FOOD SCIENCE

This major uses engineering, biological, and physical sciences to study the nature of foods, the causes of food deterioration, the principles underlying food processing, and the development and improvement of foods for consumption. Food Science students study organic and food chemistry, biology, physics, government regulations in the food industry, food engineering, and microbiology.

About this Program

- **College:** Agricultural and Life Sciences (https://catalog.ufl.edu/UGRD/colleges-schools/UGAGL/)
- **Degree:** Bachelor of Science
- **Credits for Degree:** 120

To graduate with this major, students must complete all university, college, and major requirements.

Department Information

The Food Science and Human Nutrition Department (FSHN) is one of the world's largest combined academic programs where food science, nutritional sciences, and dietetics are all studied within one department. The department's programs are accredited by the Institute of Food Technologists (IFT) (http://www.ift.org/) and the Accreditation Council for Education in Nutrition and Dietetics (http://www.eatright.org/) (ACEND). After completing undergraduate degrees, FSHN students typically move on to employment in the food industry, healthcare settings, graduate, or professional programs.
Website (https://fshn.ifas.ufl.edu/)

CONTACT

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GAINESVILLE FL 32611-0370
Map (http://campusmap.ufl.edu/#/index/0475)

Curriculum

- Food Science
- Food Science Minor
- Nutritional Sciences
- Nutritional Sciences Minor

The food science curriculum emphasizes a strong technical background, with elective options important to employment in the food industry, government agencies or as preparation for graduate study. The curriculum is approved by the Institute of Food Technologists (IFT), the professional society of the discipline. Graduates have obtained employment in state, national and international food corporations. Most work in the areas of quality control, technical support and sales, or research and product development.

The curriculum also prepares the student for graduate study. Opportunities to become involved in leadership roles in the FSHN Department student organizations and through national competitions are considerable. Internships in food industries may be available, and these provide invaluable experience as well as contacts that can be extremely beneficial when seeking employment.

Critical Tracking

Critical Tracking records each student's progress in courses that are required for progress toward each major. Please note the critical-tracking requirements below on a per-semester basis.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites (https://cpm.flvc.org/advance-search/) may be used for transfer students.

Semester 1

- Complete CHM 2045/CHM 2045L or MAC 2311
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 2

- Complete CHM 2045/CHM 2045L and MAC 2311
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 3

- Complete CHM 2046/CHM 2046L and BSC 2010/BSC 2010L
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 4

- Complete BSC 2011/BSC 2011L
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 5

- Complete FOS 4722C
- 2.0 Upper Division GPA required
- 2.0 UF GPA required

Semester 6

- Complete FOS 4311/FOS 4311L
- 2.0 Upper Division GPA required
- 2.0 UF GPA required

Semester 7

- Complete FOS 4321C
- 2.0 Upper Division GPA required
- 2.0 UF GPA required

Semester 8

- Complete FOS 4435C
- 2.0 Upper Division GPA required
- 2.0 UF GPA required

Model Semester Plan

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Course	Title	Credits
Semester One		
AEB 2114L	Introduction to Agricultural Computer Applications	1
CHM 2045 & 2045L	General Chemistry 1 and General Chemistry Laboratory (**Critical Tracking**; State Core Gen Ed Biological and Physical Sciences)	4
MAC 2311	Analytic Geometry and Calculus 1 (**Critical Tracking**; State Core Gen Ed Mathematics)	4
State Core Gen Ed Composition (https://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext); Writing Requirement		3
State Core Gen Ed Humanities (https://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
	Credits	**15**
Semester Two		
Quest 1 (Gen Ed Humanities)		3
Select one:		3-4

