

**AFLSPH - HORT Ph.D. Program
Department of Horticulture
Dissertation Defense Performance Assessment Rubric**

Defending Graduate Student _____

Major Advisor _____

Degree Ph.D. _____

Degree emphasis (AFLSPH - HORT) _____

Date of defense _____

Student Learning Outcomes

Score using AFLSPH-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 _____

Other

Please include any comments you have regarding assessment of this graduate student's achievement towards student learner outcomes, or in assessment of the AFLSPH-HORT graduate student program.

AFLSPH - HORT Ph.D. Program
Department of Horticulture
University of Arkansas

Program Goals

1. Enhance the regional and national reputation of the program by completing Ph.D. students who make substantial contributions to the sciences in industry, academic and public jobs.
2. Educate students to perform original research that adds to the body of knowledge in the biological, agricultural or horticultural sciences, and prepares the students to be successful in their respective careers.
3. Students will graduate with the potential to make significant impacts in society by generating knowledge to improve agricultural practices that guarantee food security, promote environmental sustainability and profitability of farmers.

Student Learning Outcomes

1. Students will have the ability to prepare and deliver an oral presentation that is appropriate for a range of audiences and conveys a clear, relevant, scientifically-sound and memorable message.
2. Students will have the ability to write for a range of audiences in a clear, scientifically-sound and concise synthesis of information conveying results, implications and contributions to their field of study.
3. Students will have the ability to identify a problem, develop hypotheses, apply and modify existing research methodologies, and critically evaluate one's own findings and those of others while adhering strictly to ethical principles.
4. Students will conduct and complete an original research project that adds to the body of scientific knowledge in the plant sciences and/or agriculture, and analyze, compile and disseminate the final results and data.

Means of assessment

A mean rubric score for each rubric must be 2 for the research proposal and 2.7 for the defense to receive a passing decision.

Reporting of results

Evaluating the students while they are taking courses and crafting their proposal will be used to determine what skills and knowledge should be enhanced by courses and additional mentoring for individual students. Comparing common deficiencies among students will highlight areas requiring continued improvement for the program and student mentoring process. Results will be reported as ranges and means of student performance annually and progress will be examined using three-year rolling averages.

Timeline from assessment and analysis. Rubrics will be used twice to assess student progress. The first assessment will be before the completion of the first year in their initial advisory committee meeting for their research proposal. An evaluation of the student that exceeds the benchmark will result in course and proposal approval. Levels below the benchmark could result in additional coursework and/or clarification in dissertation proposal. The second assessment will be at the student's defense. The major advisor and all advisory committee members will complete all the rubrics as part of assessing the student's progress. The rubrics will be collected by the major advisor and provided to the Head of the advisor's academic department and to the Graduate Coordinator.

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 dissertation 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 (not required for indirect measures).

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

Key Personnel (who is responsible for the assessment of this measure).

- 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 dissertation 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 (not required for indirect measures).

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

Key Personnel (who is responsible for the assessment of this measure).

- 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 (not required for indirect measures).

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

Key Personnel (who is responsible for the assessment of this measure).

- 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 (not required for indirect measures).

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

Key Personnel (who is responsible for the assessment of this measure).

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

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 (not required for indirect measures).

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

Key Personnel (who is responsible for the assessment of this measure).

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

- 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 (not required for indirect measures).

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

Key Personnel (who is responsible for the assessment of this measure).

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

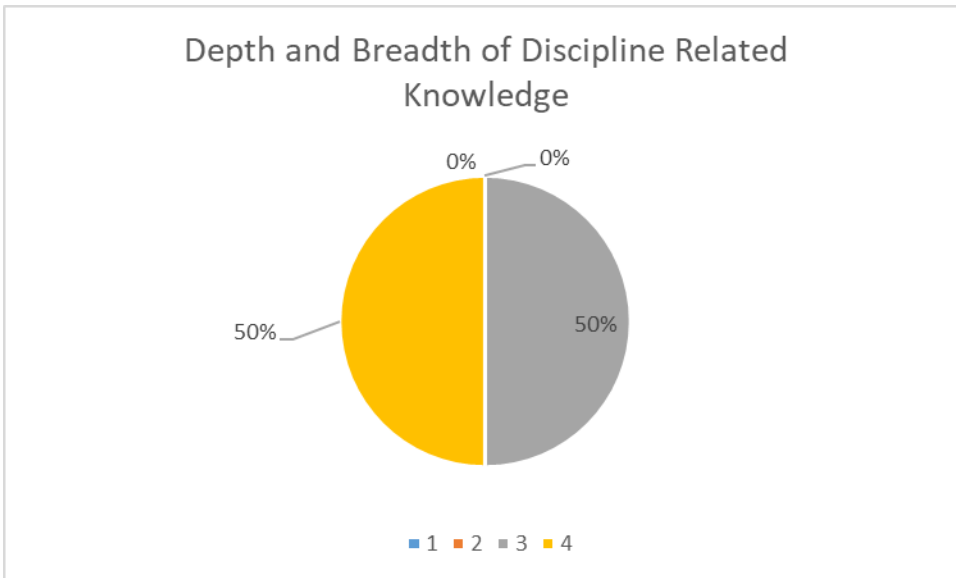
Summary of Findings – Academic Year 2022-23:

This is the fourth year of the AFLSPH – HORT assessment. There were two graduate students in the current year for assessment. Both students demonstrated proficiency or mastery in the assessment rubric for all program goals measurements meeting the Ideal Target outlined in the document. Students continue to perform at a high level.

