EIGHT -SEMESTER DEGREE COMPLETION PROGRAM

B.S.A. – Crop, Soil, and environmental Sciences (CSES) – Crop Science (CPSCBS)

2023-2024

CSES Requirements: 1 hour University Requirement; 12 hours Communications; 3 hours History; 6 hours Mathematics and Computer Science; 15-19 hours Physical and Biological Sciences; 6 hours Fine Arts/Humanities; 9 hours Social Sciences; 27 hours CPSCBS Core; 21 hours CPSC Electives; 16-20 hours General Electives

Key: **Bold** = Course meets State Minimum Core.

Fall Semester Year 1

- **ENGL 1013** Composition I, 3 hours
- **MATH 1203** College Algebra, 3 hours
- **BIOL 1543 Principles of Biology**, 3 hours
- **BIOL 1541L Principles of Biology Lab,** 1 hour
- CSES 1203 Intro to Plant Science, 3 hours
- UNIV 1001 University Perspectives, 1 hour

Total Semester Hours: 14

Spring Semester Year 1

- CSES 2103 Crop Science, 3 hours
- CSES 2101L Crop Science Lab, 3 hours
- **US History Core Elective**, 3 hours
- **ENGL 1023 Composition II,** 3 hours
- COMM 1313 Public Speaking, 3 hours
- **AGEC 1103 Agricultural Microeconomics**, 3 hours

Total Semester Hours: 16

Fall Semester Year 2

- **CHEM 1103 University Chemistry I**, 3 hours **AND**
- **CHEM 1101L University Chemistry I** Lab, 1 hour **OR**
- **CHEM 1073 Fundamentals of** Chemistry, 3 hours **AND**
- **CHEM 1071L Fundamentals of Chemistry Lab,** 1 hour
- **Social Science Core Elective**, 3 hours
- **Fine Arts/Humanities Core Elective**, 3 hours
- Crop Science Elective, 2-3 hours
- Crop Science Elective, 3 hours

Total Semester Hours: 15-16

Spring Semester Year 2

- **CHEM 1123 University Chemistry II**, 3 hours **AND**
- **CHEM 1121L University Chemistry II Lab**, 1 hour **OR**
- CHEM 2613 Organic Physiological Chem, 3 hours **AND**
- CHEM 2611L Organic Physiological Chem Lab, 1 hour
- ASTM 2903 AHES Applications of Microcomputers **OR** STAT 2303, 3 hours
- **Social Science Core Elective,** 3 hours
- **Fine Arts/Humanities Core Elective**, 3 hours
- Crop Science Elective, 2-3 hours

Total Semester Hours: 15-16

Fall Semester Year 3

- CHEM 2613 Organic Physiological Chem, 3 hours **AND**
- CHEM 2611L Organic Physiological Chem Lab, 1 hour **OR**
- General Electives, 4 hours
- PLPA 3003 Principles of Plant Pathology, 3 hours
- ENTO 3013 Intro to Entomology, 3 hours
- General Elective, 3 hours
- CSES 2203/2201L Soil Science with Lab, 4 hours

Total Semester Hours: 17

Spring Semester Year 3

- BIOL 2323 General Genetics **OR** ANSC/POSC 3123 Principles of Genetics, 3 hours
- Crop Science Elective, 2-3 hours
- Crop Science Elective, 3 hours
- General Elective, 6 hours

Total Semester Hours: 14-15

Fall Semester Year 4

- CSES 3023 CSES Colloquium, 3 hours
- CSES 4224 Soil Fertility with Lab, 4 hours
- Crop Science Elective, 3 hours
- Crop Science Elective, 2-3 hours
- Crop Science Elective, 3 hours

Total Semester Hours: 15-16

Spring Semester Year 4

- CSES 4013 Advanced Crop Science, 3 hours
- CSES 4143 Principles of Weed Control, 3 hours
- Crop Science Electives, 0-7 hours **OR**
- General Electives, 0-7 hours

Total Semester Hours: 10-14

Total Completed Hours: 120

DEPARTMENT OF CROP, SOIL, AND ENVIRONMENTAL SCIENCES

Major in Crop, Soil, and Environmental Sciences

Check Sheet for Crop Science (CPSCBS)

2023-2024

Name: I.D. Number: Advisor:

University Requirements: 1 hour
☐ UNIV 1001 University Perspectives[1]

Communications: 12 hours
☐ ENGL 1013 Composition I
☐ ENGL 1023 Composition II
☐ COMM 1313 Public Speaking
☐ CSES 3023 Crop, Soil and Environmental Sciences Colloquium

US History or Government: 3 hours
☐ HIST 2003 **or** HIST 2013 **or** PLSC 2003

Mathematics and Computer Science: 6 hours
☐ MATH 1203 College Algebra or higher level MATH
☐ ASTM 2903 AHES Application of Microcomputers **OR**
☐ STAT 2303 Principles of Statistics

Physical and Biological Sciences: 15-19 hours
☐ BIOL 1543 Principles of Biology
☐ BIOL 1541L Principles of Biology Lab
☐ CHEM 2613 Organic Physiological Chemistry
☐ CHEM 2611L Organic Physiological Chemistry Lab
☐ ANSC 3123 Principles of Genetics **OR**
☐ POSC 3123 Principles of Genetics **OR**
☐ BIOL 2323 General Genetics
Select one CHEM group (4-8 hours)
☐ CHEM 1073 Fundamentals of Chemistry
☐ CHEM 1071L Fundamentals of Chemistry Lab **OR**
☐ CHEM 1103 University Chemistry I
☐ CHEM 1101L University Chemistry I Lab **AND**
☐ CHEM 1123 University Chemistry II
☐ CHEM 1121L University Chemistry II Lab

Fine Arts/Humanities: 6 hours[2]
Choose 3 hours from Fine Arts and 3 hours from Humanities:

Check for completion	Course I. D.:	Course Name:
☐		
☐		

Social Sciences: 9 hours[2]
☐ AGEC 1103 Principles Agri Microeconomics *Choose 6 hours from Social Sciences:*

Check for completion	Course I. D.:	Course Name:
☐		
☐		

~~**OTHER REQUIREMENTS FOR A B.S.A. DEGREE**~~

Crop Science Core: 27 hours
☐ CSES 1203 Introduction to Plant Sciences
☐ CSES 2103 Crop Science
☐ CSES 2101L Crop Science Lab
☐ CSES 2203 Soil Science
☐ CSES 2201L Soil Science Lab
☐ CSES 4013 Advanced Crop Science
☐ CSES 4224 Soil Fertility
☐ CSES 4143 Principles of Weed Control
☐ ENTO 3013 Introduction to Entomology
☐ PLPA 3003 Principles of Plant Pathology

Crop Science Electives: 21 hours
Choose 21 hours from the following:
☐ CSES 3214 Soil Resources and Nutrient Cycles
☐ CSES 3312 Cotton Production
☐ CSES 3322 Soybean Production
☐ CSES 3332 Rice Production
☐ CSES 3342 Cereal Grain Production
☐ CSES 3703 Precision Agriculture
☐ ENSC 3003 Introduction to Water Science
☐ ENSC 3263 Soil and Water Conservation
☐ ENSC 3603 GIS for Environmental Science
☐ CSES 4103 Plant Breeding
☐ CSES 4133 Ecology and Morphology of Weedy and Invasive Plants **OR**
☐ CSES 4143 Principles of Weed Control
☐ ENTO 4123 Insect Pest Management
☐ PLPA 4223 Plant Disease Control
☐ PLPA 4333 Biotechnology in Agriculture
☐ CSES 462V Internship (3 hours)
☐ CSES 400V Special Problems (3 hours)[3]

General Electives: 16-20 hours

Check for completion	Course I. D.:	Course Name:
☐		
☐		
☐		
☐		
☐		
☐		
☐		

[1] UNIV 1001 University Perspectives is required for new freshmen or transfers with less than 24 hours.

[2] See student degree audit for approved course list

[3] One 3-hr study abroad course may be used in fulfilling the Crop Science Electives requirement. Student should contact their academic advisor for more information.

5/1/2023

120 total semester hours of which:
9 hrs outside the CSES department but within the Bumpers College
40 semester hours in upper division courses
2.00 or higher GPA

University of Arkansas
Dale Bumpers College of Agricultural, Food and Life Sciences

CROP BIOTECHNOLOGY MINOR (CPBT-M)
2023-2024

Name: **I.D. Number:**

The Crop Biotechnology minor will consist of 16 hours to include the following:

Core Requirements:
☐ PLPA 4333 Biotechnology in Agriculture

Genetics:
☐ CSES 400V Special Problem (2 hours) [1]
☐ CSES 400V Special Problem (2 hours) [1]

Select three hours from the following:
☐ BIOL 2323 General Genetics
☐ ANSC or POSC 3123 Principles of Genetics

Select six (6) hours from the following Controlled Electives:
☐ BIOL 4303 Plant Physiology
☐ CHEM 3813 Elements of Biochemistry
☐ CSES 4103 Plant Breeding

Bumpers College students who wish to pursue this minor should complete the major/minor change form at https://forms.uark.edu/xfp/form/484. Students pursuing a major outside of Bumpers College should contact their college's dean's office to request the minor to be added. If you have questions, contact Bumpers College Student Services at 479-575-2252 or aflsdean@uark.edu.

