

**Program Assessment Report
Undergraduate Program in Food Science
University of Arkansas
Academic Year 2020-2021**

1. Department Name & Contact Information

Department of Food Science

Contact: Jeyam Subbiah, Professor and Head, jsubbiah@uark.edu, 5-6919

FDSC Assessment Coordinator: Kristen Gibson

2. Department Mission

The mission of the Department of Food Science is to serve as the primary source of higher education, fundamental and applied research, and public service associated with enhancing the wholesomeness, quality and availability of food, improving the health of Arkansas residents, and adding value to raw agricultural products with particular emphasis on products relevant to Arkansas. The Department of Food Science promotes programs for achieving regional, national and international recognition of excellence while contributing to the advancement of the quality of life and professional development for Arkansans.

3. Program Goals

FDSC currently adheres to standards and learning outcomes approved by the Higher Education Review Board (HERB) of the Institute of Food Technologists (IFT) for undergraduate programs in Food Science and Technology (<http://www.ift.org/Community/Students/Approved-Undergrad-Programs.aspx>). As an approved program, we submit reports each year for review by the HERB. Our application for program approval was approved by IFT HERB in December 2019. We have included the complete list of Standards and Learning Outcomes with associated course id's that will be used for assessment as well as the approved IFT Assessment Plan (see **Appendices 1 and 2**, respectively) for your reference.

4. Student Learning Outcome PL.3. Describe social and cultural competence relative to diversity and inclusion.

A. Assessment Measure 1.

- FDSC 431V: Internship in Food Science
- Observation of student performance by the supervisor of an industrial internship. The supervisor reports their observation by means of a questionnaire which is completed at the end of the internship.
- This measure is direct.
- The primary instructor for the course is Jamie Baum; however, the assessment is based on supervisor observation.
- Assessment measure tool (**Appendix 3**)

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

- The acceptable target is to have less than 25% of students in the Novice or Intermediate categories, with more than 20% in the Expert category. The ideal target is to have no student in the Novice or Intermediate categories, with more than 30% in the Expert category.

C. Summary of Findings. (n = 14 enrolled; n=13 completed)

	Novice	Intermediate	Advanced	Expert
Punctual in reporting to work, attending meetings and observing deadlines	0	2	2	9
Practices company ethics and values	0	1	0	12
Courteous and respectful to colleagues	0	0	0	13
Performs duties and interacts well with others in a professional manner	0	1	1	11

- We had a lower enrollment in internships than in previous years due to the COVID-19 pandemic. Some internships were cancelled or delayed due to the pandemic. Some students did not feel safe participating in an internship, so they had the opportunity to take an extra class related to Food Science. One student has not completed the final assessment due to medical issues.
- Overall student performance greatly exceeded the prescribed criteria with the exception of two students in the intermediate category of one sub-category, and one student performed at the intermediate level in two sub-categories.
- The results are consistent with previous assessment years and indicate our undergraduate students are meeting or exceeding the program expectations. Based on this, the data are indicative of an undergraduate program in FDSC that prepares students for the workplace.

D. Recommendations (not required for indirect measures)

- While nearly all students were considered experts within most subcategories, there were three sub-categories where improvement could be had.
- First, ‘punctual in reporting to work, attending meetings and observing deadlines’ was achieved by 92% of the students in the program so the criteria of less than 25% below was met. However, we strive to have all students categorized in Advanced and Expert. To address this, the course instructor and internship committee will provide a presentation on exactly what this means. In addition, we will request feedback from the companies about training or orienting students to these practices.
- Second, one student was identified as only *sometimes* practices company ethics and values’ and one student was identified as only *sometimes* ‘performs duties and interacts well with others in a professional manner.’ There is no reason that every student should not be in the Expert category for these skills. To address this, the importance these traits in the workplace, the course instructor and internship committee will provide a presentation on exactly what this means.

5. Student Learning Outcome CM.2. Create oral presentations.

A. Assessment Measure 2.

- FDSC 431V: Internship in Food Science
- At the completion of the internship each student will give an oral presentation to the Internships Committee which comprises of four faculty members, the academic advisor and the department head. The presentation should contain a brief background of the company; what was done during the internship; and how what was learned in the classroom was useful during the internship. The presentation will be evaluated by each Committee member according to the

direct measures in the rubric below. The final score for each direct measure is the average of Committee members' scores.

- This measure is direct.
- The primary instructor for the course is Jamie Baum; however, the assessment is based on committee feedback.
- Assessment measure tool (**Appendix 4**)

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

- The acceptable target is to have less than 25% of students in the Novice or Intermediate categories, with more than 20% in the Expert category. The ideal target is to have no student in the Novice or Intermediate categories, with more than 30% in the Expert category.

C. Summary of Findings. (n = 14 enrolled; n=13 completed)

	Novice	Intermediate	Advanced	Expert
Maintains good eye contact and rapport without excessive notes	0	0	0	13
Exhibits good body language that enhances the presentation	0	0	0	13
Controls anxiety to present a relaxed presentation without verbal errors	0	0	4	9
Speaks clearly with confidence, enthusiasm and authority	0	0	1	12
The presentation is concise, clear, logical and includes all the requested elements	0	0	3	10
Slides are clear, well organized with appropriate use of color and effect	0	0	3	10
Effectively answers related questions	0	0	1	12

- Student performance exceeded the prescribed criteria for the acceptable target. *Due to the COVID-19 pandemic, all presentations were virtual which may have impacted student performance and faculty assessment.*
- These results are somewhat consistent with previous assessment years and indicate our undergraduate students are meeting or exceeding the program expectations.
- Based on this, the data are indicative of an undergraduate program in FDSC that prepares students to communicate scientific data and principles effectively.

