Code # AG02 (2014)

**New/Special Course Proposal-Bulletin Change Transmittal Form**

**Undergraduate Curriculum Council** - Print 1 copy for signatures and save 1 electronic copy.

**Graduate Council** - Print 1 copy for signatures and send 1 electronic copy to [pheath@astate.edu](mailto:pheath@astate.edu)

|  |
| --- |
| **New Course or**  **Special Course (Check one box)**  *Please complete the following and attach a copy of the catalogue page(s) showing what changes are necessary.* |

|  |  |
| --- | --- |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **Department Chair:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **General Education Committee Chair (If applicable)** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **College Dean** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Graduate Curriculum Committee Chair** |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Vice Chancellor for Academic Affairs** |

1. Proposed Course Prefix and Number (For variable credit courses, indicate variable range.)

AST 1003

2. Course Title – if title is more than 30 characters (including spaces), provide short title to be used on transcripts. Title cannot have any symbols (e.g. slash, colon, semi-colon, apostrophe, dash, and parenthesis). Please indicate if this course will have variable titles (e.g. independent study, thesis, special topics).

Modern Agricultural Systems

3. Will this course be lecture only, lab only, lecture and lab, activity, dissertation, experiential learning, independent study, internship, performance, practicum, recitation, seminar, special problems, special topics, studio problems, student exchange, occupational learning credit, or course for fee purpose only (e.g. an exam)? Please choose one.

Lecture and Experiential Learning

4. What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental)?

Standard Letter

5. Is this course dual listed (undergraduate/graduate)?

No

6. Is this course cross listed? (If it is, all course entries must be identical including course descriptions. It is important to check the course description of an existing course when adding a new cross listed course.)

No

7. Brief course description (40 words or fewer) as it should appear in the bulletin.

Interactions among components of agricultural systems in crop and livestock production within and across different levels of hierarchy, with their natural, social, and economic environments, as well as with other land use systems.

8. Indicate all prerequisites and if this course is restricted to a specific major, which major. (If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

a. Are there any prerequisites?

First year students from any major in the College of Agriculture and Technology

b. Why?

This is an interdisciplinary introductory course that will be relevant to students from Agricultural Studies, Agricultural Business, Animal Science, Plant and Soil Science, and Applied Science.

9. Course frequency(e.g. Fall, Spring, Summer). Not applicable to Graduate courses.

Fall and Spring

10. Contact Person (Name, Email Address, Phone Number)

Peter Ako Larbi, [plarbi@astate.edu](mailto:plarbi@astate.edu), 870-972-2263

11. Proposed Starting Term/Year

Spring 2015

12. Is this course in support of a new program? No

If yes, what program?

Enter text...

13. Does this course replace a course being deleted? No

If yes, what course?

Enter text...

Has this course number been used in the past? No

*Submit Course Deletion Proposal-Bulletin Change Transmittal Form.*

14. Does this course affect another program? No

If yes, provide contact information from the Dean, Department Head, and/or Program Director whose area this affects.

Enter text...

15. Justification should include:

a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

This course will expose students to various systems of crop and animal production agriculture including modern techniques, machinery, and technology. It is meant to instill a multidisciplinary viewpoint and give students an appreciation of their specific majors in tandem with others, early in their college career. Students will gain knowledge about the relevance of various systems.

b. How does the course fit with the mission established by the department for the curriculum? If course is mandated by an accrediting or certifying agency, include the directive.

Modern agricultural problems are best tackled with multidisciplinary solutions. One of the college’s mission is “to prepare young men and women for entry and career advancement in the food, fiber and natural resources industry, which involves production (farming), agribusiness and value-added processing, public service and rural leadership”. In line with this mission, the course will equip students in various majors with a multidisciplinary mindset as a key component of their professional careers.

c. Student population served.

First year students in the College of Agriculture and Technology

d. Rationale for the level of the course (lower, upper, or graduate).

An introductory course with a multidisciplinary viewpoint to give students an appreciation of their specific majors in tandem with others, early in their college career.

16. Outline (The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

1. Definitions: Agriculture and related fields of study; Agricultural systems and system components; Agricultural sustainability

2. Systems thinking; ‘Big picture’ analysis; Problem solving in agricultural research and practice; The multidisciplinary approach

3. Overview of U.S. agriculture; Natural resource scarcity; Environmental degradation; Economic concerns; Social concerns; Systems approach in improving sustainability

4. Improving productivity and environmental sustainability 1: Soil management; Crop and Vegetation Diversity Management; Water use management; Nutrient management; Precision Agriculture

5. Improving productivity and environmental sustainability 2: Weeds, pests, and disease management in crops; Managing efficiency of animal production systems.

6. Site visitations to Cache River Valley Seed, LLC, Crop Production Services, and Greenway Equipment, Inc.

7. Animal welfare; Animal health; Mid-semester exams

8. Socioeconomic Dimensions: Economic security at farm level; Sustainability at the community level; Food security, safety and quality

9. Organic cropping systems; Alternative livestock production systems; Perennial agriculture systems

10. Factors influencing sustainable farming practices: Agricultural markets; Public policy; Educational and research institutions

11. Case Study 1: Mormon Trail Farm

12. Case Study 2: Ferrari Farms, Inc.

13. Case Study 3: Brookview Farm

14. Final Presentations

17. Course requirements (e.g. research papers, projects, interviews, tests, etc.)

Quizzes, Mid Semester exam, and Group Project Report with presentations

18. Special features (e.g. labs, exhibits, site visitations, etc.)

Site visitations to Cache River Valley Seed, LLC, Crop Production Services, and Greenway Equipment, Inc.

