

**HLTSBS Program Assessment Report
Horticulture Department
University of Arkansas
Academic Year 2018-2019**

Department of Horticulture

Dr. Wayne Mackay – Department Head
316 Plant Sciences Building
University of Arkansas
Fayetteville, AR
479-575-2603
<https://horticulture.uark.edu/>

Department 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 B.S., M.S., and Ph.D. degrees.

Program Goals

The goal of the Department of Horticulture is to serve the people of Arkansas and assist the nation and the world through education, research, and service. Through dedicated teaching, pursuit of knowledge and interaction with society, we seek to improve our contributions to the general welfare. The Department of Horticulture has, as perhaps no other department, a goal to create quality of life for all citizens – economic, aesthetic and social well-being by educating students in horticultural and turfgrass sciences, conducting research that makes a difference, and to communicate those findings to industry and the public.

Student Learning Outcome Being Assessed in This Report:

Written Communication Skills - The development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve mixed-media including digital format. Written communication abilities develop through iterative experiences across the curriculum.

Assessment Measures for General Skills:

Student Learning Outcome - Written Communication.

- (1) Achievement will be assessed using a written communication rubric for laboratory reports and technical/scientific proposals where the student has analyzed, synthesized and evaluated information from independent sources as part of a class project and/or completed an independent research project as part of a special problems, research project or internship class.
- (2) This is a direct measure of student learning.

Assessment Measures for Discipline Specific Skills: Written Communication

Student Learning Outcome 1: Acquire, integrate, and apply knowledge of plant science to managed systems (Goal 1 was assessed).

Goal 1: Develop working knowledge of multiple sources, including current and older literature, to find, evaluate, organize, and manage information related to horticultural systems.

Goal 2: Demonstrate competence with both laboratory and field-based technologies used in modern horticulture.

Goal 3: Apply concepts of plant biology, systematics, ecology, and genetics to manage and improve plants and their products.

Goal 4: Apply scientific methods to test hypothesis.

This is a direct measure of student learning.

Methodology:

For this particular assessment report, four courses were identified with a significant written communication component to the curricula. The goal was to target incoming freshmen or transfer students soon after declaring horticulture as their major, and students in their final semester before graduation, or seniors within a year of graduating. Two courses were identified for General Skills: Student Learning Outcome – Written Communication. And, two additional courses were identified for Discipline Specific Skills: Student Learning Outcome 1 (Goal 1) as related to written communication. The identified courses were UNIV 1001 University Perspectives to capture incoming freshmen (Dr. Garry McDonald and Ms. Shannon Mason, instructors), HORT 3901 Career Development to capture transfer students (Dr. Elena Garcia, instructor). These two courses were assessed for General Skills. HORT 4103 Fruit Production Science to capture upper level students (Dr. Elena Garcia and Dr. Margaret Worthington), and HORT 4403 to capture graduating or seniors close to graduation (Dr. Garry McDonald, instructor) and assessed for Discipline Specific Skills as related to written communication.

Written Communication Components Assessed:

UNIV 1001 University Perspectives: At the end of the eight-week course in the fall 2018 semester, students were tasked to write a short reflective paper on their college experience to date. The objective of this written task was to evaluate incoming freshmen's basic writing skills. A rubric was used to assess the written communication outcome and goals stated in the Department Assessment Plan (Attachment 1 for written communication the rubric for all courses used in this assessment report).

HORT 3901 Career Development: As part of the learning objectives in this course, students had to build a LinkedIn homepage with a basic content. The goal of this part of the assessment is to compare their homepage content at an early stage as compared with content at the end of their academic career. As this part of the overall assessment plan was only implemented in the Spring 18 semester, long term data are not yet available. The homepage student learning outcome is assessed using a rubric and early data are presented.

HORT 4103 Fruit Production Science: Students were tasked with writing a “Fact Sheet” relating to a cultural care and establishment of particular fruit crop in the format of a general University of Arkansas System Cooperative Extension publication. This task measured the student’s ability to acquire, integrate, and apply horticultural knowledge and to translate that knowledge to the general public. The fact sheet was assessed using a rubric to measure the student learning outcome as outlined in the Department Assessment Plan.

HORT 4403 Plant Propagation: Students were assigned a term paper on propagating one specific plant species and general cultural care. This written task was to assess the student’s ability to acquire, integrate, and apply new knowledge about a specific horticultural crop and convey that new knowledge in a written document. Rough drafts were required and feedback was provided on content and revisions. The final draft was assessed using a rubric to measure the written communication student learning outcome as outlined in the Department Assessment Plan.

Acceptable and Ideal Targets for the General Skills: Student Learning Outcome- Written Communication.