[1] Two-hour special problems courses must be completed in two different semesters.

Dale Bumpers College of Agricultural, Food and Life Sciences

NATURAL RESOURCES MANAGEMENT MINOR (NRMT-M)
2023-2024

Name: **I.D. Number:**

The Natural Resources Management minor will consist of 18 hours[1] to include the following:

Core Requirements:
☐ ENSC 1003 Environmental Science
☐ ENSC 1001L Environmental Science Laboratory
☐ CSES 2203 Soil Science **OR**
☐ ENSC 3003 Introduction to Water Science

Select eleven (11) hours[2] from the following:
☐ AGEC 3413 Principles of Environmental Economics
☐ AGEC 3503 Agricultural Law I
☐ AGEC 3523 Environmental and Natural Resources Law
☐ BIOL 3863 General Ecology **AND**
☐ BIOL 3861L General Ecology Laboratory
☐ CSES 1203 Introduction to Plant Sciences
☐ CSES 2013 Pest Management
☐ CSES 2201L Soil Science Laboratory
☐ CSES 3214 Soil Resources and Nutrient Cycles
☐ CSES 355V Soil Profile Description
☐ CSES 4013 Advanced Crop Science
☐ CSES 4133 Ecology and Morphology of Weedy and Invasive Plants
☐ CSES 4224 Soil Fertility
☐ CSES 4253 Soil Classification and Genesis
☐ CSES 4553 Wetland Soils
☐ CSES 462V Internship
☐ ENSC 3103 Plants and Environmental Restoration
☐ ENSC 3223 Ecosystems Assessment **AND**
☐ ENSC 3221L Ecosystems Assessment Laboratory
☐ ENSC 3263 Soil and Water Conservation
☐ ENSC 3603 GIS for Environmental Science
☐ ENSC 4021L Water Quality Laboratory
☐ ENSC 4023 Water Quality
☐ ENSC 4263 Environmental Soil Science
☐ ENSC 4401 Professional Certification Preparation
☐ GEOS 3043 Sustaining Earth
☐ GEOS 3543 Geospatial Applications and Information Science

Bumpers College students who wish to pursue this minor should complete the major/minor change form at https://forms.uark.edu/xfp/form/484. Students pursuing a major outside of Bumpers College should contact their

college's dean's office to request the minor to be added. If you have questions, contact Bumpers College Student Services at 479-575-2252 or aflsdean@uark.edu.

[1]*No more than nine (9) hours can be counted toward the Natural Resources Management minor for students majoring in Environmental Soil and Water Science.*
[2]*A minimum of eight (8) hours must be 3000 or 4000 level courses.*

University of Arkansas
Dale Bumpers College of Agricultural, Food and Life Sciences

PEST MANAGEMENT MINOR (PMGT-M)
2023-2024

Name: **I.D. Number:**

The Pest Management minor will consist of 19-20 hours[1] to include the following:

Core Requirements:

☐ ENTO 3013 Introduction to Entomology
☐ PLPA 3003 Principles of Plant Pathology
☐ PLPA 3001L Principles of Plant Pathology Laboratory

Select a minimum of twelve (12) hours from the following:

☐ CSES 4133 Ecology and Morphology of Weedy and Invasive Plants
☐ CSES 4143 Principles of Weed Control
☐ ENTO 4123 Insect Pest Management
☐ ENTO 4133 Advanced Applied Entomology
☐ PLPA 4223 Plant Disease Control

Bumpers College students who wish to pursue this minor should complete the major/minor change form at https://forms.uark.edu/xfp/form/484. Students pursuing a major outside of Bumpers College should contact their college's dean's office to request the minor to be added. If you have questions, contact Bumpers College Student Services at 479-575-2252 or aflsdean@uark.edu.

[1]*Students completing the Pest Management minor are required to complete two courses from the following three disciplines: ENTO, PLPA and CSES.*

University of Arkansas

Dale Bumpers College of Agricultural, Food and Life Sciences

SOIL SCIENCE MINOR (SOIL-M)
2023-2024

Name: **I.D. Number:**

The Soil Science[1] minor will consist of 18 hours[2] to include the following:

Core Requirements:

☐ CSES 2203 Soil Science
☐ CSES 2201L Soil Science Laboratory

Select fourteen (14) hours from the following:

Undergraduate Courses

☐ CSES 3214 Soil Resources and Nutrient Cycles
☐ CSES 355V Soil Profile Description (1 hour – may be taken for up to 2 hours)
☐ CSES 4224 Soil Fertility
☐ CSES 4253 Soil Classification and Genesis
☐ CSES 4553 Wetland Soils
☐ ENSC 3263 Soil and Water Conservation
☐ ENSC 4263 Environmental Soil Science
☐ ENSC 4401 Professional Certification Preparation (soils exam)

Graduate Courses

☐ CSES 5033 Advanced Soil Fertility and Plant Nutrition
☐ CSES 5224 Soil Physics
☐ CSES 5264 Microbial Ecology
☐ CSES 5453 Soil Chemistry

Bumpers College students who wish to pursue this minor should complete the major/minor change form at https://forms.uark.edu/xfp/form/484. Students pursuing a major outside of Bumpers College should contact their college's dean's office to request the minor to be added. If you have questions, contact Bumpers College Student Services at 479-575-2252 or aflsdean@uark.edu.

Students interested in obtaining certification in the soil science discipline will need at least 15 hours in soil science, preferably in each of the sub-disciplines (i.e., fertility, genesis, morphology and classification, chemistry, physics, soil biology, and land use and management.

[1]*No more than nine (9) hours can be counted toward the Soil Science minor for students majoring in Environmental Soil and Water Science.*

University of Arkansas
Dale Bumpers College of Agricultural, Food and Life Sciences

AGRICULTURAL BUSINESS MINOR (AGBS-M)
2023-2024

Name: I.D. Number:

The Agricultural Business Minor will consist of 21 hours to include the following:

Core Requirements[1]:

☐ AGEC 1103 Principles of Agricultural Microeconomics OR
- ☐ ECON 2023 Principles of Microeconomics

☐ AGEC 2303 Introduction to Agribusiness OR
- ☐ AGEC 2103 Principles of Agricultural Macroeconomics OR
- ☐ ECON 2013 Principles of Macroeconomics

☐ ASTM 2903 AGHE Applications of Microcomputers OR
- ☐ ISYS 1123 Business Application Knowledge – Computer Competency

Select six (6) hours from the following Core Electives:

☐ AGEC 2143 Agribusiness Financial Records OR
- ☐ ACCT 2013 Accounting Principles

☐ AGEC 2403 Quantitative Tools for Agribusiness OR
- ☐ STAT 2303 Principles of Statistics OR
- ☐ BUSI 1033 Data Analysis and Interpretation

☐ AGEC 3303 Food and Agricultural Marketing
☐ AGEC 3313 Agribusiness Sales
☐ AGEC 3373 Futures and Options Markets
☐ AGEC 3403 Farm Business Management
☐ AGEC 3503 Agricultural Law I
☐ AGEC 4143 Agricultural Finance

Select six (6) hours from the following Controlled Electives:

☐ POSC 4213 Integrated Poultry Management Systems

Choose three (3) to six (6) hours from AGEC upper division courses not already used or substitutions that should be approved by student's program advisor:

Check for completion	Course I. D.:	Course Name:
☐		
☐		

Bumpers College students who wish to pursue this minor should complete the major/minor change form at https://forms.uark.edu/xfp/form/484. Students pursuing a major outside of Bumpers College should contact their college's dean's office to request the minor to be added. If you have questions, contact Bumpers College Student Services at 479-575-2252 or aflsdean@uark.edu.

[1]All nine (9) hours of required courses must be completed before enrolling in upper division Core Electives or Controlled Electives.

5/1/2023

University of Arkansas
University Wide Sustainability Minor
(18 Credits)
2023-2024

Name: I.D. Number:

NOTE: When declaring this minor, please review the Sustainability Minor Website (sustainability.uark.edu/academics/minor) and fill out the declaration form. Return form to Rachel Fletcher (rachelf@uark.edu) and Ken McCown (kennethm@uark.edu).

NOTE: The different sections (i.e. "Natural Systems", "Managed Systems", etc.) are different possible focuses. Electives may be chosen from any of these focuses, so long as the tiers are correct for the requirements.