Recommendations:

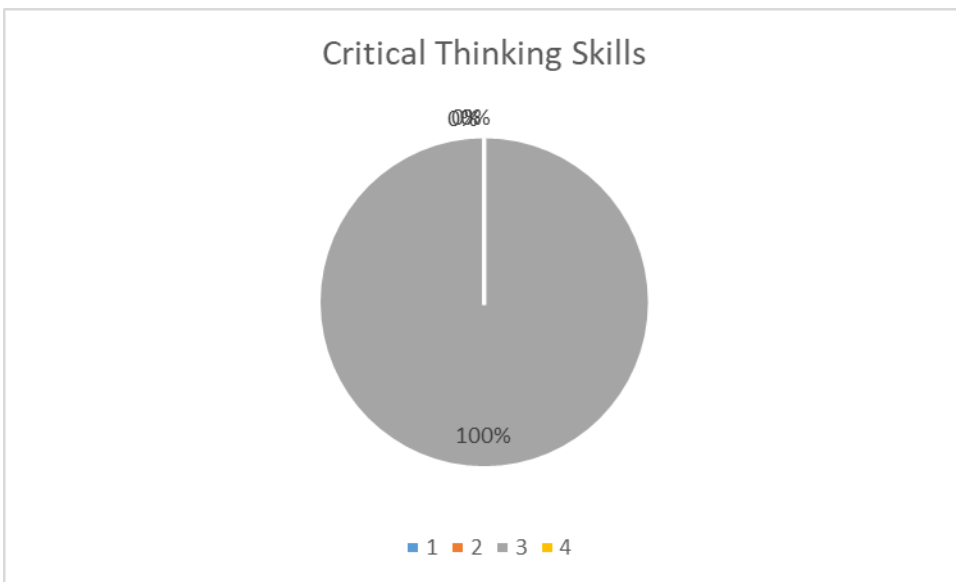
There are no recommendations at this time.

Figure 1. Discipline related knowledge assessment for graduating AFLS PH.D. students 2020-21.



Legend Values: Scale of 1 (not prepared, unskilled) to 4 (advanced, mastery of skill). See Thesis/Dissertation Defense Performance Assessment Rubric below.

Figure 2. Critical thinking skills assessment for graduating AFLS PH.D. students 2020-21.



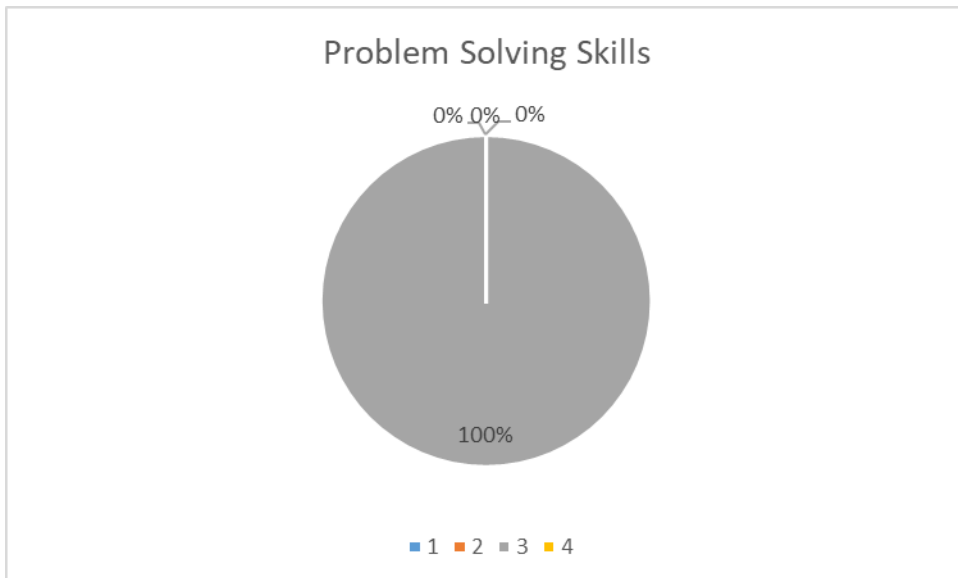
Legend Values: Scale of 1 (not prepared, unskilled) to 4 (advanced, mastery of skill). See Thesis/Dissertation Defense Performance Assessment Rubric below.

Figure 3. Written communication skills assessment for graduating AFLS PH.D. students 2020-21.