- (1) Acceptable target: Graduating students must demonstrate skills in the continuum between Milestones 2 and 3 in the student learning outcomes for written communication, oral communications and critical thinking outlined in the rubrics.
- (2) Ideal target: Students will be able to demonstrate skills outlined in the Capstone column for written communication, oral communication and critical thinking.

Summary of Findings

In general, students performed satisfactory in meeting student learning outcome acceptable targets for written communication. Summarized data for all classes assessed are given in Table 1. Individual course assessment data are given in Tables 2-5. With the exception of Univ 1001 University Perspectives, consisting of true freshmen, the range of minimum and maximum scores reflects the varied academic classification of students enrolled in each course. As might be expected, incoming freshmen scored lower overall than advanced students who may have had more exposure to basic and intensive communication courses. Hort 4403 Plant Propagation had a mix of sophomores, juniors, and seniors in about even numbers while Hort 4103 Fruit Science had more upperclassmen than underclassmen. The fact of the varying student classification affected student learning outcome. Hort 3901 Career Development had a number of recent transfer students who were upper classmen and so had more written communication experience. Also, the content of the E-portfolio was student centered and not based on traditional research-based or referenced content. Based on this assessment, horticulture students currently are meeting the target rating of 2 to 3 on the department assessment plan written communication student learning outcome (see above). However, certain weaknesses were identified and will be addressed as recommendations. This is the initial assessment reporting written communication and will be used in the future as a baseline assessment.

Table 1. Overall written communication student learning outcome scoring data for each course activity assessed during the 2018-2019 academic year.

| Course Assessed | Number of Students Assessed | Average Assessment Score* | Minimum Score Assessed | Maximum Score Assessed |
|-----------------------------------|-----------------------------|---------------------------|------------------------|------------------------|
| Univ 1001 University Perspectives | 13 | 2.0 | 0 | 4 |
| Hort 3901 Career Development | 5 | 3.1 | 2 | 4 |
| Hort 4103 Fruit Science | 16 | 3.5 | 2 | 4 |
| Hort 4403 Plant Propagation | 27 | 2.5 | 1 | 4 |

*Average assessment score for all courses is the overall course average based on a rubric rating scale of 0 (does not meet minimum student learning outcome goals for written communication) to 4 (mastery of the student learning outcome goals for written communication).

Table 2. Written communication student learning outcome scoring data for UNIV 1001 University Perspectives during the 2018-2019 academic year.

| Student Learning Outcome | Number of Students Assessed | Average Assessment Score | Minimum Score Assessed* | Maximum Score Assessed |
|------------------------------------|-----------------------------|--------------------------|-------------------------|------------------------|
| Context and purpose of writing | 13 | 2.0 | 0 | 3 |
| Content development | 13 | 1.9 | 0 | 2 |
| Genre and disciplinary conventions | 13 | 1.8 | 0 | 3 |
| Sources and evidence | 13 | 1.8 | 0 | 1.8 |
| Syntax and mechanics | 13 | 2.2 | 0 | 4 |

*A 0 score was assigned to a student who failed to turn in written material for assessment.

Table 3. Written communication student learning outcome scoring data for HORT 3901 Career Development during the 2018-2019 academic year.

| Student Learning Outcome | Number of Students Assessed | Average Assessment Score | Minimum Score Assessed | Maximum Score Assessed |
|------------------------------------|-----------------------------|--------------------------|------------------------|------------------------|
| Context and purpose of writing | 5 | 3.0 | 2 | 4 |
| Content development | 5 | 3.0 | 2 | 4 |
| Genre and disciplinary conventions | 5 | 2.8 | 2 | 3 |
| Sources and evidence* | 5 | NA | NA | NA |
| Syntax and mechanics | 5 | 3.6 | 3 | 4 |

*Sources and evidence were not relevant to completing this assessment and so were designated as NA.

Table 4. Written communication student learning outcome scoring data for HORT 4103 Fruit Science during the 2018-2019 academic year.

| Student Learning Outcome | Number of Students Assessed | Average Assessment Score | Minimum Score Assessed | Maximum Score Assessed |
|------------------------------------|-----------------------------|--------------------------|------------------------|------------------------|
| Context and purpose of writing | 16 | 3.6 | 3 | 4 |
| Content development | 16 | 3.3 | 2 | 4 |
| Genre and disciplinary conventions | 16 | 3.5 | 3 | 4 |
| Sources and evidence | 16 | 3.7 | 2 | 4 |
| Syntax and mechanics | 16 | 3.5 | 3 | 4 |

Table 5. Written communication student learning outcome scoring data for HORT 4403 Plant Propagation during the 2018-2019 academic year.

| Student Learning Outcome | Number of Students Assessed | Average Assessment Score | Minimum Score Assessed | Maximum Score Assessed |
|------------------------------------|-----------------------------|--------------------------|------------------------|------------------------|
| Context and purpose of writing | 27 | 3.1 | 1 | 4 |
| Content development | 27 | 2.4 | 1 | 4 |
| Genre and disciplinary conventions | 27 | 2.4 | 1 | 4 |
| Sources and evidence | 27 | 2.0 | 1 | 4 |
| Syntax and mechanics | 27 | 2.4 | 1 | 4 |

Recommendations:

Three specific areas related to the written communication rubric were identified for improvement based on this specific assessment.