AEB 2014	Current Economic Issues, Food and You	
AEB 3103	Principles of Food and Resource Economics	
ECO 2013	Principles of Macroeconomics	
ECO 2023	Principles of Microeconomics (Gen Ed Social and Behavioral Sciences)	
CHM 2046	General Chemistry 2	4
& 2046L	and General Chemistry 2 Laboratory (**Critical Tracking**; Gen Ed Physical Sciences)	
Elective		3
	Credits	**13-14**
Semester Three		
BSC 2010	Integrated Principles of Biology 1	4
& 2010L	and Integrated Principles of Biology Laboratory (**Critical Tracking**; Gen Ed Biological Sciences)	
PHY 2053	Physics 1	5
& 2053L	and Laboratory for PHY 2053 (Gen Ed Physical Sciences)	
State Core Gen Ed Social and Behavioral Sciences (https://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
Gen Ed Composition; Writing Requirement		3
	Credits	**15**
Semester Four		
Quest 2		3
BSC 2011	Integrated Principles of Biology 2	4
& 2011L	and Integrated Principles of Biology Laboratory 2 (**Critical Tracking**; Gen Ed Biological Sciences)	
CHM 2210	Organic Chemistry 1 (minimum grade of C within two attempts, including withdrawals)	3
FOS 2040	Introductory Food Science	3
STA 2023	Introduction to Statistics 1 (Gen Ed Mathematics)	3
	Credits	**16**
Semester Five		
AEC 3030C	Effective Oral Communication	3
CHM 2211	Organic Chemistry 2	5
& 2211L	and Organic Chemistry Laboratory	
FOS 3060	Life After Graduation	1
FOS 4722C	Quality Control in Food Systems (**Critical Tracking**)	3
Elective		3
	Credits	**15**
Semester Six		
FOS 4311	Food Chemistry	4
& 4311L	and Food Chemistry Laboratory (**Critical Tracking**)	
FOS 4731	Government Regulations and the Food Industry	2
HUN 2201	Fundamentals of Human Nutrition	3
MCB 2000	Microbiology	4
& 2000L	and Microbiology Laboratory	
Elective		3
	Credits	**16**
Semester Seven		
AEC 3033C	Research and Business Writing in Agricultural and Life Sciences (Writing Requirement)	3
BCH 3025	Fundamentals of Biochemistry	4
FOS 4321C	Food Analysis (**Critical Tracking**)	4
FOS 4410C	Introduction to Unit Operations in Food Processing	4
	Credits	**15**
Semester Eight		
FOS 4222	Food Microbiology	5
& 4222L	and Food Microbiology Laboratory	
FOS 4427C	Principles of Food Processing	4
FOS 4435C	Food Product Development (**Critical Tracking**)	3
Elective		3
	Credits	**15**
	Total Credits	**120**

Additional electives may be needed to complete the 120 credits required for graduation.

Academic Learning Compact

Food Science applies the principles of chemistry, biology, physics, and analysis to solve problems related to composition, reactions, processing, quality, safety, and packaging of foods. Students will learn to apply principles of microbiology and quality control with regulatory requirements to assure the quality and safety of food products. Emphasis will be placed on food processing and engineering in selecting appropriate methods for commercial food production.

Before Graduating Students Must

- Successfully complete a product development project administered in FOS 4435C, the undergraduate capstone course. The skills to complete the project will have been acquired from the required food science courses. The project is evaluated using a rubric approved by a faculty committee.
- Achieve minimum grades of C in AEC 3030C and AEC 3033C. These courses are graded using rubrics developed by a faculty committee.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes | SLOs

Content

1. Apply principles of chemistry, biology, physics and analysis to solve problems related to composition, reactions, processing, quality, safety, and packaging of foods.
2. Apply principles of microbiology and quality control, along with regulatory requirements, to assure the quality and safety of food products.
3. Apply principles of food processing and engineering to the selection of appropriate methods for commercial food production.

Critical Thinking

4. Analyze and interpret analytical data using knowledge and application of food science, technology and related tools.

Communication

5. Create, interpret and analyze written text, oral messages and multimedia presentations used in agricultural and life sciences.

Curriculum Map

I = Introduced; R = Reinforced; A = Assessed

Courses	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5
AEC 3030C					I, R, A
AEC 3033C					I, R, A
AOM 4062			I		
FOS 4222 and 4222L		I, R			
FOS 4311 and 4311L	I, R				
FOS 4321C	R			R	
FOS 4427C			I		
FOS 4435C	R, A	R, A	R, A	R, A	R
FOS 4722C	R	R	R	R	
FOS 4731		R			

Assessment Types

- Food product development project
- Speeches
- Papers