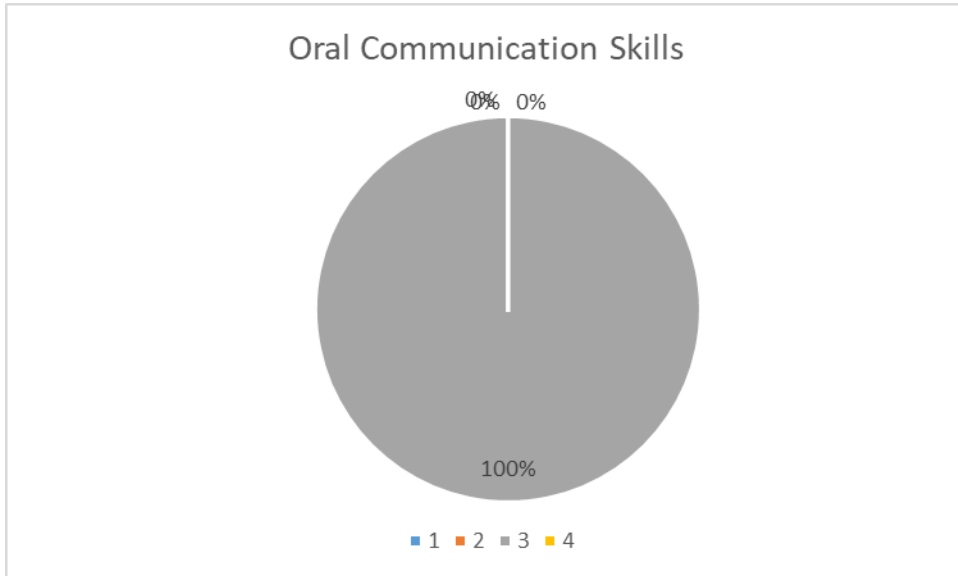
Legend Values: Scale of 1 (not prepared, unskilled) to 4 (advanced, mastery of skill). See Thesis/Dissertation Defense Performance Assessment Rubric below.

Figure 4. Problem solving skills assessment for graduating AFLS PH.D. students 2020-21.



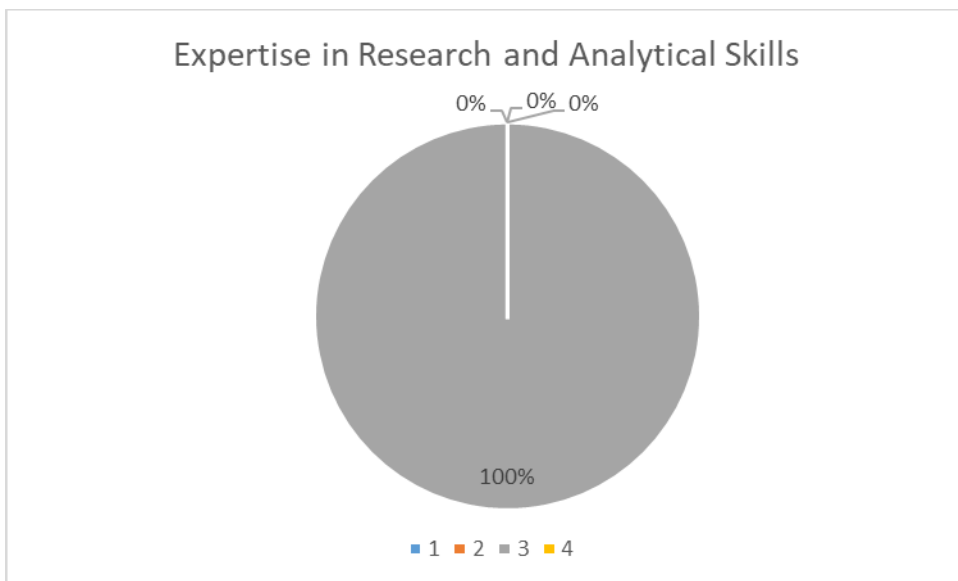
Legend Values: Scale of 1 (not prepared, unskilled) to 4 (advanced, mastery of skill). See Thesis/Dissertation Defense Performance Assessment Rubric below

Figure 5. Oral communication skills assessment for graduating AFLS PH.D. students 2020-21.



Legend Values: Scale of 1 (not prepared, unskilled) to 4 (advanced, mastery of skill). See Thesis/Dissertation Defense Performance Assessment Rubric below.

Figure 6. Research and analytical skills assessment for graduating AFLS PH.D. students 2020-21.



Legend Values: Scale of 1 (not prepared, unskilled) to 4 (advanced, mastery of skill). See Thesis/Dissertation Defense Performance Assessment Rubric below.

AFLSPH - HORT Ph.D. Program
Thesis/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. Dissertation 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.

Other

Please include any comments you have regarding assessment of this graduate student’s achievement towards student learner outcomes, or in assessment of the AFLSPH – HORT graduate student program.
