

Program Assessment Report
M.S. in Crop, Soil, and Environmental Sciences
University of Arkansas
Academic Year 2022-2023

1. Department Name & Contact Information

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2. Department Mission

The mission of the Department of Crop, Soil, and Environmental Sciences is to provide superior education programs at the undergraduate and graduate levels, conduct innovative research and extension programs in the crop, soil, and environmental sciences and provide superior service for citizens of Arkansas and the nation.

3. Program Goals

1. Graduates have the discipline-specific knowledge in crop, weed, soil, water, and environmental sciences required to perform successfully in appropriate-level private, government, or academic positions.
2. Graduates are able to critically analyze, synthesize, and evaluate new information to make informed decisions.
3. Graduates have the ability to solve complex, multidisciplinary problems.
4. Graduates are able to prepare and synthesize information to effectively communicate, both orally and in writing, with technical or scientific and non-technical audiences.
5. Graduates have expertise in research and analytical skills through completion of a thesis research project.

4. Student Learning Outcome

1. Students will demonstrate the appropriate depth and breadth of discipline specific knowledge required to function as expert crop, weed, environmental, soil, or water science professionals.
2. Students will demonstrate the ability to critically evaluate situations or scenarios to arrive at well thought out and supported decisions and outcomes.
3. Students will demonstrate the ability to work through and solve complex, multidisciplinary problems.
- 4a. Students will demonstrate the skills required to effectively communicate technical/scientific information in oral platforms to general and professional audiences.
- 4b. Students will demonstrate the ability to integrate, organize, and effectively present written reports of technical/scientific information to general and professional audiences.
5. Students will contribute to the advancement of science by acquiring skills (e.g. conceptual, statistics, laboratory or field skills, etc.) to fulfill project requirements to generate original and independent research data.

A. Assessment Measure for Outcomes

- Achievement is measured at the completion of a student's program during the **thesis defense, scored using a rubric.**
- This is a **direct** measure of student learning.
- Graduate advisory / thesis examination committee is the responsible party.
- We aim to capture at least 50% of graduating students.
- Depth and breadth of discipline specific knowledge learned, and ability to think critically, logically and progressively through multiple dimensions of a complex scenario or issue to solve problems are assessed through oral questions posed by a thesis examination committee. Effective oral communication is evaluated during a presentation and question and answer period during the thesis defense. The thesis advisory / examination committee evaluates the delivery of presentation, effectiveness of visual aids, and quality and organization of content. The committee also asks questions following the presentation. The length of the question and answer period (number and type of questions posed to the student) is subject to the committee's discretion based on the student's background and research focus, presentation provided by the student, and responses to questions. Effective written communication skills are evaluated through the written thesis. The thesis advisory / examination committee evaluates the quality and organization of content, quality of references, style, and adherence to convention in writing, attention to detail, and overall effectiveness and credibility in delivery. Demonstration of mastery of research and analytical skills (e.g. conceptual, statistics, laboratory or field skills, etc.) is assessed during the thesis defense. The thesis advisory / examination committee will evaluate the independence and quality of the student's development of skills in completion of the research through oral questioning in the thesis defense and reading of the written thesis.
- The rubric used for scoring is attached to this assessment plan.

B. Acceptable and Ideal Targets (not required for indirect measures).

- Acceptable: 70% of M.S. students defending their thesis will score "proficient" or greater for student learning outcomes 1 and 4a and 5; 60% of M.S. students defending their thesis will score "proficient" or greater for student learning outcomes 2, 3, and 4b.
- Ideal: 90% of M.S. students defending their thesis will score "proficient" or greater for student learning outcomes 1 and 4a and 5; 80% of M.S. students defending their thesis will score "proficient" or greater for student learning outcomes 2, 3, and 4b.

5. Results of Analysis of Assessment of Student Learning Outcome & Summary of Findings

- Nineteen rubrics were completed for seven graduating M.S. students. Among the rubrics completed, faculty indicated master of science candidates are receiving a satisfactory education and graduating with proficient levels of discipline-related learning.
- For all outcomes, learning was proficient (or at mastery level) for 86 to 100% of the graduating M.S. students.
- Rubric completion increased in 2023 from the previous academic year. While it is unclear if submission of rubrics is related to fluctuations in numbers of graduating M.S. students or completion rate of rubrics, 2023 rubric submissions are a positive indication that electronic submission of the assessment rubric enhances participation by committee members.

6. Any Changes to Degree/Certificate Planned or Made on the Basis of the Assessment and Analysis

- Assessment data from the academic year indicates strong learning among CSES MS students. There are currently no changes planned for the M.S. degree.

7. Any Changes to the Assessment Process Made or Planned

- In 2021-2022, CSES constructed an electronic form for submission through Qualtrics in order to encourage completion of Graduate SLO Assessment rubrics while maintaining anonymity.
- The CSES Department encourages electronic submission of Graduate SLO Assessment through periodic reminders, especially towards the end of the semester.

8. Supporting Attachments

CSES Graduate SLO Assessment rubric adapted from multiple Association of American Colleges and Universities rubrics (e.g. critical thinking, problem solving, oral and written communication skills, etc.) can be found at https://uark.qualtrics.com/jfe/form/SV_7UpjzfUSRRmPyxo.