AFLS PhD Academic Assessment Report
Horticulture Concentration
Department of Horticulture
University of Arkansas
2024-2025 Academic Year

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Departmental Mission: The mission of the Department of Horticulture is to conduct applied and basic research to support and enhance the Arkansas horticultural industries; and to conduct high quality teaching and student research programs leading to BSA, MS, and PhD degrees.

Program Goals:
The following outlines the program goals and expectations for a PhD in the AFLS PhD Horticulture Concentration degree.
Graduates have the discipline-specific knowledge in horticultural and turf sciences required to perform successfully in appropriate-level private, government, or academic positions.

1. Graduates are able to critically analyze, synthesize, and evaluate new information to make informed decisions.
2. Graduates have the ability to solve complex, multidisciplinary problems.
3. Graduates are able to prepare and synthesize information to effectively communicate, both orally and in writing, with technical or scientific and non-technical audiences.
4. Graduates have expertise in research and analytical skills to conduct thesis research to contribute to the advancement of science.

Student Learning Outcomes
The following outlines specific Student Learning Outcomes and defined in terms of the knowledge, skills, and abilities that students will know and be able to do as a result of completing a program. These student learning outcomes are directly linked to the accomplishment of the program goals.

1. Students will demonstrate the appropriate depth and breadth of discipline specific knowledge required to function as horticultural or turf 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.
4. Communication skills
    a. Students will demonstrate the skills required to effectively communicate technical/scientific information in oral platforms to general and professional audiences.
    b. 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 research and

analytical skills (e.g. conceptual, statistics, laboratory or field skills, etc.) to fulfill project requirements.

Assessment Measure for Outcome 1

- Achievement will be measured at the completion of a student's program during the **dissertation defense, scored using a rubric.**
- This is a ***direct*** measure of student learning.
- Depth and breadth of discipline specific knowledge learned will be assessed through oral questions posed by a thesis examination committee. The length of the defense and number and type of questions will be subject to the committee's discretion based on the student's background and research focus and responses to questions.
- The rubric used for scoring is attached to this assessment plan.

Acceptable and **Ideal Targets**.

- Acceptable: 70% of PhD students defending their dissertation will score "proficient" or greater.
- Ideal: All of the PhD students defending their dissertation will score "proficient" or greater.

Key Personnel

The graduate advisory / dissertation examination committee is the responsible party.

Assessment Measure for Outcome 2

- Achievement will be measured at the completion of a student's program during the **dissertation defense, scored using a rubric.**
- This is a ***direct*** measure of student learning.
- Ability to think critically will be evaluated through oral questions posed by a thesis examination committee. The length of the defense and number and type of issues and scenarios posed to the student to evaluate critical thinking ability will be subject to the committee's discretion based on the student's background and research focus and responses to questions.
- The rubric used for scoring is attached to this assessment plan.

Acceptable and **Ideal Targets**

- Acceptable: 70% of PhD students defending their dissertation will score "proficient" or greater.
- Ideal: All of the PhD students defending their dissertation will score "proficient" or greater.

Key Personnel

- Graduate advisory / dissertation examination committee is the responsible party.

Assessment Measure for Outcome 3

- Achievement will be measured at the completion of a student's program during the **dissertation defense, scored using a rubric.**
- This is a ***direct*** measure of student learning.
- Ability to think logically and progressively through multiple dimensions of a complex scenario or issue to solve problems will be evaluated through oral questions posed by a dissertation examination committee. The length of the defense and number and type of issues and scenarios posed to the student to evaluate problem solving ability will be subject to the committee's discretion based on the student's background and research focus and responses to questions.
- The rubric used for scoring is attached to this assessment plan.

Acceptable and **Ideal Targets**

- Acceptable: 70% of PhD students defending their thesis will score "proficient" or greater.
- Ideal: All of the PhD students defending their dissertation will score "proficient" or greater.

Key Personnel

- Graduate advisory / dissertation examination committee is the responsible party.

Assessment Measure for Outcome 4a

- Achievement will be measured at the completion of a student's program during the **dissertation defense, scored using a rubric.**
- This is a ***direct*** measure of student learning.
- Effective oral communication will be evaluated during a presentation and question and answer period during the dissertation defense. The dissertation advisory / examination committee will evaluate the delivery of presentation, effectiveness of visual aids, and quality and organization of content. The committee will also ask questions following the presentation. The length of the question and answer period (number and type of questions posed to the student) will be subject to the committee's discretion based on the student's background and research focus, presentation provided by the student, and responses to questions.
- The rubric used for scoring is attached to this assessment plan.