Required Courses (9 Credits)

SUST 1103	Foundations of Sustainability
SUST 2103	Applications of Sustainability
SUST 4103	Capstone in Sustainability

Required Elective Courses (9 Credits)

TIER 1 Elective _____
TIER 1 Elective _____
TIER 1 or TIER 2 Elective _____

NATURAL SYSTEMS

Tier 1 (use 1 to 3)

BENG 4933	Sustainable Watershed Engineering (Fa)
BIOL 3861L	General Ecology Laboratory (Fa)
BIOL 4154	General Ecology (Sp, Fa)
BIOL 4174	Conservation Genetics (Sp)
CHEM 3214	Energy Conversion and Storage (Even years, Fa)
CSES 3214	Soil Resources and Nutrient Cycles (Odd years, Sp)
ENSC 3003	Introduction to Water Science (Sp)
ENSC 3103	Plants and Environmental Restoration (Odd years, Fa)
ENSC 3223	Ecosystems Assessment (Even years, Fa)
ENSC 3263	Environmental Soil and Water Conservation (Even years, Fa)
ENSC 4023	Water Quality (Fa)
ENSC 4263	Environmental Soil Science (Even years, Sp)
GEOS 3043	Sustaining Earth (Sp, Su, Fa)
GEOS 4933	Ancient Forests: Science and Sustainability (Sp)

Tier 2 (use 1)

BIOL 1543	Principles of Biology (ACTS Equivalency = BIOL 1014 Lect.) (Sp, Su, Fa)

CHEM 1103	University Chemistry I (Su, Fa)
CHEM 1123	University Chemistry II (ACTS Equivalency = CHEM 1004 Lect.) (Sp, Su, Fa)
CHEM 3603	Organic Chemistry I (Su, Fa)
CHEM 3703	Organic Chemistry I for Majors (Fa)
CSES 2201L	Soil Science Laboratory (Fa)
CSES 2203	Soil Science (Fa)
ENSC 1003	Environmental Science (Fa)
GEOS 1111L	General Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab) (Sp, Su, Fa)
GEOS 1131L	Environmental Geology Laboratory (ACTS Equivalency = GEOL 1124 Lab) (Sp.)
GEOS 1133	Earth Science (ACTS Equivalency = GEOL 1124 Lect.) (Sp)
GEOS 2003	World Regional Geography (ACTS Equivalency = GEOG 2103) (Sp, Fa)
GEOS 3333	Oceanography (Even years, Sp)
GEOS 3383	Principles of Landscape Evolution (Fa)
GEOS 4033	Hydrogeology (Sp)
GEOS 4053	Geomorphology (Sp)
GEOS 4063	Principles of Geochemistry (Fa)
GEOS 4353	Meteorology (Fa)
GEOS 4363	Climatology (Sp)
GEOS 4413	Principles of Remote Sensing (Fa)
MATH 4163	Dynamic Models in Biology (Irregular)
PHYS 2054	University Physics I (ACTS Equivalency = PHYS 2034) (Sp, Su, Fa)
PHYS 2074	University Physics II (ACTS Equivalency = PHYS 2044 Lect) (Sp, Su, Fa)

MANAGED SYSTEMS

Tier 1 (use 1 to 3)

AGEC 3413	Principles of Environmental Economics (Sp)
AGEC 3413H	Honors Principles of Environmental Economics (Sp)
AGEC 3523	Environmental and Natural Resources Law (Even years, Sp)
AGED 4003	Issues in Agriculture (Fa)
AGED 4443	Principles of Technological Change (Odd years, Fa)
AMPD 3023	Sustainability in the Apparel and Textile Industry (Fa)
BENG 3603	Metrics for Sustainable Agricultural Systems (Fa)
CSES 3214	Soil Resources and Nutrient Cycles (Odd years, Sp)
ECON 3843	Economic Development, Poverty, and the Role of the World Bank and IMF in Low-Income Countries (Fa)
ENSC 3103	Plants and Environmental Restoration (Odd years, Fa)
ENSC 3223	Ecosystems Assessment (Even years, Fa)
ENSC 3263	Environmental Soil and Water Conservation (Even years, Fa)
ENSC 404V	Soils and Civilization (Irregular)
ENSC 4023	Water Quality (Fa)
ENSC 4263	Environmental Soil Science (Even years, Sp)
HORT 3503	Sustainable and Organic Horticulture (Even years, Fa)
MGMT 4243	Ethics and Corporate Responsibility (Sp, Fa)
SCMT 4123	Sustainable Logistics and Supply Chain Management (Irregular)
SCMT 4853	Cross-Sector Collaboration for Sustainability (Sp)
WCOB 3023	Sustainability in Business (Irregular)

Tier 2 (use 1)

AGME 1613	Fundamentals of Agricultural Systems Technology (Fa)
CSES 2012	Introduction to Organic Crop Production (Odd years, Sp)
CSES 2201L	Soil Science Laboratory (Fa)
CSES 2203	Soil Science (Fa)
ENSC 1003	Environmental Science (Fa)

BUILT SYSTEMS

Tier 1 (use 1 to 3)

BENG 3653	Global Bio-Energy Engineering (Fa)
BENG 4663	Sustainable Biosystems Designs (Sp)
CVEG 3243	Environmental Engineering (Sp, Fa)
CVEG 4243	Environmental Engineering Design (Sp, Fa)
CVEG 4863	Sustainability in Civil Engineering (Irregular)
GEOS 4383	Hazard and Disaster Assessment, Mitigation, Risk and Policy (Sp)
LARC 4753	Incremental Sprawl Repair (Irregular)
LARC 5043	Housing as if the Future Matters (Irregular)
LARC 5493	Environmental Land Use Planning (Sp)
MEEG 4453	Industrial Waste and Energy Management (Irregular)
MEEG 4473	Indoor Environmental Design (Irregular

Tier 2 (use 1)

ARCH 2113	Architectural Structures I (Fa)
ARCH 2132	Environmental Technology I (Fa)
ARCH 3143	Building Materials and Assemblies (Fa)
ARCH 4152	Building Systems Integration (Sp, Fa)
CSCE 4233	Low Power Digital Systems (Irregular)
CVEG 4323	Design of Structural Systems (Sp)
GEOS 4073	Urban Geography (Sp)
GEOS 3543	Geospatial Applications and Information Science (Fa)
IARD 2823	Interior Design Materials and Assemblies (Fa)
IARD 3833	Interior Building Systems (Fa)
LARC 4743	Public Participation in Design and Planning (Irregular)
TEED 2103	Technology and Society (Fa)

SOCIAL SYSTEMS

Tier 1 (use 1 to 3)

AGEC 3523	Environmental and Natural Resources Law (Even years, Sp)
AGEC 4163	Agricultural and Rural Development (Fa)
ANTH 4143	Ecological Anthropology (Irregular)
CHLP 4553	Environmental Health (Sp)
COMM 4643	Environmental Communication (Irregular)
ENGL 4133	Writing Nature (Sp)
ENSC 3933	Environmental Ethics (Odd years, Sp)

PHIL 3133	Environmental Ethics (Odd years, Sp) (crosslisted with ENSC 3933)
GDES 4363	Design for Complexity (Odd years, Sp)
GEOS 4693	Environmental Justice (Sp)
GEOS 4693H	Honors Environmental Justice (Sp)
HIST 4473	Environmental History (Irregular)
RESM 1023	Recreation and Natural Resources (Sp, Su, Fa)
RESM 4023	Outdoor Adventure Leadership (Su)
ROSC 4603	Environmental Sociology (Sp)

Tier 2 (use 1)

CHLP 4643	Multicultural Health (Sp)
GDES 4353	Human-Centered Design (Fa)
HIST 3273	Agricultural and Rural History of the United States (Irregular)
HIST 3323	The West of the Imagination (Irregular)
HIST 4463	The American Frontier (Odd years, Fa)
SCWK 31903	Human Diversity and Social Work (Sp, Su, Fa)
SCWK 4093	Human Behavior and the Social Environment I (Sp, Fa)
SCWK 4103	Human Behavior and the Social Environment II (Sp, Fa
SOCI 2033	Social Problems (ACTS Equivalency = SOCI 2013) (Sp, Su, Fa)
SOCI 3303	Social Data and Analysis (Sp, Fa)

Students must earn a grade of 'C' or better for all courses to fulfill the requirements of the Minor. Students may take courses from any systems area and from any combination of areas. ***Tier 1*** courses focus upon content directly applicable to sustainability. ***Tier 2*** courses provide foundational knowledge needed to understand sustainability principles.

Degree Requirements

(Information adapted from the University of Arkansas Catalog of Studies website)

University Graduation Requirements

- 120 semester hours of credit
- 35 hours University Core Courses. See check sheet for specific courses required.
- 2.00 GPA ("C" average) on all work attempted at the University of Arkansas.
- ≤68 semester hours of lower-division transfer coursework (1000/2000 level).

Bumpers College Graduation Requirements

(Advising forms available at http://bumperscollege.uark.edu/forms.exampleadvisingform.pdf)

- 9 hours of Broadening electives (Bumpers College courses taken outside of ENSC).
- 36 hours of upper division course work (3000 level or above).
- 6 hours of Communications (COMM 1313 and CSES 3023 or AGED 3143).
- In addition to university and college requirements, students must meet other defined departmental requirements specific to each major and concentration. Bumpers College courses outside of the major may be included in departmental requirements.
    - Students who are exempt from ENGL 1013 and/or ENGL 1023 must enroll in 3-6 hours of English, Communications, Literature or Foreign Languages to fulfill requirements of English/ Communications.
- Residency - All students must have a minimum residence requirement of 36 weeks and 30 semester hours. The senior year must be completed in residence on campus unless a senior has already met the minimum residency requirement. This student will be permitted to earn not more than 12 of the last 30 hours in extension or correspondence courses or in residence at another accredited institution granting the baccalaureate degree. No more than six of these 12 hours may be correspondence courses.

