Mission and Purpose of the Soil and Crop Science Program

Students majoring in Soil and Crop Science will be prepared for careers as resourceful, ethically responsible, and competent agronomists by combining their liberal arts education with professional coursework and practical experience. Students completing this program will be prepared to pursue careers in agronomy or continue their education through advanced study. The Soil and Crop Science program supports the UWP mission of providing baccalaureate degree programs that meet primarily regional needs. Students graduating with Soil and Crop Science majors have enjoyed job placements near 100% in careers that support Agriculture, the leading state and regional industry.

Program Objectives and Student Learning Outcomes

1. Conceptualize, understand, and apply chemical, physical, biological, and agronomic sciences to address practical agronomic problems.
   a. Students will conceptualize the various factors influencing crop production including climate, tillage, seeding, soil fertility, plant nutrition, harvesting methods, and water availability.
   b. Students will identify common crops and weeds, and be able to diagnose crop diseases, pests, and nutrient deficiencies encountered in crop production.
   c. Students will apply the principles of nutrient and pest management in simulated and real-world scenarios to address the issue of excessive nutrient and pesticide usage.

2. Apply scientific principles to gather, analyze, and interpret agronomic data
   a. Students will conduct laboratory analyses to accurately determine physical, chemical, and biological properties of soils.
   b. Students will interpret soil test information and make management decisions based on state recommendations.
   c. Students will conduct analyses to determine grain and forage quality and rank the quality using industry-accepted systems.
   d. Students will evaluate crop performance in field trial data using basic knowledge of statistics.

3. Effectively and accurately communicate agronomic information in written and oral forms.
   a. Students will write reports based on agronomic research data to be read by wide audience.
   b. Students will present the results of research and class projects in seminar format.
4. Develop team work skills
   a. Students will demonstrate the ability to work in teams on class projects.
   b. Students will be encouraged to participate in the Collegiate Crops Judging and Soils Judging teams.

5. Use and become familiar with new technologies in agronomy and related sciences.
   a. Students will contrast crop improvement methods that use traditional breeding techniques with those using biotechnology.
   b. Students will use or identify tools used in precision agriculture, including global positioning systems, satellite imagery, yield monitors, and various environmental monitoring devices. The practical application of precision agriculture tools and techniques will be evaluated.

6. Understand the professional, legal, and ethical responsibilities associated with careers in agronomy.
   a. Students will have an appreciation of the social and ethical responsibilities that go along with agronomic decision-making through exposure to a wide range of social and environmental issues related to agriculture.
   b. Students will debate controversial issues in agronomic sciences, including the use of genetically improved crops, water quality regulations affecting the use of fertilizers and pesticides, and the loss of cropland through urbanization.
   c. Students will understand sustainable crop production by describing the principles of nutrient and pest management, and soil and water conservation.

**Assessment Matrix**

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<thead>
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<th>Program Objective</th>
<th>Internship evaluation</th>
<th>Independent study evaluation</th>
<th>Placement data</th>
<th>Employer survey</th>
<th>Senior seminar evaluations</th>
<th>Class learning evaluations</th>
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Because the program is limited to one full time and one 0.5 time faculty position, few new evaluation tools will be implemented. Instead, modifications to existing assessment tools will be made to fit the program objectives described above.
Assessment Tool #1: Internship Evaluation
All students in the major are required to complete an internship or a special problems topic related to biotechnology, crops, or soils. Students obtain internships through a variety of methods including on-campus interviews, requests by employers through the university, or by seeking out potential employers on their own. Interns are evaluated by their work supervisor and through a written report submitted at the end of the internship. In addition, faculty members visit interns to check on progress and visit with supervisors. The supervisor and written reports are evaluated by a program faculty member.

Assessment Tool #2: Independent Study Evaluation
An alternative to an internship is a special problems course of at least three credits. Students choose special problems topics under the guidance of program faculty. Special problems courses can include field study, laboratory projects, or literature reviews of a specific topic related to agronomic science. All students must submit a written report at the end of the project. The report is graded by program faculty according to the evaluation form shown on page A-1.

Assessment Tool #3: Placement Data
Placement data compiled by School of Agriculture (SOA) faculty will be used to generally evaluate student’s ability to compete for professional agronomic careers, which requires proficiency in all of the above mentioned program objectives. Specifically, graduate school placement rates and will be used to evaluate program objectives 1 and 2.

Assessment Tool #4: Employer Survey
An employer survey is proposed to provide an outside review of student competencies. Employer information obtained through SOA exit surveys will be used to contact employers approximately one year after students are hired. Questions pertaining to program objectives will be used to evaluate the success or need for improvement in specific program areas.

Assessment Tool #5: Senior Seminar
The senior seminar course is the culmination of the students training in soil and crop science. The student must choose a topic of interest in agronomic sciences and complete a review of refereed scientific literature pertaining to the topic. Students present the seminar before fellow students and at least one faculty member. The student must successfully answer questions pertaining to the topic they are presenting. The seminar is evaluated by students and faculty using standard forms shown on pages A-2 and A-3.

Assessment Tool #5: Class Learning Evaluations:
Class learning evaluations will be used to evaluate specific student learning outcomes. The evaluations may consist of exams or quizzes pertaining to specific course content given at the beginning and end of the semester. Improvement in score and increased confidence will be used to document success in achieving student learning outcomes. An example quiz to evaluate student learning in the AGSCI 1260 – Crop Science course is shown on page A-4.