Acceptable and **Ideal Targets**

- Acceptable: 70% of PhD students defending their dissertation will score "proficient" or greater.
- Ideal: All of the PhD students defending their dissertation will score "proficient" or greater.

Key Personnel

- Graduate advisory / dissertation examination committee along with the seminar instructor are the responsible parties.

Commented [DEK1]: Should seminar instructor take part in evaluating student's research exit seminar?

Assessment Measure for Outcome 4b

- Achievement will be measured at the completion of a student's program during the **dissertation defense, scored using a rubric.**
- This is a ***direct*** measure of student learning.
- Effective written communication skills will be evaluated through the written dissertation. The dissertation advisory / examination committee will evaluate 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.
- The rubric used for scoring is attached to this assessment plan.

Acceptable and **Ideal Targets**

- Acceptable: 70% of PhD students defending their dissertation will score "proficient" or greater.
- Ideal: All of the PhD students defending their dissertation will score "proficient" or greater.

Key Personnel

- Graduate advisory / dissertation examination committee is the responsible party.

Assessment Measure for Outcome 5

- Achievement will be measured at the completion of a student's program during the **dissertation defense, scored using a rubric.**
- This is a ***direct*** measure of student learning.
- The dissertation advisory / examination committee will evaluate the quality of research and contribution of the scholarship to the advancement of science and the initiative, independence and quality of the student skills development in completion of the research through oral questioning in the dissertation defense and reading of the written dissertation. The length of the defense and number and type of questions will be subject to the committee's discretion based on the student's background and research focus and responses to questions.
- The rubric used for scoring is attached to this assessment plan.

Acceptable and **Ideal Targets**

- Acceptable: 70% of PhD students defending their dissertation will score "proficient" or greater.
- Ideal: All of the PhD students defending their dissertation will score "proficient" or greater.

Key Personnel

- Graduate advisory / dissertation examination committee is the responsible party.

Summary of Findings

For the 2024-2025 academic year, no students completed the requirements for the AFLS PhD Horticulture Concentration

Recommendations/Actions

Based on the fact that no student completed the PhD program requirements for the 2024-2025 academic year, no assessments for graduating students are available.

Department of Horticulture
Dissertation Defense Performance Assessment Rubric

Student Learning Outcomes

To assist with program assessment, in which of the following student learning outcomes did the student demonstrate proficiency? Mark performance on a scale of 1 (not prepared, unskilled) to 4 (advanced, mastery of skill) in each Learning outcome box.

Learning outcome	**4** Advanced/Mastery	**3** Proficient/Adequate	**2** Developing/Beginning	**1** Unprepared/Unskilled
Depth and breadth of discipline related knowledge	Shows higher levels of learning - Clearly explains key concepts and principles; Understands current, relevant literature, and gaps in science; apply concepts to analyze new situations; demonstrates mastery of technical, statistical and/or relevant computer skills	Understands and applies key concepts and principles; Understands current, relevant literature; Collects, summarizes, correctly analyzes data; demonstrates competency of technical, statistical and/or computer skills relevant to discipline	Understands and applies key concepts and principles; some understanding of relevant literature; demonstrates adequate use of some technical, statistical and/or computer skills relevant to discipline	Incomplete and uncomprehensive knowledge of basics principles and ability to apply principle and concepts; demonstrates incomplete or unrefined use of technical, statistical and/or computer skills relevant to discipline
Critical thinking	Clearly and comprehensively states issue/problem. Thoroughly reviews literature and interprets data to evaluate scenarios and create solutions to new problems. Systematically and methodically analyzes own and others' assumptions and carefully evaluates relevance of contexts and limitations of a position. Thesis is imaginative, multidimensional, and conclusions are logical and reflect informed evaluation.	Issue/problem is stated, described, and clarified critically, so that understanding is not seriously impeded by omissions. Interpretation/evaluation is supported with evidence from the literature, but literature and experts are subject to questioning. Identifies own and others' assumptions, relevant contexts when presenting a position. Conclusions are logical and related to outcomes.	Issue/problem is stated critically, but is incompletely defined or explored. Literature review is incomplete, and there is little questioning of experts and assumptions. Acknowledges different sides of an issue. Conclusion is logically tied to information but is unidimensional and related to only some of the outcomes.	Unclear or ill-described issue/problem. Information is collected without interpretation or evaluation. Viewpoints of experts are not questioned. Shows emerging awareness of assumptions. Simple and obvious position. Conclusion is inconsistently tied to some of the information discussed; related outcomes are oversimplified.