Rules Applying to Course Work Used for Degree Credit

- No credit will be given for duplicate coursework.
- A maximum of 6 hours of internship and 6 hours of special problems may be counted for degree credit.
- General electives may be used to meet the requirements for a minor.
- A total of 6 hours of elective credits in activity courses (PE, band, chorus, judging teams, debate, drama, athletics, etc.) may be counted toward a degree. The maximum elective credits in any one activity that may be counted toward a degree are as follows:

Band and/or chorus	4 hours
Drama and/or debate	4 hours
Judging teams	4 hours
Physical education activities	4 hours

- Any course taken by correspondence, including Web-based courses, must be approved in advance in the AFLS dean's office if the credits earned in the course are to be applied toward a degree. This rule applies regardless of the school from which the course is taken.
- All transfer course work to be applied toward the degree must be an approved course listed in the transfer equivalency guide maintained by the Registrar's office. For courses not listed in the guide, petitions can be submitted to the Dean's office by the student's academic adviser.
- All study abroad courses must be approved in advance in the Dean's office if the credits earned in the courses are to be applied toward a degree.

Requirements to Graduate with Honors Designation and/or Honors Distinction

Honors Designation

Students who have demonstrated exceptional academic performance in baccalaureate degree programs will be recognized at graduation by the honors designation of *Cum Laude, Magna Cum Laude*, or *Summa Cum Laude*. To earn these, a student must meet the following criteria:

- At least one-half of the degree coursework must have been completed at the University of Arkansas, Fayetteville.
- Only the grade-point average on coursework completed at the University of Arkansas, Fayetteville, will be considered.
- Must successfully complete the Bumpers College Honors Program, which includes a minimum of 9-12 hours of honors course work, 3-6 hours of honors thesis, and a completed honors capstone research or creative project culminating in a written thesis documenting the project.
- For each of the three honors designations, the student must have the minimum grade-point average indicated.
  Cum Laude: 3.50 to 3.74
  Magna Cum Laude: 3.75 to 3.89
  Summa Cum Laude: 3.90 to 4.00
- Students who do not participate in the AFLS Honors Program but earn the above grade-point averages will graduate "with distinction", "with high distinction", and "with highest distinction", respectively.

The AFLS Honors Program

Mission Statement - The mission of the AFLS Honors Program is to provide undergraduate students with opportunities beyond the traditional undergraduate experience.

- Students who enter the University with a High School GPA of 3.5 and an ACT of 28 or who transfer in with a cumulative college GPA of 3.5 (< 62 credit hrs) are eligible to join the AFLS Honors Program and graduate with Honors Designation.

Benefits of the AFLS Honors Program

- Enhance opportunities for admission to graduate and professional schools
- Opportunity to work directly with faculty mentors on their research/creative projects culminating in their honors thesis
- Specialized honors courses
- Opportunity to receive stipends to support thesis projects and study abroad opportunities
- Opportunities to publish results and present findings at scientific or professional meetings
- Advanced course pre-enrollment
- Opportunity for special housing in the Honors Quarters
- Special recognition at the College commencement ceremony

For additional information and to apply for admission to the program visit the AFLS Honors Program website (http://bumpershonors.uark.edu/index.php).

AFLS Grading System

The Dale Bumpers College of Agricultural, Food and Life Sciences utilizes a plus/minus grading system that assigns numerical values to 12 different grades. These values are used for courses when grade-point averages are calculated. See Grades and Marks for the method of calculating grade-point averages. The 12-step grading system with assigned values is as follows:

	A 4.00	A-.....3.67
B+.....3.33	B 3.00	B-.....2.67
C+.....2.33	C 2.00	C-.....1.67
D+.....1.33	D 1.00	D-.....0.67
	F 0.00	

Resources Available

There are many resources on campus available to assist students in overcoming personal obstacles and achieving success while at the University of Arkansas. While the goal is for students to take control of their college experience, departmental, college, and university personnel are here to provide guidance, offer advice, ask questions, make suggestions and recommendations, provide referrals, and above all, inform students of the many opportunities available to them. Students are encouraged to ask advisors about university resources and how to find them. Academic advisor contact information should be available in your Student Center in UA Connect. Students will also learn about many of those resources in their freshmen orientation course, UNIV 1001 University Perspectives.

If you would rather speak to someone outside the department, feel free to contact Vicky Watkins, Retention and Curriculum Coordinator, in the Bumpers College Dean's Office, at 479-575-2121, email watkinsv@uark.edu, or schedule an appointment with Ms. Watkins in UA Success.

University academic support resources are consolidated under the Center for Learning and Student Success (CLASS+) +Tutoring, +Writing Support, +Supplemental Instruction, +Academic Coaching, located at class.uark.edu, 479-575-2885, or you can visit the office in the lower level of Gregson Hall. The entrance to the CLASS+ office is on the south side of Gregson Hall, down the stairs behind the UA bus stop.

In addition, students can also receive assistance by contacting CAPs (Counseling and Psychological Services) at Pat Walker Health Center on the corner of Maple and Garland. Schedule an appointment by calling 479-575-5276. For additional information, visit the CAPs website at http://health.uark.edu/counseling/index.php.

Scholarships for Department of Crop, Soil, and Environmental Sciences

Scholarships available to CSES students are made possible by generous gifts from many firms and individuals. The criteria for these scholarships include academics, majors and minors, interests, financial need, and extracurricular activities. The Bumpers Scholarship Application (which is also the University of Arkansas universal application for current students) makes you eligible for many of these scholarships. There are some scholarships that require additional applications; these are listed under Special Applications. For the 2020-2021 academic year, approximately $180,000 was awarded to deserving undergraduates. For additional information contact Dr. Kristofor Brye, CSES Scholarship Coordinator (kbrye@uark.edu; 479-575-5742). A link to the scholarship application that is due on February 15th of each year will be available through the college's scholarship web page after January 1st.
http://bumperscollege.uark.edu/academics/scholarships-and-financial-aid/index.php.

College Level Undergraduate Scholarships

Acacia Corporation - All majors; all levels.

Adkins, Governor Homer - Agriculture major; Arkansas resident; departments make nominations.

Agriculture Beginning Scholars - AFLS incoming Fr; recruiting scholarships for 4-H record book winners; students have high ACT and high school GPA.

Agriculture General Scholarship (Foundation) - Any major; all levels; student in DBCAFLS.

Alexander, Robert and Marilyn Endowed - Any major; all levels. Recipients must demonstrate financial need, leadership abilities, and exemplify high standards of learning.

Anderson, T. C. and Ada - Any major; all levels. Recipients must demonstrate financial need, leadership abilities, and exemplify high standards of learning.

Bald Knob Ag Science - Prefer HORT majors but all considered; from Bald Knob or at least White County; incoming freshmen must have at least a 23 ACT; current students must have $\geq$ 3.0 cum GPA; financial need and extracurricular activities to be considered

Boy's 4-H House Alum - All majors; all levels; need & academics to be considered; prefer male students.

Brown, Gordon R. - Lonoke County Farm Bureau - All majors; So, Jr, Sr; Lonoke County resident.

CAFLS Alumni - All majors; Sr; >3.0 cum GPA; active in college & university extracurricular activities; financial need to be considered.

Carney, Mr. & Mrs. Cy - Agriculture major; Fr, So, Jr, Sr, transfer; Arkansas resident; show financial need.

Daughters of Demeter - All majors; Sr; Arkansas resident; >3.0 cum GPA; show need, active in extracurricular activities. Departments make nominations.

Davis, Eddie - All major; prefer So, Jr, Sr. (renewable)

Elliott, Lester (Ozark Arts & Crafts) - All majors; preference given to current/former members of 4-H.

Estelle, Luther & Edna - All majors; all levels; Arkansas resident or born in Arkansas; full- time student with a 2.5 cum GPA, incoming freshmen should be in top 25% of their class. (renewable)

Ewart, Dr. & Mrs. James B. - Incoming freshmen; 2 or more years of high school FFA; Arkansas resident; selection based on GPA, ACT, offices held. The recipient should attend state FFA convention in June to receive a certificate.

Fleming, Joseph F. - All majors; all levels.

Gamma Sigma Delta - All majors - based on academics; includes two GSD, one Lippert

Ellis, and one John White awards.

Lawson, Marvin & Bessie - Non-traditional student; enrolled full time; overcoming significant obstacles to pursue education. Must demonstrate financial need, exhibit leadership skills, strong work ethic and a positive attitude. Scholarship Committee to solicit nominations from DBCAFLS faculty.

Maloch, Lucille & Delton - Preference to children of Cooperative Extension personnel; need & academics to be considered. Two scholarships: one in HESC and one to an Agri student; if not enough funds for 2 scholarships then awards will alternate.

