Food Science and Technology, BS

Program Description

The mission of the Department of Food Science and Technology (FSTC) Undergraduate Program is to prepare graduates to be future leaders in the food industry and allied fields by providing a high-quality undergraduate level education and high impact and experiential learning activities that generate strong technical knowledge, critical thinking, and communication skills.

Outcome 1 – Technical Knowledge

Food science students will display technical knowledge in their coursework related to food chemistry, food microbiology, nutrition, food safety, engineering and processing, quality assurance and food law at a level appropriate for a career or graduate study in food science.

Measure 1.1 – Technical Knowledge in Basic Food Science

Data Collection: Technical knowledge examined in FSTC 201 Introductory Food Science during Final Exam:

The exam will assess technical knowledge gained in this course. The instructor will use all questions in this exam to assess how many students will achieve 80% of technical knowledge. Partial credit will be given for partially correct answers. If students miss this exam, their make-up exam will be used instead. Students who do not participate for what-ever reason in the exam or the make-up exam. There will be no points deducted for grammar, spelling and late assignments.

The instructor will grade the exam and calculate the final percentage of correct answers for each student. The number of students who reached at least 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100% of correct answers will be assessed and their percentage of the total number of students taking the final exam or the make-up exam will be assessed. The percentage of students who reach 80% of correct answers will be reported for this measure.

Methodology or data analysis strategy: We will collect data in Qualtrics and aggregate and analyze in Excel to identify gaps in students' basic and applied knowledge. Once these gaps are identified, core courses in the program can be modified so that students have repeated exposure of essential concepts.

Target 1.1

It is expected that at least 80% of students will have at least 80% of technical knowledge at the end of the course. At least 85% of students will obtain at least 80% of points for questions regarding technical knowledge.

Finding 1.1: Met

Findings are provided only for BS-FSTC students in the FSTC 201 course. Eighteen of nineteen students in the BS-FSTC program scored 91-100% on the identified exam. One student in the BS-FSTC program scored 81-90% on the identified exam.

Thus, 100% of the BS-FSTC students in FSTC 201 met the target of scoring 80% or better on the exam.

These data are higher than the last time the PLO was measured in AY 22-23. In AY 22-23 81% of undergraduate students met the target for technical knowledge, while in AY 23-24 100% of students met the target for technical knowledge.

Measure 1.2 – Technical Knowledge in Food Processing

Data Collection: Technical knowledge examined in FSTC 311 Food Processing during Exam II:

This exam will assess technical knowledge gained in this course. The instructor will use all questions in this exam to assess how many students will achieve 80% of technical knowledge. Partial credit will be given for partially correct answers. If students miss this exam, their make-up exam will be used instead. Students who do not participate for what-ever reason in the exam or the make-up exam.

The instructor will grade the exam and calculate the final percentage of correct answers for each student. The number of students who reached at least 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100% of correct answers will be assessed and their percentage of the total number of students taking the final exam or the make-up exam will be assessed. The percentage of students who reach 80% of correct answers will be reported for this measure. The percentages of students that achieve less than 80% will be assessed for each 10% (10-70%) in order to aid with selecting a mitigation strategy if needed.

Methodology or data analysis strategy: We will collect data in Qualtrics and aggregate and analyze in Excel to identify gaps in students' basic and applied knowledge. Once these gaps are identified, core courses in the program can be modified so that students have repeated exposure of essential concepts.

Target 1.2

At least 80% of students are expected to achieve 80% of technical knowledge.

Finding 1.2: Met

Findings are provided only for BS-FSTC students in the FSTC 311 course. Sixteen of twenty-five students in the BS-FSTC program scored 91-100% on the identified exam. Nine out of twenty-five students in the BS-FSTC program scored 81-90% on the identified exam.

Thus, 100% of the BS-FSTC students in FSTC 311 met the target of scoring 80% or better on the exam.

In terms of percentage of students meeting target for of scoring 80% or better on the identified exam, the AY 23-24 data is similar to data from the last time the PLO was measured in AY 22-23. In both AY 22-23 and AY 23-24 100% of BS-FSTC undergraduate students met the target for food processing technical knowledge.

Use of Results

An action that our program faculty have identified to improve student learning and move more students into the 91-100% score range for the selected exam is to conduct knowledge review sessions before exams and conduct group activities that are targeted toward basic food science and food processing technical knowledge. The instructors for FSTC 201 and FSTC 311, Dr. Rebecca Buckley and Dr. Reza Ovissipour, will be responsible for conducting the review sessions and group activities. They will be supported in development of group activities by all other teaching faculty in the department. The implementation of the knowledge review sessions and group activities will begin Fall 2025 when the FSTC majors only FSTC 201 and FSTC 311 courses are offered again. Program faculty believe this action will lead to improvements in technical knowledge in basic food science and food processing because reviews and group activities will allow for students to experience repetition, which can enhance retention of information. It also allows for both the instructors and students to see where gaps in knowledge may exist so that instructors can work with students to overcome challenges in understanding of specific concepts.

The full FSTC Assessment Committee meets at least twice yearly. During our most recent meeting, we discussed the assessment findings for basic food science and food processing technical knowledge. Members of the committee, who include both APT and tenure track faculty, as well as an Associate Department Head brainstormed various ideas on actions to take to continue to improve basic food science and food processing technical knowledge. After the brainstorming sessions, a consensus was reached by all members of the committee that included knowledge review sessions before exams and group activities. This plan was also shared with department faculty at faculty meetings and feedback was gathered.

Status Update on a Previous Action

In the AY 22-23 Academic Program Assessment report, program faculty had identified the action of including study away activities for freshmen and sophomore students within our curriculum. These study away activities are to involve tours of food processing and manufacturing locations in Dallas/Fort Worth, San Antonio, and Houston. By seeing application of technical knowledge in the food science field, student gains in technical knowledge will be improved. The start of the action was delayed from Spring 2024 to Fall 2024. Study away activities have been completed at Blue Bell Creameries and Monterrey Mushroom product facilities. Activities will continue with assessment of the activities being completed in Spring 2025. All faculty members in the department are assisting with is action planning with FSTC Assessment Committee Chair and Instructional Assistant Professor, Rebecca Creasy, managing the action. We believe this action will lead to improvements in the identified PLO because students will have the opportunity to experience technical knowledge being applied in food processing operations in the real world before assessment of technical knowledge.

No changes have occurred as of yet in PLO achievement.