Problem solving	Constructs clear and insightful problem statement with evidence of all relevant contextual factors. Proposes one or more hypotheses and tackles problem with multiple approaches. Sensitive to ethical, logical, historical, and cultural dimensions of the problem. Deep and elegant, thorough and insightful, logical explanations. Examines feasibility of solution, and weighs impacts of solution, and considers need for further work.	Constructs a problem statement with adequate detail and evidence of most relevant contextual factors. Identifies multiple approaches for problem solving, some of which apply within a specific context. Comprehends the problem. Sensitive to ethical, logical, historical, and cultural considerations. Evaluation of solutions is adequate, and examines feasibility of solution, weighs impacts of solution, and considers some of the needs for further work.	Superficial problem statement with evidence of most relevant contextual factors. Identifies a single, "off the shelf" approach for solving the problem that does apply within a specific context. Evaluation of solution(s) is brief but includes history of problem, logic/reasoning, solution feasibility, and impacts of solution. Addresses the problem, but ignores relevant contextual factors and need for further work.	Limited ability to define a problem statement, related contextual factors, or specific or relevant solutions Superficial evaluation and/or irrelevant implementation of solutions that does not directly address the problem statement or consideration of need for further work.
Communication skills - oral	Clearly organized, cohesive content. Imaginative, memorable, and compelling. Presentation enhances effectiveness. Delivered at appropriate level. Polished delivery techniques (posture, gesture, eye contact, and vocal expressiveness). Confident speaker. Variety of supporting materials reference information or analysis that significantly supports the presentation or establishes credibility or authority. Central message is compelling (precise, appropriate, memorable, and strongly supported.)	Clear and consistent organization. Thoughtful and effective presentation. Delivered at appropriate level. Quality in delivery techniques (posture, gesture, eye contact, and vocal expressiveness. Supporting materials reference information or analysis that generally supports the presentation or establishes the presenter's credibility. Central message is clear and consistent with the supporting material.	Intermittently observable organizational pattern. Mundane language partially supports the presentation effectiveness. Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation understandable. Supporting materials partially supports the presentation or establishes the presenter's credibility/authority on the topic. Central message is basically understandable.	Organizational pattern is not observable. Unclear language. Presentation is not appropriate to audience. Delivery detracts from the understandability of the presentation, and is uncomfortable. Insufficient supporting materials make reference to information or analysis that minimally supports the presentation or establishes the presenter's credibility/authority on the topic. Central message can be deduced, but is not explicitly stated in the presentation.

Communication skills - written	Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focused. Appropriate, relevant, and compelling content illustrates mastery of the subject. Detailed attention to and successful execution of organization, content, presentation, formatting, and stylistic choices. Skillful use of high-quality, credible, relevant sources to develop ideas. Clear, fluent, and virtually error-free.	Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s). Appropriate, relevant, and compelling content explores ideas. Organized. Credible, relevant sources to support ideas. Uses straightforward language that generally conveys meaning to readers. Few errors.	Demonstrates awareness of context, audience, purpose, and to the assigned tasks(s). Appropriate and relevant content develops and explores ideas through most of the work. Basic organization. Use of credible and/or relevant sources to support ideas. Generally conveys meaning, although writing may include some errors.	Demonstrates minimal attention to context, audience, purpose, and to the assigned tasks(s). Uses appropriate and relevant content to develop simple ideas in some parts of the work. Attempts to use a consistent system for basic organization and presentation. Attempts to use sources to support ideas in the writing. Language and errors sometimes impede meaning.
Expertise in Research & Analytical Skills	Work contributes to advancement of science; adds new contribution to science; Student masters necessary skills (e.g. conceptual, statistics, laboratory or field skills, etc.) for comprehensive project completion.	Work adds to database of scientific knowledge by confirming or clarifying previous results; student works with minimal guidance. Student is proficient in skills (e.g. conceptual, statistics, laboratory or field skills, etc.) for project completion.	Work adds to database of knowledge but does not advance science; student completes some tasks independently. Student is proficient in some skills (e.g. conceptual, statistics, laboratory or field skills, etc.) necessary for project completion.	Work does not advance science; work needs supervision and review to proceed.

Department of Horticulture
Dissertation Defense Performance Assessment Rubric

Defending Graduate Student _____

Major Advisor _____

Degree PhD

Date of defense _____

Student Learning Outcomes	**Score using HORT Graduate SLO Rubric**
1. Depth & breadth of discipline related knowledge	_____
2. Critical thinking	_____
3. Problem solving	_____
4a. Communication skills – oral	_____
4b. Communication skills – written	_____
5. Expertise in research and analytical skills	_____