Parette, Billie E. - All majors.

Rust, John (Division of Agriculture) - All majors; Fr, So, Jr, Sr, transfer. (renewable)

Short, Romeo E. AR Farm Bureau - All majors; So, Jr, Sr; 30 hr per academic yr; 3.0 cum GPA. College scholarship committee makes nominee list, this is sent to the Farm Bureau office, they rank them and we award from this information. (renewable)

Stearns, Margaret - Entering Fr; >28 ACT/1240 SAT and >3.5 HS GPA. Must show evidence of strong leadership qualities in high school, church and/or civic organizations. Preference to Arkansas residents. $9000 Fellowship - Deadline April 15th

Strang, E. E. & Roxie Sebastian County Farm Bureau - All majors; So, Jr, Sr; Sebastian County; if all else is equal prefer a member of Farm Bureau. Nominee list is sent to Sebastian County Farm Bureau and they make the selection.

Triangle Cooperative Service Company Scholarship - All majors; Jr, Sr; agricultural cooperative background; >2.5 GPA. Triangle companies may recommend names from eligible applicants to DBCAFLS Scholarship Committee.

Departmental Level Undergraduate Scholarships

Adair, C. Roy - CSES major; Sr (must have completed 90 hours); upper fourth of their class; show financial need and possess leadership qualities.

Anderson, Robert - CSES major with PMGT, ENTO, or PLPA minor; Fr.

Ark Crop Protection Assn - CSES or HORT major or ENTO, PLPA, or PMGT minor; Jr, Sr; prefer Arkansas resident. Other considerations: GPA, financial need, leadership ability, extracurricular activities, interest in pesticides. Two scholarships (DeSalvo & Hansen) each year.

Ark Plant Food Assn - CSES major; Arkansas resident; 3.0 GPA; interest in plant food industry. Other considerations: leadership ability, financial need, extracurricular activities. The Woody Miley - APFA is for Jr/Sr and the Wayne Sabbe - APFA is for So, Jr, or Sr.

Ark Seed Dealers Assn - CSES major; Jr, Sr; 2.5 cum GPA; agricultural-related major; Arkansas resident; great financial need. (renewable with met criteria)

Barrentine, Dr. James L. Endowed - CSES major. First preference to Fr or transfer students from eastern AR. Second preference to Fr or transfer student in CSES. Third preference to So, Jr, or Sr in good academic standing with >2.50 cum GPA. Demonstrating community involvement. CSES Alumni and Friends Committee will make recommendations for scholarship recipients.

Bartholomew, R. P. & Mildred E. Kline - CSES major; financial need; >3.0 cum GPA.

Beacher, R. L. - CSES major. (Future Endowment)

Boyer, Paul & Irma - CSES major or ENTO, PLPA, or PMGT minor; incoming Fr; must earn >2.5 cum GPA to receive the second-semester award.**Caviness Endowment** - CSES major; So, Jr, Sr; prefer interest in plant breeding; >3.0 cum GPA; active in college extracurricular activities.

Cullum, Sherman D. - CSES major; So, Jr, Sr. (renewable)

Delta Classic - CSES major; Fr; >2.75 GPA preference to >3.0. Preference is given to those from eastern AR. Other considerations: dedication to the chosen field, academic performance,

financial need, & community involvement. The committee makes a selection with input from the CSES Student Enhancement Team.

Earle, Fontaine Richard - CSES major; Jr, Sr; crop science or plant chemistry interest. **Hicks, Harold & Iva** - CSES, AEAB, or HESC majors or ENTO or PLPA minors. **Jenkins, Johnie N.** - CSES major.

Offutt, M. Sam - CSES major; Fr; >24 ACT and high cum GPA.

Staplcotn - CSES, AEAB, or BAEG major or PMGT minor; 2.5 GPA; Arkansas resident; prefer cotton farm family; one scholarship per department. (renewable)

Stutte, Charles A. - CSES major; Jr, Sr; >3.0 GPA.

Wells, Bobby R. - CSES major; upperclassman; academic merit to be considered; one or more scholarships or fellowships each year depending on funds.

White River EPA Scholarship - Environmental Science; So, Jr, Sr.

York, Harvey & J. O. - CSES major; Jr; interest in plant breeding.

Undergraduate Scholarships Requiring Special Applications

AFLS - Division of Agriculture Land Grant - All majors; New Fr, or New Transfers. 3.25 high school GPA, transfer students must have >3.00 cum GPA. Deadline February 15th.

Arkansas Agricultural Consultants Association - CSES or HORT major or ENTO, PLPA, or PMGT minor; Jr or Sr; prefer Arkansas residents; >2.5 cum. GPA. Must complete a special application available on AFLS web-site.

Arkansas State Plant Board Intern Scholarship - Plant sciences majors or minors; Jr, Sr; >2.8 cum GPA, demonstrating leadership qualities. Must submit a DBCAFLS scholarship application, academic resume and one recommendation letter by Feb. 15th.

Hinkle, Dale & Wilhelmina - CSES major; Jr, Sr; interest in environmental science. Deadline March 15 to be awarded for the current year.

Jacobs, Clifford Bruce - CSES major; Fr or ACTA transfer student; 2.5 GPA; from DeWitt or Gillett high school (Arkansas County). (renewable)

Undergraduate and Graduate Study Abroad Scholarships

Locke, Richard International Agricultural Study Abroad - All majors - Study abroad programs. Students must make all arrangements for travel through the International Agricultural Global Studies Program which determines the recipient.

Sabbe, Wayne E. Endowed/International Agronomic Study Abroad - CSES grad or Jr or Sr. Preference to student with research emphasis in soil science. Student must follow CSES scholarship application procedures, must submit international studies program plan to CSES scholarship committee. Study abroad program cannot be in the home country. Deadlines October 15 for the following spring and February 15 for the following summer, fall, or year-long awards.

Other Scholarships to Consider Applying for

American Society of Agronomy - Several scholarships available to a variety of recipients. Information is available at: https://www.agronomy.org/students/

Arkansas Alumni Association - Several scholarships available to a variety of recipients. Information is available at http://arkalum.org/scholarships/

Arkansas Association of Professional Soil Classifiers - Deadline is usually October/November. http://www.accessarkansas.org/soilclassifiers/index.htm

Arkansas Academic Challenge Scholarship - Scholarship information is available at

http://www.adhe.edu

Arkansas Farm Bureau Scholarship - Jr or Sr; Arkansas resident; enrolled in an Arkansas accredited college or university; actively pursuing an ag-related degree. Scholarship based on academic achievement, character, career plans, financial need and leadership potential. Must maintain a 2.5 GPA. Information is available at http://www.arfb.com/programs/scholarship.asp

Arkansas Game and Fish Commission - Arkansas high school Sr or Arkansas college undergraduate pursuing a career in the field of natural resources conservation with a 2.5 cumulative GPA (4.0 scale). Applicants must not have received a full scholarship from another source. Information is available at: http://www.agfc.com/education-class/programs/conservation-scholarship-program.aspx

Arkansas Society of Professional Sanitarians - So; Arkansas resident; enrolled in an environmental field. Deadline usually in March or April. Information is available at http://www.arkansassanitarians.org/scholarship.php

Arkansas Environmental Federation Randall Mathis Scholarship for Environmental Studies and Larry Wilson Scholarship for Environmental Studies - Deadline is usually January. Information is available at http://www.environmentark.org/scholarships.html

Garden Club of America - Numerous scholarships available with deadlines ranging from November through February. Information is available at http://gcamerica.org/scholarships.php3

Mark and Theresa Gentry Land and Water Scholarship - Undergraduate and graduate students of the University of Arkansas, Fayetteville, who are studying land and water resources management, or related areas. Application forms are available at the Arkansas Water Resources Center, 112 Ozark Hall, University of Arkansas, Fayetteville, Arkansas, 72701, (479) 575-5867, by e-mailing awrc@uark.edu. Deadline is typically February. Information is available at http://www.uark.edu/depts/awrc/scholarships.html

Razorback Chapter Soil and Water Conservation Scholarship (NRCS) - Contact: brent.clark@ar.usda.gov

Soil and Water Conservation Scholarships - Deadline is typically February. Additional information available at http://www.swcs.org/en/members_only/scholarships/

University of Arkansas University-Wide Scholarship - UA students from any academic discipline. Must have completed at least one fall semester. High level of academic achievement coupled with leadership qualities, financial need, or have achieved academic success despite significant adversity. Deadline is typically February. Information is available at http://scholarships.uark.edu/index.php/csschl/default

Nonresident Tuition Award - Out-of-state tuition differential for students from TX, MS, LA, KS, MO, OK, TN.

Internship Opportunities in Crop, Soil, and Environmental Science (CSES 462V)

The internship program is based upon the principle that what students learn in the workplace can be a valuable supplement to what they learn in the classroom. By combining work and study, students gain greater insight into each and may be better prepared for employment in their chosen careers. The CSES internship is designed to fit needs of the individual student, but, for full credit, the student must meet minimal requirements listed below and the internship must have a substantive academic component to it beyond simply going to work for someone. In cooperation with an employer, the course will be supervised by an internship committee made up of three instructors from the CSES faculty representing Crop Science, Environmental, Soil, and Water Science, and Weed Science.