- (1) Content development: While students had a general grasp of the expected content in the assigned subject matter, the information often lacked relevancy to the assignment and a lack of depth of the subject important to their understanding of the discipline.
- (2) Sources and evidence: Students fail to grasp the importance of informed and science-based research on the topics assigned. Students will quickly Google a subject and refer to “their research”. The lack of using original sources means that content is very superficial and fails to convince an evaluator they have an in depth understanding of the content or discipline. Additionally, students fail to understand the process of embedding references within the text and labeling and acknowledging images, figures, or other non-original content.
- (3) Syntax and mechanics: Students need improvement on word choice using standard and conventional terminology to fully and clearly convey meaning and ideas related to the discipline.

To address the above areas for improvement, the following suggestions are recommended.

- (1.) Provide examples or models of written communication with in-depth explanations of expected outcomes and expectations pertaining to relevancy and breadth of knowledge required to successfully complete the assignment.
- (2.) Provide modules or assign additional exercises defining and demonstrating surface verses in-depth knowledge of a specific topic or discipline-related subject. Provide examples demonstrating discipline-related references and citations along with expectations.
- (3.) Provide students with a lexicon relevant to common horticultural terminology and have students read published articles on both general and research-focused horticultural topics.

Overall Recommendations:

This is the Horticulture Department's first assessment report focusing on one student learning outcome; written communication. Future reports will investigate other student learning outcomes outlined in the assessment program. It will take another two academic year cycles to collect four years' worth of data to measure the impact of the assessment plan as first implemented. Hence, at this time there is a lack of justification to make fundamental changes to the assessment plan. Recent and approved program changes (taking affect in Fall Semester 2019) have been made to the HLTSBS program to identify courses and activities relevant to the annual assessment process. At this time, there are no plans to make further changes to the degree program.

Action Plan:

This action plan covers the following Student Learning Outcomes assessed above and is based on the recommendations suggested above.

- (1) General Skills: Student Learning Outcome - Written Communication.
- (2) Discipline Specific Skills: Acquire, integrate, and apply knowledge of plant science to managed systems – Goal 1. As related to written communication.

Actions for Content Development

Hort 3901 Career Development:

Present lectures and give examples of acceptable basic content that needs to be included in the E-Portfolio. Emphasize why content is important since e-portfolios are increasing becoming expected by potential employers. Set a deadline mid-semester to make sure the instructor has access to the student's LinkedIn homepage. The majority of the student's failed to "invite" the instructor to see their homepage until the very end of the semester which made assessment difficult in a timely manner. The instructor of Hort 3901 will be responsible for implementing these action items. The action plan will be initiated in the spring 2020 semester.

Hort 4103 Fruit Science:

Students, when tasked to write a fact sheet on a specific crop, should be presented with clear examples of well-written and relevant published fact sheets. Although fact sheets are, by definition, brief, students should provide in-depth science-based information for consumers or other interested parties. Early drafts will be required with at least one editing by the instructor. The instructor of Hort 4103 will be responsible for implementing these action items. The action plan will be initiated during the next semester that this course is taught (spring odd years).

Hort 4403 Plant Propagation:

Students will receive clearer instructions on expectations and will be provided with examples of acceptable and unacceptable content when tasked to write a term research paper on propagating a specific crop. Although given verbal and written direction on expected content, students have not been given examples of actual papers as a guide. Also, instead of giving the students free-choice of plant species to write on, students will be given a list of acceptable plant species. This will overcome the situation where a student chooses a plant species that has little or no published propagation methodology and thus, has insufficient content for a term paper. Early drafts will be required with at least one editing by the instructor. This action will be initiated during the spring semester of 2020.

Actions for Sources and Evidence

Hort 3901 Career Development:

Since this course does not require research or normal sources and evidence (citation), no action plan is required for this area.

