Code # AG06

**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 [mmcginnis@astate.edu](mailto:mmcginnis@astate.edu)

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| --- |
| **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.* |

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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 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.)

PSSC 4343

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).

Seed Production, Processing and Analysis

(Seed Prod, Proc and Analysis)

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 lab

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)?

Yes

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.

Methods of producing quality seeds and seed stocks, processing methods, and techniques of seed analysis and grading..

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?

PSSC 1303

b. Why?

This is an upper level PSSC courses and uses the fundamentals provided in lower level plant production courses.

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

Spring, even

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

J. Kim Pittcock, [kpittcoc@astate.edu](mailto:kpittcoc@astate.edu); 870-972-2847

11. Proposed Starting Term/Year

Spring 2014

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? Yes

If yes, what course?

PSSC 4342 Seed Analysis and Processing

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 provides the fundamentals of seed production, seed processing and quality analysis of the seed. Goals for the course: students will be able to understand the final component in agronomic and horticulture production of seeds for either the next crop generation or for utilization in the feed, food, oil or fiber industries. They will also learn the various processing procedures of each crop and the tests which are performed to analyze seeds.

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.

One of the missions in the College of Agriculture and Technology is to prepare students with holistic understanding in all aspects of the agricultural industry; this would include the area of seed production, processing and analysis. The course provides the final stage of crop production with an emphasis on the seeds and the processing or analysis required, depending on the final seed usage. These are areas that are not covered within the current content of the college’s courses.

c. Student population served.

Upper level students within the College of Agriculture and Technology, primarily plant and soil science students..

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

This course uses materials and topics learned in lower level plant and soil science classes as the foundation for this class.

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.)

Week 1 – Seed industry, seed morphology and anatomy

Week 2 - Seed chemistry/ composition

Week 3 - Pollination; Fertilization; Seed formation

Week 4 - Seed dormancy, germination, seedling establishment

Week 5 - **Exam1;** Production of fiber and oil seed crops

Week 6 – Production of feedstock crops

Week 7 - Production of food crops

Week 8 - Seed and seedling vigor; Seed quality; Seed viability

Week 9 - **Exam 2** Seed testing; Seed longevity

Week 10 - Seed deterioration

Week 11 - Seed processing, conditioning

Week 12 - Seed processing equipment

Week 13 - Seed drying and equipment

Week 14 - **Exam 3**; Seed laws - Federal and State

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

Group project on crop production, 1 research papers, exams

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

Labs will consist of many seed testing procedures, greenhouse germination studies, and site visits to production fields, cotton gin, and a rice mill.

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?

The primary learning goal is for the student to understand the relationship between production in the field and how it affects or determines the processing procedures and the final quality of the seed.

21. Reading and writing requirements:

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

Seed Production: Principles and Practices, Miller F. McDonald and Lawrence O. Copeland, 2nd edition, Springer Science, 2012

b. Number of pages of reading required per week: 15-20

c. Number of pages of writing required over the course of the semester: 15

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?)

The students will be able to analyze seed testing and the resulting testing data.

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

Students will conduct four seed testing procedures on several crop species.

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

The students will be required to keep a lab notebook, record weekly observations, and write an evaluation and data analysis of the seed tests.

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

**Outcome #2:**

The students will be able to identify the processing procedures of the major seed crops.

Learning Activity:

The students will tour a cotton gin and a rice mill to see the processing equipment and procedures.

Assessment Tool:

The students will take notes during the tours and will write summaries of the tours and what knowledge they gained from the experience.

**Outcome #3**:

The students will be able to differentiate the production systems of the major seed crops.

Learning Activity:

The students will create a group project on production of each major seed crop.

Assessment Tool:

The students will present a PowerPoint group project to the class.

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.

Page 400

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

**PSSC 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, PSSC 3503. Spring.

**PSSC 3802. Pasture and Forage Crops** Introduction to important forage and pasture crops in the mid south region. Discussions will include cropping systems, plant growth and develop­ment, physiology, and environmental considerations. Prerequisite, PSSC 1303. Fall, odd.

**PSSC 4313. Plant Growth and Development** Auxins, gibberellins, and various other regulators of plant growth, also phenomena such as flowering and dormancy. Prerequisites, CHEM 1052, HORT 2253 and PSSC 1303. Fall.

**~~PSSC 4342. Seed Analysis and Processing~~** ~~Techniques and principles of seed analysis and grading, methods of producing and processing quality seeds and seed stocks. Demand.~~

**PSSC 4343. Seed Production, Processing and Analysis** Methods of producing quality seeds and seed stocks, processing methods, and techniques of seed analysis and grading. Prerequisite PSSC 1303. Spring, even.

**PSSC 4513. Plant Biotechnology** Course materials will address the why and how of plant gene transfer plus the issues involved in making those plants part of the agricultural landscape. Dual listed as PSSC 5513. Prerequisite: AGRI 2213 or BIOL 3013 or permission of instructor. Spring.

**PSSC 4713. Soil Quality Assessment and Interpretation** A study of the indicators of soil quality, documentation and measurement of soil quality, interpretations of soil quality, impacts and effects of management of soil quality, and the role of conservation planning in improving soil quality. Pre­requisite, PSSC 2813. Demand.

**PSSC 4804. Principles of Crop Production** Introduction to agronomic cropping systems which includes production systems, concepts related to crop selection and genetics, establishment and management of the crop, and harvest management. Environmental issues related to crop produc­tion and sustainability are also evaluated. Prerequisites, PSSC 1303 and PSSC 2813. Spring, Odd.

**PSSC 4813. Soil Fertility** Principles involved in maintaining and increasing fertility of soil. Pre­requisite, PSSC 2813, CHEM 1013, and CHEM 1011. Spring, even.