Requirements for academic credit:

1. Learning objectives for an internship project will be initially agreed upon by a CSES internship committee, an employer (sponsor), and the student. A written pre-proposal is required to initiate the internship and must be approved by the committee prior to the conclusion of the spring semester if it is going to be a summer internship, and prior to each subsequent semester if it is going to be a fall or spring internship. An outline of what the pre-proposal should include and an example of a well-prepared pre-proposal are listed below. *Only after the pre-proposal has been approved by the committee* will the student be enrolled in CSES 462V. If it is anticipated that the student will not complete all of the requirements prior to the end of a term (Spring/Fall/Summer), the student may postpone enrolling in the internship course until the following term.

2. After the project is approved by the internship committee, the student will work directly with one instructor who is a member of the internship committee. The student must prepare and submit a full proposal to the instructor for review and approval by the internship committee. The student should work with the instructor to develop an appropriate format for the proposal, particularly if the academic component of the internship is something other than a mini-research project. An outline to follow for the proposal format is described below along with an example of a well-prepared proposal.

3. Upon completion of the internship employment, the student must submit a final written report to the instructor. This report will be distributed to the internship committee for review and evaluation. The final report should follow a similar format as the internship proposal. An example of a well-prepared final report is included below.

4. In addition to the final written report, the student will make an oral presentation which summarizes his/her internship to the CSES Colloquium class, CSES Seminar, the internship committee, or another appropriate audience to be decided upon by the committee and the student.

5. The internship committee will evaluate the student's performance and determine the letter grade for the course based upon fulfillment of all requirements. The semester credit hours available for internship will be a minimum of 1 to a maximum of 3 hours.

6. For summer internships, student will be required to enroll in CSES 462V for 1 credit hour for the summer semester, where the only requirement for the summer semester will be preparation and submission of the internship proposal. Students will then enroll in 1 to 2 credit hours for the fall semester so that the final written report and oral presentation can be completed before the fall semester ends. This same split-credit enrollment will be applied to fall and spring semester internships as needed.

Enrollment in the internship course (CSES 462V) is by instructor's consent only. Therefore, any student wishing to enroll in the internship class must contact one of the internship committee members listed below for a copy of all current requirements and approval to enroll.

Internship Committee

Weed Science: Dr. Jason K. Norsworthy
Altheimer Laboratory
Phone: 575-8740
Email: jnorswor@uark.edu

Environmental, Soil, and Water Science: Dr. Kristofor R. Brye
123 AGRI Building
Phone: 575-5742
Email: kbrye@uark.edu

Study Abroad Opportunities

The International Programs are specifically tailored to meet the individual needs of each student (http://bumperscollege.uark.edu/internationalprograms/index.php). Programs include internships, semester or year abroad study, and faculty-led study tours (see page 25 for study tour led by CSES faculty). Students have participated in a variety of programs.

Internships

Lengths of internships vary but usually involve six to twelve weeks. These may be prearranged independent studies or working internships directed by faculty at the University of Arkansas in cooperation with a university or agency.

Semester

Longer programs are designed to give students a full semester of study abroad in their field of interest and in the country of choice. Students enroll for UA study abroad credit, and the courses transfer to the University of Arkansas. Planning in advance with their advisor allows students to build a strong academic transcript.

Year

This option is essentially the same as the semester option, in which courses taken abroad may be transferred back to the University of Arkansas. Special planning is required so that all credit hours earned abroad are transferable to the student's degree program.

Study Visits and Tours

Individualized and group study visits for two to four weeks are sometimes arranged for one student or a group of students, coordinated by various faculty. Specific student responsibilities are planned in advance with the University of Arkansas faculty advisor to complement the student's field of study and to earn academic credit.

Student Study Lounge

Located in Plant Science 113 for use by students in the Department of Crop, Soil, and Environmental Sciences; computer and printer access as well as an area for small groups to meet.

Employment Opportunities

Students in the CSES Department are encouraged to fill out an employment application in the CSES main office (Plant Science 115). These applications are kept on file for faculty and staff to review when they are looking for student workers.

Undergraduate Activities within the CSES Department

Agronomy Club

Agronomy Club encourages proper stewardship of land and other natural resources and promotes professional development for undergraduates interested in pursuing a career in crop science or related field. Members of all majors will have the opportunity to connect with agricultural professionals and participate in Students of Agronomy, Soils, and Environmental Sciences (SASES) national meetings. The Agronomy Club is open to all majors.

Agronomy Club Officers

President:
Vice President:

Agronomy Club Advisors

Dr. Kelsey Greub (klhoegen@uark.edu)

Environmental, Soil, and Water Sciences (ESWS) Club

Environmental, Soil, and Water Sciences (ESWS) Club is designed to deepen students' understanding of soil and water conservation and foster collegiality among students interested in environmental science or advocacy. The ESWS club strives to educate the campus and surrounding community about environmental science through campus trail clean-ups, sustainable events, outreach, and networking events with soil, water, or environmental science professionals. Members of the ESWS club have the opportunity to experience professional development opportunities and compete in contests at the Students of Agronomy, Soils, and Environmental Sciences (SASES) national meetings. The ESWS Club is open to all majors.

ESWS Club Officers

President - Colten Nichols

Event Coordinator - Andie Forbes

Secretary - Joyce Ho

Treasurer - Kaitlyn Feld

Social Media Manager - Avery Selle

Sentinel - Hannah Harrison

ESWS Club Advisor

Dr. Kelsey Greub (klhoegen@uark.edu)

CSES Soil Judging Team

Each fall semester, members of the CSES Soil Judging Team meet once per week to practice for the regional soil judging competition held in October. No previous experience is necessary and you can enroll in the CSES 355v Soil Profile Description course for 1-hour credit. For more information, contact Dr. Kristofor Brye

(kbrye@uark.edu; 479-575-5742).

CSES Personnel of Interest and Department Committees

Office Personnel (Plant Science 115)
Tabatha Gonzalez (575-8649; tabathag@uark.edu)
Estefani Mann (575-2354; eam005@uark.edu)
Brian Wempe (479-575-6079, bwempe@uark.edu)
Giselle Vargas (575-5718; gv001@uark.edu)

Faculty Committees of Interest
Assessment Committee – TBD
Awards Committee – Dr. Jason Kelley (501-671-2164; jk039@uark.edu)
Curriculum Committee – Dr. Kelsey Greub (klhoegen@uark.edu)
(CSES Undergraduate Club President is a committee member.)
Recruitment Committee - Ms. Holly Yeatman (575-5726; hyeatman@uark.edu)

Undergraduate Recruiter
Ms. Holly Yeatman (Office: PTSC 120; Phone: 479-575-5726; hyeatman@uark.edu)

Undergraduate Courses in AFLS (AFLS)

AFLS 401V-3, AFLS 401VH-3, and AFLS 501V-3 Experiential Learning in Indian Agriculture (Jan intersession) Faculty-led study tour in northern India to help students develop a global perspective and cultural understanding, specifically of Indian agriculture and its challenges.
Instructors: Vibha Srivastava and Mary Savin

Undergraduate Courses in Environmental Science (ENSC)

ENSC 10001L Environmental Science Laboratory (Fa, Sp) Laboratory, field trip, and discussion sessions covering the concepts and information allowing students to critically evaluate environmental issues. Topics will include laboratory safety, recycling, composting, geographic information systems, soil testing, water quality, hazardous wastes, waste disposal, wetlands, wastewater treatment, and sustainable food systems. Laboratory 2 hours/week. Prerequisite or Corequisite: ENSC 1003. *Instructor: Lisa Wood*

ENSC 10003 Environmental Science (Fa, Sp) Series of lectures and discussions introducing the topic of environmental science including factors related to water, soil, and air quality. (Natural science university core course with laboratory) *Instructor: Lisa Wood*

ENSC 3003 Introduction to Water Science (Sp) Properties, occurrence, and description of the types, functions, quality and quantity, potential contaminants, uses and guiding policies and regulations of the various water resources in the environment. Prerequisite: ENSC 1003 or CHEM 1053 or higher or GEOL 1113 or higher or BIOL 1543. *Instructor: Kristofor Brye*

ENSC 31003 Plants and Environmental Restoration (Fa) Selection, establishment, and use of plants to promote soil stabilization, water quality, and wildlife habitat. Principles and practices of managing plants for soil remediation, nutrient and sediment trapping, and restoration of plant communities. Service Learning course
Prerequisite: CSES 1203 or HORT 2003 or BIOL 1613. *Instructor: Lisa Wood*

ENSC 3221L Ecosystems Assessment Laboratory (Even years, Fa) The purpose of this laboratory is to complement concepts learned in lecture by carrying out experiments that familiarize students with methods used in soil and aquatic ecology. Students will collect samples, analyze and interpret data obtained from soil and water samples. The lab will meet once per week for 3 hours. Corequisite: ENSC 3223. *Instructor: Mary Savin*