19. Department staffing and classroom/lab resources (Will this require additional faculty, supplies, etc.?)

No

20. What is the primary intended learning goal for students enrolled in this course?

To gain knowledge about various crop and animal production systems and their interrelationships with other land use systems

21. Reading and writing requirements:

a. Name of book, author, edition, company and year

“Toward Sustainable Agricultural Systems in the 21st Century”, Committee on Twenty-First Century Systems Agriculture, Board on Agriculture and Natural Resources, Division on Earth and Life Studies, National Research Council. The National Academies Press, 2010.

b. Number of pages of reading required per week: 30

c. Number of pages of writing required over the course of the semester: 20-30 per team of 10 max

22. High-Impact Activities (Check all that apply)

Collaborative assignments

Research with a faculty member

Diversity/Global learning experience

Service learning or community learning

Study abroad

Internship

Capstone or senior culminating experience

Other Explain: Enter text...

23. Considering the indicated primary goal (in Box #20), provide up to three outcomes that you expect of students after completion of this course.

**Outcome #1:** (For example, what will students who meet this goal know or be able to do as a result of this course?)

Students will be able to define various disciplines in agriculture, their roles, and their interactions in research and agricultural production

Learning Activity:(For example, what instructional processes do you plan to use to help students reach this outcome?)

Students will receive regular lectures plus additional special presentations from other experts (faculty members and practitioners) in different academic majors on how various system problems are defined and solved. Students will form multidisciplinary teams to identify an existing problem and develop a solution scheme that incorporates knowledge or skillset from more than two disciplines.

Assessment Tool: (For example, what will students demonstrate, represent, or produce to provide evidence of their learning?)

Each student will demonstrate their mastery through 3 to 5 quizzes and a mid-semester exam that will require application of the knowledge acquired. Each student group will develop a 20- to 30-paged multidisciplinary solution scheme and give a final presentation of the solution to the class

*(Repeat if needed for additional outcomes 2 and 3)*

**Outcome #2:**

Learning Activity:

Assessment Tool:

**Outcome #3**:

Learning Activity:

Assessment Tool:

24. Please indicate the extent to which this course addresses university-level student learning outcomes:

* 1. Global Awareness

Minimally  
Indirectly  
Directly

* 1. Thinking Critically

Minimally  
Indirectly  
Directly

* 1. Using Technology

Minimally  
Indirectly  
Directly

**From the most current electronic version of the bulletin, copy all bulletin pages that this proposal affects and paste it to the end of this proposal.**

**To copy from the bulletin:**

1. Minimize this form.
2. Go to <http://registrar.astate.edu/bulletin.htm> and choose either undergraduate or graduate.
3. This will take you to a list of the bulletins by year, please open the most current bulletin.
4. Find the page(s) you wish to copy, click on the “select” button and highlight the pages you want to copy.
5. Right-click on the highlighted area.
6. Click on “copy”.
7. Minimize the bulletin and maximize this page.
8. Right-click immediately below this area and choose “paste”.
9. For additions to the bulletin, please change font color and make the font size larger than the surrounding text. Make it noticeable.
10. For deletions, strike through the text, change the font color, and enlarge the font size. Make it noticeable.

**Agricultural Systems Technology (AST)**

**AST 1003. Modern Agricultural Systems** Multidisciplinary introduction to various crop and animal production systems, system interactions, problems, and solutions that lead to a sustainable agricultural productivity. Prerequisite, First year students in the College of Agriculture and Technology. Fall, Spring.

**AST 3503. Agriculture Spatial Technologies I** Basic understanding and utilization of data collection and assessment using global position system receiver, direct and remote sensing, and geographic information system software related to crop production and nutrient management. Prerequisite, PSSC 2813. Fall.

**AST 3513. Agriculture Spatial Technologies II** The course will concentrate on a study of the electromagnetic properties of earth objects, vegetation, soils, water, and the principles and operations of different sensors used to measure this energy. Prerequisite, AST 3503. Spring.

**AST 4003. Modern Irrigation Systems** The course will cover methods, equipment, current issues and future directions of irrigation, irrigation design and scheduling, drainage systems, irrigation measurements, performance evaluation, and impact on productive and sustainable agriculture. Prerequisite, MATH 1033 and PSSC 2813. Spring.

**AST 4013. Precision Application Technology** Techniques in soil and crop homogeneity detection and variable-rate precision application of crop inputs to increase productivity and enhance environmental sustainability. Spring.

**AST 4543. Advanced GIS for Agriculture and Natural Resources** Principles and advanced techniques of using Geographic Information System (GIS) concepts, equipment, and software used in agricultural, environmental, and natural resource applications. Prerequisite, AST 3543 with a grade of B or better. Spring.