

FOOD SCIENCE PROGRAM LEARNING GOALS (LG)

LG #1 **Graduates will demonstrate and apply knowledge of the core competencies in Food Processing and Engineering.**

- Courses*
- *Food Processing Technologies 11:400:301*
 - *Food Process Engineering^R 11:400:302*

Learning Outcomes:

- 1.1:** Understand the concepts and principles of processing techniques and the effects of processing parameters on product quality.
- 1.2:** Apply principles of food processing and engineering to various food industry operations.

LG #2 **Graduates will demonstrate and apply knowledge of the core competencies in Food Chemistry and analysis.**

- Courses*
- *Principles of Food Science 11:400:201; Principles of Food Science Lab^{G,R,S} 11:400:202*
 - *Food Chemistry 11:400:411*
 - *Food Analysis^{G & R} 11:400:304; Food Physical Systems^R 11:400:419*

Learning Outcomes:

- 2.1:** Understand the chemistry involved in the properties and reactions of various foods and its components.
- 2.2:** Understand and effectively applies the principles behind analytical techniques associated with food.
- 2.3:** Understand and effectively applies food chemistry and analysis methods.

LG #3 **Graduates will demonstrate and apply knowledge of the core competencies of Food Microbiology.**

- Courses*
- *Food Microbiology 11:400:423; Food Microbiology Lab^{G,R,S} 11:400:424*

Learning Outcomes:

- 3.1:** Demonstrate ability to identify the causes of food spoilage and predict the specific microorganisms that can spoil a given food when prepared, processed, and stored under given conditions.

3.2: Demonstrate ability to identify important pathogens, the conditions under which they grow, related detection techniques, and methods for inactivation and control.

3.3: Demonstrate knowledge of food preservation techniques to reduce and/or inhibit the growth of microorganisms.

LG #4 **Graduates will demonstrate critical thinking and quantitative reasoning skills to solve technical and applied problems in Food Science.**

- Courses*
- *Food Processing Technologies 11:400:301*
 - *Sensory Evaluation of Foods 11:400:405*

Learning Outcomes:

- 4.1:** Critically evaluate reports/information in Food Science.
- 4.2:** Effectively apply quantitative analytical techniques including statistical analysis principles to problems in Food Science.
- 4.3:** Understand the basic principles of sensory analysis and applies those principles to real-world problems.
- 4.4:** Apply the principles of Food Science to practical, real-world problems in Product Development.
- 4.5:** Proficient in government laws and regulations required for the manufacture and sale of food products.

LG #5 **Graduates will effectively communicate Food Science issues.**

- Courses*
- *Science of Food 11:400:103* **OR** *Food and Health 11:400:104*
 - *Current Issues in Food Science & Food Law 11:400:314*
- Elective courses*
- *Food as Medicine 11:400:106*
 - *Foods: from Field to Table 11:400:107*
 - *Nutrigenomics 11:400:410*
 - *Food Safety: Fads, Facts and Politics 11:400:422*

Learning Outcomes:

- 5.1:** Demonstrate ability to write clear and concise technical reports and research articles.
- 5.2:** Demonstrate the ability to deliver clear and concise technical presentations.
- 5.3:** Demonstrate the ability to gather scientific and nonscientific information and interpret content and quality of the literature in Food Science

5.4: Demonstrate the ability to clearly communicate scientific principles and data to lay audiences

5.5: Demonstrate effective listening skills as well as ability to accept constructive criticisms.

LG #6

Graduates will demonstrate effective professional and leadership skills.

Course

- ***Food Product Development 11:400:412***

Learning Outcomes:

6.1: Demonstrate the ability to work independently as well as to work cooperatively in cross-disciplinary teams.

6.2: Understand the importance of and is committed to professional integrity and ethical values within the workplace.

6.3: Demonstrate ability to work and/or interact with individuals from diverse cultures.

Course(s) in bold fulfill(s) the requirements of program learning goal for all options of study in Food Science Major

R: Courses required for Food Science Research option

G: Courses required for Food Science General option

S: Courses required for Food Science Sustainability option

PROGRAM LEARNING GOALS

1: Graduates will demonstrate and apply knowledge of the core competencies in food processing and engineering.

Outcome 1.1: Understand the concepts and principles of processing techniques and the effects of processing parameters on product quality.

Outcome 1.2: Apply principles of food processing and engineering to various food industry operations.

2: Graduates will demonstrate and apply knowledge of the core competencies in food chemistry and analysis.

Outcome 2.1: Understand the chemistry involved in the properties and reactions of various foods and its components.

Outcome 2.2: Understand and effectively applies the principles behind analytical techniques associated with food.

Outcome 2.3: Understand and effectively applies food chemistry and analysis methods.

3: Graduates will demonstrate and apply knowledge of the core competencies of food microbiology.

Outcome 3.1: Demonstrate ability to identify the causes of food spoilage and predict the specific microorganisms that can spoil a given food when prepared, processed, and stored under given conditions.

Outcome 3.2: Demonstrate ability to identify important pathogens, the conditions under which they grow, related detection techniques, and methods for inactivation and control.

Outcome 3.3: Demonstrate knowledge of food preservation techniques to reduce and/or inhibit the growth of microorganisms.

4: Graduates will demonstrate critical thinking and quantitative reasoning skills to solve technical and applied problems in Food Science.

Outcome 4.1: Critically evaluate reports/information in Food Science.

Outcome 4.2: Effectively apply quantitative analytical techniques including statistical analysis principles to problems in Food Science.

Outcome 4.3: Understand the basic principles of sensory analysis and applies those principles to real-world problems.

Outcome 4.4: Apply the principles of Food Science to practical, real-world problems in Product Development.

Outcome 4.5: Proficient in government laws and regulations required for the manufacture and sale of food products.

5: Graduates will effectively communicate Food Science issues.

Outcome 5.1: Demonstrate ability to write clear and concise technical reports and research articles.

Outcome 5.2: Demonstrate the ability to deliver clear and concise technical presentations

Outcome 5.3: Demonstrate the ability to gather scientific and nonscientific information and interpret content and quality of the literature in Food Science

Outcome 5.4: Demonstrate the ability to clearly communicate scientific principles and data to lay audiences.

Outcome 5.5: Demonstrate effective listening skills as well as ability to accept constructive criticisms.

6: Graduates will demonstrate effective professional and leadership skills.

Outcome 6.1: Demonstrate the ability to work independently as well as to work cooperatively in cross-disciplinary teams.

Outcome 6.2: Understand the importance of and is committed to professional integrity and ethical values within the workplace.

Outcome 6.3: Demonstrate ability to work and/or interact with individuals from diverse cultures.