D. Recommendations (not required for indirect measures)

- While nearly all students were considered experts within most subcategories, there were three sub-categories where improvement could be made. These sub-categories are primarily related to anxiety during speaking, clear and logical presentations, and quality of the slides presented. Skills such as these can typically only be improved through practice. Therefore, we will explore more opportunities within the undergraduate program for students to give presentations in order to develop these skills.

6. Student Learning Outcome PL.1. Demonstrate the ability to work independently and in teams.

A. Assessment Measure PL.1

- FDSC 431V: Internship in Food Science and FDSC 4713: Product Innovation for the Food Scientist
- FDSC 431V – Observation of student performance by the supervisor of an industrial internship. The supervisor reports their observation by means of a questionnaire which is completed at the end of the internship.
- FDSC 4713 – Peer-evaluation by team members
- This measure is direct.
- The primary instructor for the course is Jamie Baum; however, the assessment is based on supervisor feedback.
- Assessment measure tool (FDSC 431V – Appendix 5; FDSC 4713 – Appendix 6)

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

- The acceptable target is to have less than 25% of students in the Novice or Intermediate categories, with more than 20% in the Expert category. The ideal target is to have no student in the Novice or Intermediate categories, with more than 30% in the Expert category.

C. Summary of Findings. (n = 14 enrolled; n=13 completed)

FDSC 431V: Internship in Food Science

	Novice	Intermediate	Advanced	Expert
Strongly motivated and takes initiative	0	1	2	10
Reliably and efficiently completes independent projects in a timely manner *	0	0	2	10
Exhibits effective problem-solving skills *	0	1	2	9
Performs duties and interacts well with others in a professional manner	0	1	1	11
Works effectively in a team	0	2	0	11

**one employer did not complete the skill evaluation for two criteria, so numbers only total to 12 in these categories.*

- Student performance exceeded the prescribed criteria for the acceptable target. However, none of the sub-categories met the criteria for ideal target due to at least one student in the Intermediate category for each sub-category.
- These results are consistent with previous assessment years and indicate our undergraduate students are meeting or exceeding the program expectations.
- Based on this, the data are indicative of an undergraduate program in FDSC that prepares students to effectively work in teams.

FDSC 4713: Product Innovation for the Food Scientist

	Novice	Intermediate	Advanced	Expert
Contributes to team meetings	0	0	1	11
Facilitates the contributions of team members	0	0	1	11
Individual contributions outside of team meetings	0	0	0	12
Fosters constructive team climate	0	0	1	11
Responds to conflict	0	0	0	12

- Student performance exceeded the prescribed criteria for the acceptable and ideal targets.
- These results are consistent with previous assessment years and indicate our undergraduate students are meeting or exceeding the program expectations.
- Based on this, the data are indicative of an undergraduate program in FDSC that prepares students to effectively work in teams.

D. Recommendations (not required for indirect measures)

- FDSC 431V
 - Although the acceptable criteria set forth by the department was achieved, some students were rated at the intermediate levels. This means that these students exhibited strong motivation and strong problem-solving skills only *sometimes*. This is probably not an acceptable outcome for the viewpoint of an employer. In reviewing the rubric provided to the supervisor, the assessment committee is fine tuning the data collection instrument to better assess proficiencies. Supervisor assessment of student competencies have remained confidential. When unsatisfactory ratings are given by the supervisor in the future, the department will request that the supervisor meet with the intern to discuss the shortcomings of the evaluation.

6. Overall Recommendations

- While all of the acceptable targets were met for each Learning Outcome assessed within our undergraduate program, there is always room for improvement especially if we are striving to reach our ideal targets and move more students into the Expert Level of each subcategory.
- It seems that working in teams, presentation confidence, and professionalism in the workplace are the most critical skills where improvement can be obtained through better guidance and advising and more opportunities to develop those skills in core FDSC courses.

7. Action Plan

- As outlined in the beginning of this document, we have a new program assessment plan that was approved by IFT HERB. Prior to the COVID pandemic, implementation was scheduled for 2020-2021 academic year (**Appendices 1 and 2**); IFT has extended the deadline for Year 1 reports to October 2022.
- Next, to improve student proficiencies in working in teams, presentation confidence, and professionalism in the workplace, the following will be pursued:
 - We will look for ways in our current undergraduate curriculum to engage students in more team work activities prior to obtaining an internship.

- We will look for ways in our current undergraduate curriculum to allow students more opportunities to practice presentations on technical materials.
- The internship committee and instructor will meet with students individually prior to beginning the internship to stress the important of professionalism in the workplace. We will also reach out to companies providing internships and request that they provide information on what their expectations are with respect to the workplace and if those can be shared with students.

8. Supporting Attachments

- Appendices 1-6