ENSC 3223 Ecosystems Assessment (Even years, Fa) Applications of the basic ecological principles of organisms, populations, communities, and ecosystems to gain an appreciation for how large-scale patterns in terrestrial and aquatic ecosystems are influenced by small-scale interactions among individuals (microorganisms to invertebrate macrofauna) and between individuals and their local environment. Lecture 3 hours per week. Corequisite: ENSC 3221L. Prerequisite: BIOL 1543.
Instructor: Mary Savin

ENSC 32603 Soil and Water Conservation (Even years, Fa) Effect of land use on water quality. Major sources of agricultural nonpoint pollutants. Best management practices used to minimize water quality impacts. Prerequisite: CSES 2203. *Instructor: Kristofor Brye*

ENSC 3413 Principles of Environmental Economics (Sp) An introductory, issues-oriented course in the economics of the environment. What is involved in society making decisions about environmental quality will be studied. Environmental issues important to the State of Arkansas and the United States will be emphasized. Prerequisite: AGEC 1103 or ECON 2023. (Same as AGEC 3413) *Instructor: Jennie Popp*

ENSC 3603 GIS for Environmental Science (Odd Years, Sp) Provide instruction on the uses of GIS techniques in solving practical environmental and agricultural land use problems. Areas include: 1) an introduction to spatial variability in soils with an emphasis on the application of GIS techniques to map and understand spatial parameters important to different land uses, and 2) development of individual experience in the use of GIS in solving environmental and agricultural problems using an oral and written term project. Prerequisite: CSES 2203. *Instructor: Vaughn Skinner*

ENSC 3933 Environmental Ethics (Odd years, Sp) The course addresses ethical questions about nature and the natural environment. Topics of discussion include anthropocentric and biocentric ethics, population control, obligations to future generations, animal rights, moral considerability, Leopold's land ethic, deep ecology, and ecofeminism. Lecture/discussions 3 hours/week. Prerequisite: ENSC 1003 or PHIL 2003 or PHIL 2103. *Instructor: David Miller*

ENSC 400V Special Problems (Sp, Su, Fa) (1-3) Work on special problems in environmental science or related fields. May be repeated for up to 6 hours of degree credit. *Instructor: Faculty*

ENSC 4021L Water Quality Laboratory (Fa) Field and laboratory experience in physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Laboratory experiments in water sampling, measurement of water quality parameters such as pH, alkalinity, and acidity, redox, hardness, BOD, TSS, etc., and instrumentation. Prerequisite or Corequisite: ENSC 4023. *Instructor: Faculty*

ENSC 40203 Water Quality (Fa) Physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Discussion of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc. Aquatic processes of pollutants and principles of modeling. Laboratory experiments in water sampling, measurement of water quality parameters, and instrumentation. Prerequisite: CHEM 1123 and CHEM 1121L. *Instructor: Faculty*

ENSC 4034 Analysis of Environmental Contaminants (Even years, Sp) Methods of analysis for inorganic and organic contaminants, radionuclides and microorganisms in soil and water. Quality assurance and quality control, sampling protocols, sample handling, instrumentation, and data analysis. Lecture 2 hours and laboratory 4 hours per week. Corequisite: Lab component. Prerequisite: CHEM 2613/2611L or CHEM 3603/3601L. *Instructor: Mary Savin*

ENSC 404V Special Topics (Irregular) (1-3) Studies of selected topics in environmental sciences not available in other courses. May be repeated for up to 12 hours of degree credit. *Instructor: Faculty*

ENSC 4263 Environmental Soil Science (Even years, Sp) Study of the behavior of pesticides, toxic organic compounds, metals, nutrients, and pathogenic microorganisms in the soil/plant/water continuum. Lecture 3 hours per week. Prerequisite: CSES 3214. *Instructor: Lisa Wood*

ENSC 4401 Professional Certification Preparation (Sp) Concepts and skills already learned in other soil and environmental science and related courses are reinforced with the opportunity to prepare to take a national certification examination. If so chosen, students may pursue certification as soil or environmental science professionals. Prerequisite: Senior standing.

Instructor: Mary Savin

Undergraduate Courses in Crop, Soil, and Environmental Sciences (CSES)

CSES 12003 Introduction to Plant Sciences (Sp, Fa) An introduction to basics of agricultural crop plant structure, growth, and production. (Same as HORT 1203) *Instructor: Greub*

CSES 2013 Pest Management (Sp) Introduction to basic principles of pest management as they relate to vertebrate animals, insects, plant disease and weeds. Selected pests are studied with an emphasis on current management approaches and alternative pest control. *Instructor: Team taught*

CSES 2101L Crop Science Laboratory (Sp) A series of laboratory experiments designed to reinforce principles of plant growth and development, reproduction, classification, and the utilization of plant products. Emphasis is placed on major crop plant species. Experiments are conducted by individuals or by teams. Laboratory consists of a single, 2-hour period each week. Required for Crop Management majors. Corequisite: CSES 2103. *Instructor: Greub*

CSES 2103 Crop Science (Sp) Principles of crop growth, development, and utilization and how these principles relate to production. Emphasis on major agronomic crop species. Lecture 3 hours per week. *Instructor: Greub*

CSES 22001L Soil Science Laboratory (Fa, Sp) Field and laboratory exercises related to the study of the physical, chemical, and biological properties of soils. Laboratory mandatory for all crop management and environmental, soil, and water science majors and optional for others. Laboratory 2 hours per week. Pre- or Corequisite: CSES 2203. *Instructor: Dave Miller*

CSES 22003 Soil Science (Fa, Sp) Origin, classification, and physical, chemical, and biological properties of soils. Lecture 3 hours, discussion 1 hour per week. Corequisite: Drill component. Prerequisite: CHEM 1103 or CHEM 1074. *Instructor: Dave Miller*

CSES 3023 Crop, Soil, and Environmental Sciences Colloquium (Fa) A communication-intensive course covering topics in agronomy and environmental, soil, and water science with particular emphasis on spoken communication but also including written communication, group activities, professionalism, ethics, problem-solving, and information retrieval. Colloquium workshop: 3 hours per week. Prerequisite: Junior or Senior standing only. *Instructor: TBD*

CSES 3113 Forage Management (Irregular) Forage crops for pasture, hay, and silage with reference to growth and development, production, nutritional quality, and grazing systems. Lecture 3 hours per week. Prerequisite: CSES 1203 or CSES 2103 or HORT 1203. *Instructor: TBD*

CSES 3214 Soil Resources and Nutrient Cycles (Odd years, Sp) Integration of the fundamental concepts of the biological, chemical, and physical properties of soil systems and their roles in managing soil resources. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CSES 2203/2011L, BIOL 2013/2011L. *Instructor: TBD*

CSES 33102 Cotton Production (Even years, Fa) Principles and techniques associated with the production of cotton. Recitation 2 hours per week. Prerequisite: CSES 1203 or CSES 2103 or HORT 1203. *Instructor: Faculty*

CSES 3322 Soybean Production (Odd years, Sp) An overview of the history and utilization of soybean as well as the physiological and environmental basis for the development of economical soybean production practices. Recitation 2 hours per week. Prerequisite: CSES 1203 or CSES 2103 or HORT 1203. *Instructor: TBD*

CSES 3332 Rice Production (Odd years, Fa) A study of the principles and practices involved in rice culture worldwide with major emphasis on the United States. Recitation 2 hours per week. Prerequisite: CSES 1203 or CSES 2103 or HORT 1203. *Instructor: TBD*

CSES 3342 Cereal Grain Production (Even years, Sp) An overview of the botany, production, cultural practices, soil & climatic adaptation and utilization of the major cereal grains. Prerequisite: CSES 1203 or CSES 2103 or HORT 1203. *Instructor: TBD*

CSES 3550V Soil Profile Description (Fa) (1-2) Training for soil profile description writing and membership of judging teams. May be repeated for up to 2 hours of degree credit. *Instructor: Kristofor Brye*

CSES 3603 Metrics for Sustainable Agriculture (Fa) Analysis of productive agricultural systems necessary to meet expanding demand worldwide for food, feed, fiber, and fuel while preserving critical ecosystem services to avoid future catastrophic failures of the biosphere. Characterization of sustainable systems using well-defined metrics, indicators, and indices, including reference to sustainability certifications. Metrics for soil, water, atmosphere, and biodiversity. Applications in crop and animal production with scales from the field to watershed to eco-region. Examining the process and methodologies of integrating metrics into indices to support sustainable supply chain decisions. Discussion of life cycle analyses and current initiatives toward approaching agricultural systems sustainability. Technical course intended for students in agriculture, biology, business, engineering, and environmental sciences. *Instructor: TBD*

CSES 400V Special Problems (Sp, Su, Fa) (1-6) Work on special problems in crop, soil, and environmental sciences or related field. May be repeated for up to 6 hours of degree credit. *Instructor: Faculty*

CSES 4013 Advanced Crop Science (Fa) Fundamental concepts of crop physiology, crop improvement, seed science, and crop production systems. Recitation 3 hours per week. Prerequisite: CSES 2103. *Instructor: Team taught*