Hort 4103 Fruit Science:

Students will be given instruction and examples of acceptable and non-acceptable sources and evidence through either journal articles or other published works. Students will be instructed on how to embed references into the text and how to use a journal model for correct citations. Particular attention will be placed on internet resources and discuss the validity of those resources. Current accepted internet citation protocol will be discussed using one of the journals from the American Society for Horticultural Sciences as a model. This action will be initiated during the next semester this course is taught by the instructor.

Hort 4403 Plant Propagation:

Students will be given instruction and examples of acceptable and non-acceptable sources and evidence through either journal articles or other published works. Students will be instructed on how to embed references into the text and how to use a journal model for correct citations. Particular attention will be placed on internet resources and discuss the validity of those resources. Current accepted internet citation protocol will be discussed using one of the journals from the American Society for Horticultural Sciences as a model. This action will be initiated during the next semester this course is taught by the instructor.

Actions for Syntax and Mechanics

Hort 3901 Career Development:

Students will become acquainted with common horticultural terminology by being provided with a lexicon of commonly used words and phrases. Students will be required to read selected articles on horticultural careers and trade publications to familiarize themselves with horticultural content so as to more clearly convey meaning and ideas to their instructors, peers, and the general public. As the majority of students matriculating in horticulture come from non-horticultural or even agricultural backgrounds, common terms standard word usage in the discipline are unknown to many students. The instructor of Hort 3901 will be responsible for implementing this action during the spring 2020 semester.

Hort 4103 Fruit Science:

Students will be presented with selected readings which contains common horticultural terminology and usage. Reading may consist of text chapters, online sources, or journal or popular articles or sources that convey horticultural ideas and meanings. The goal is to increase the word choice and understanding of discipline-related terminology and proper syntax and mechanics of written communication in horticulture. This action will be initiated during the next semester this course is taught by the instructor.

Hort 4403 Plant Propagation:

Students will be presented with a lexicon of common horticultural terminology in addition to subject-specific vocabulary normally presented as a part of the course curriculum. Students will be quizzed weekly on knowledge of newly acquired terminology. Students will be assigned readings on plant propagation methodology to increase their knowledge of and confidence in using correct standard horticultural terminology. The instructor will be responsible for implementing this action during the spring 2020 semester.

A Note on Univ 1001:

Although Univ 1001 University Perspectives was assessed during the 2018-2019 academic year and data are presented in this report, no action plan was developed for the upcoming 2019-2020 academic year because no horticulture faculty member will be teaching a Univ 1001 section this fall. Therefore, there is not an opportunity implement changes reflecting the Horticulture Department's assessment plan for this course.

ATTACHMENT

Written Communication Scoring Rubric: The definition of written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve working with many different writing technologies, and mixing texts, data, and images. Written communication abilities develop through iterative experiences across the curriculum. The rubric is scored from 1 to 4. However, evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark 1 level performance. This rubric was used for both the general skill assessment and the discipline specific assessment.

Context of and Purpose for Writing:

Benchmark 1.

Demonstrates minimal attention to context, audience, purpose, and to the assigned tasks(s) (e.g., expectation of instructor or self as audience).

Milestone 2.

Demonstrates awareness of context, audience, purpose, and to the assigned tasks(s) (e.g., begins to show awareness of audience's perceptions and assumptions).

Milestone 3.

Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).

Capstone 4.

Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.

Content Development:

Benchmark 1.

Uses appropriate and relevant content to develop simple ideas in some parts of the work.

Milestone 2.

Uses appropriate and relevant content to develop and explore ideas through most of the work.

Milestone 3.

Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.

Capstone 4.

Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.

Attachment 1 (cont.)

Genre and Disciplinary Conventions:

Benchmark 1.

Attempts to use a consistent system for basic organization and presentation.

Milestone 2.

Follows expectations appropriate to a specific discipline and/or writing task(s) for basic organization, content, and presentation.

Milestone 3.

Demonstrates consistent use of important conventions particular to a specific discipline and/or writing task(s), including organization, content, presentation, and stylistic choices.

Capstone 4.

Demonstrates detailed attention to and successful execution of a wide range of conventions particular to a specific discipline and/or writing task (s) including organization, content, presentation, formatting, and stylistic choices.

Sources and Evidence:

Benchmark 1.

Demonstrates an attempt to use sources to support ideas in the writing.

Milestone 2.

Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre of the writing.

Milestone 3.

Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.

Capstone 4.

Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing.

Control of Syntax and Mechanics:

Benchmark 1.

Uses language that sometimes impedes meaning because of errors in usage.

Milestone 2.

Uses language that generally conveys meaning to readers with clarity, although writing may include some errors.

Milestone 3.

Uses straightforward language that generally conveys meaning to readers. The language in the portfolio has few errors.

Capstone 4.

Uses graceful language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.