CSES 402V Special Topics (Irregular) (1-3) Studies of selected topics in crop, soil and environmental sciences not available in other courses. May be repeated for up to 12 hours of degree credit. *Instructor: Faculty*

CSES 41003 Plant Breeding (Even years, Fa) Basic principles involved in plant breeding programs to improve crop plants and seed programs. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: ANSC 3123 or BIOL 2323. *Instructor: Vieira*

CSES 41303 Ecology and Morphology of Weedy and Invasive Species (Fa) Study of weeds as economic pests occurring in both agricultural and nonagricultural situations and including poisonous plants and other specific weed problems. Gross morphological plant family characteristics which aid identification, the habitat of growth and distribution, ecology, competition, and allelopathy are discussed. Lecture 2 hours, laboratory 2 hours a week. Corequisite: Lab component. Prerequisite: CSES 2103
(or HORT 2003). *Instructor: Nilda Burgos*

CSES 4143 Principles of Weed Control (Sp) Advanced concepts and technology used in modern weed control practices and study of the chemistry and specific activity of herbicides in current usage. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: CHEM 1073 and CHEM 1071L and CSES 2003. *Instructor: Jason Norsworthy*

CSES 42204 Soil Fertility (Fa) Study of the soil's chemical, biological and physical properties, and human modification of these properties, as they influence the uptake and utilization of the essential nutrients by plants. Lecture 3 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: CSES 2201L and CSES 2203 and CHEM 1123/1121L or CHEM 1073/1071L and CHEM 2613/2611L. *Instructor: Trent Roberts*

CSES 4253 Soil Classification and Genesis (Odd years, Fa) Lecture and field evaluation of soil properties and their relation to soil genesis and soil classification with emphasis on soils of Arkansas. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: CSES 2203/2201L. *Instructor: Kristofor Brye*

CSES 4303 Bioenergy Feedstock Production (Sp) Overview of production and characteristics of cultivated crops, perennial grasses, and woody species as feedstocks for bioenergy. Fundamentals of plant growth factors, culture, harvest and storage, quality and improvement, and introduction to environmental impact, modeling, and resource utilization. Prerequisites MATH1203 and BIOL1543 or CSES1203. Courses in introductory chemistry or soil science are preferred. On-line Course *Instructor: TBD*

CSES 4553 Wetland Soils (Odd years, Sp) Focus on wetlands and wetland soils from a jurisdictional rather than ecological standpoint. Topics include wetland hydrology, hydric soil determination, and principles of wetland identification and delineation. Field emphasis meets 3 hours once per week (Pre-requisites: CSES 2203/2201L). *Instructor: Lisa Wood*

CSES 4620V Internship (Sp, Su, Fa) (1-6 hrs credit) Supervised practical work experience in crop management and environmental science to develop and demonstrate professional competence. Faculty approval of project proposal prior to enrollment and written and oral reports after the project is complete are required. Prerequisite: junior standing. May be repeated for up to 6 hours of degree credit. *Instructors: Kris Brye, Jason Norsworthy*

Teaching Faculty in the Department of Crop, Soil, and Environmental Sciences

Kristofor Brye (Office: AGRI 123; Phone: 479-575-5742; kbrye@uark.edu)
Professor of Applied Soil Physics and Pedology (Ph.D. University of Wisconsin, Madison)
Teaches: CSES 355V Soil Profile Description (Fa) (1-2 hrs credit);
CSES 4253 Soil Classification and Genesis (Fa, odd);
CSES 462V Internship (Sp, Su, Fa) (1-6 hrs credit); CSES 5224 Soil Physics (Sp); ENSC 3003 Introduction to Water Science (Sp); ENSC 3263 Soil and Water Conservation (Fa, even)

Nilda R. Burgos (Office: ALTH 222; Phone: 479-575-3984; nburgos@uark.edu)
Professor of Weed Science (Ph.D. University of Arkansas)
Teaches: CSES 4013 Advanced Crop Science (Sp); CSES 4133 Ecology and Morphology of Weedy and Invasive Plant Species (Fa)

Gerson Drescher (Office: CROP 120; Phone: 479-502-9708; gldresch@uark.edu)
Assistant Professor of Soil Fertility
Teaches: CSES 4103/5073 Advanced Crop Science (Sp); CSES 5033 Advanced Soil Fertility Plant Nutrition (Sp. Even)

Elvis Elli (Office: CROP 116; Phone: 479-502-9735; eelli@uark.edu)
Assistant Professor of Crop Physiology and Adaptation to Climate Change
Teaches: CSES 5013 Crop Physiology

Samuel Fernandes (Office: AG STAT Lab; Phone: 479-575-5667; samuelbf@uark.edu)
Assistant Professor of Agricultural Statistics and Quantitative Genetics
Teaches:

Kelsey Greub (Office: PTSC 106; Phone: N/A; klhoegen@uark.edu)
Teaches: CSES 10101 Introduction to CSES (Fa even); CSES 1203 Introduction to Plant Science; CSES 2102 Crop Science (Sp); CSES 3023 CSES Colloquium (Fa); CSES 33102 Cotton Production; CSES 3342 Cereal Grain Production; ENSC 10003H Honors Environmental Science; ENSC 4401 Soil Certification

David M. Miller (Office: AGRI 106; Phone: 479-575-5747; dmmiller@uark.edu)
Professor of Soil Chemistry (Ph.D. University of Georgia)
Teaches: CSES 2203 Soil Science (Fa, Sp); CSES 2201L Soil Science Laboratory (Fa, Sp); ENSC 3933 Environmental Ethics (Odd years, Sp)

Jason Norsworthy (Office: CROP 302; Phone: 479-575- 8740; jnorswor@uark.edu)
Professor of Weed Science (Ph.D. University of Arkansas)
Teaches: CSES 2013 Pest Management (Sp); CSES 4143 Principles of Weed Control (Sp); CSES 462V Internship (Sp, Su, Fa) (1-6 hrs credit)

Andy Pereira (Office: PTSC 112; Phone: 479-575-8435; apereira@uark.edu)
Professor, Anheuser-Busch and Arkansas Wholesalers Professorship in Plant Molecular Genetics (Ph.D. Iowa State University, Plant Molecular Genetics)
Teaches: CSES 5543 Genomics (Even Years, Sp)

Aurelie Poncet (Office: CROP 114; Phone: 479-575-3979; poncet@uark.edu)
Assistant Professor of Precision Agriculture
Teaches:

Trenton Roberts (Office: PTSC 115; Phone: 479-575-6752; tlrobert@uark.edu)
Research Assistant Professor (Ph.D. University of Arkansas, Soil Fertility)
Interim Department Head of CSES
Teaches: CSES 4224 Soil Fertility (Fa), CSES 4013 Advanced Crop Science (Sp)

Vaughn Skinner (Office: Farm; Phone: 479-575-5479; jskinner@uark.edu)
Resident Director, Agricultural Research & Extension Center (Ph.D. University of Arkansas)
Teaches: ENSC 3603 GIS for Environmental Science (Odd Years, Sp)

Shannon Speir (Office: Farm; Phone: N/A; slspeir@uark.edu)
Assistant Professor of Water Quality
Teaches: CSES 4023/4020L Water Quality (Fa)

Vibha Srivastava (Office: PTSC 109; Phone: 479-575-4872; vibhas@uark.edu)
Professor of Plant Tissue Culture and Transformation (Ph.D. Jawaharlal Nehru University, New Delhi)
Teaches: AFLS 401V-3, AFLS 401VH-3, and AFLS 501V-3 Merging Diverse Traditions into Modern Life (Jan intersession) Crop Biotechnology minor advisor; CSES 52104 Analytical Research Techniques; CSES 5233 Plant Genetic Engineering

Caio Canella Vieira (Office: PTSC 105; Phone: N/A; caioc@uark.edu)
Assistant Professor of Soybean Breading
Teaches: CSES 4103/4103L Plant Breeding (Fa)

Lisa Wood (Office: AGRI 105A; Phone: 479-575-5739; lswood@uark.edu)
Clinical Assistant Professor of Soil and Environmental Science (Ph.D. University of Arkansas)
Teaches: ENSC 1003/1001L Environmental Science and Laboratory (Fa, Sp); ENSC 3103 Plants and Environmental Restoration (Fa); ENSC 4263 Environmental Soil Science (Even, Sp); CSES 1203 Introduction to Plant Science (Fa, Sp); CSES 4553 Wetland Soils (Odd, Sp)

Organizational Chart of the CPSC Student

University of Arkansas System
President Donald Bobbitt

University of Arkansas Fayetteville
Chancellor Charles F. Robinson

Dale Bumpers
College of Agricultural, Food and Life Sciences
Dean Jeffery Edwards

Dept. of Crop, Soil, and Environmental Sciences
Department Head Paul DeLaune

Major
Crop Science

Minors:
Crop Biotechnology
Natural Resources Mgmt.
Pest Management
Soil Science
Agricultural Business
Sustainability & Others