

FOOD SCIENCE (AGLS)

Food science is a degree program focused on food issues from the time crops leave the field until consumers buy the food products. Food scientists apply basic science (chemistry, biology, physics) to improve processing, preservation, and safety of food and to develop new food products. There are two options in food science, and both options are approved by the Institute of Food Technologists: food science and technology option, and food science and industry option.

The department also offers a food science minor. (<http://catalog.iastate.edu/previouscatalogs/2016-2017/collegeofagricultureandlifesciences/foodscienceandhumannutrition/#undergraduateminortext>)

Administered by the Department of Food Science and Human Nutrition

Students select one of the following options and complete all requirements for that option: food science and technology option or food science and industry option. Courses listed below are required for all of the options, except where specified by option below.

Total Degree Requirement: 120 cr.

Students must fulfill International Perspectives and U.S. Diversity requirements by selecting coursework from approved lists. These courses may also be used to fulfill other area requirements. Only 65 cr. from a two-year institution may apply to the degree which may include up to 16 technical cr.; 9 P-NP cr. of electives; 2.00 minimum GPA.

International Perspectives: 3 cr.

U.S. Diversity: 3 cr.

Communications and Library: 10 cr.

ENGL 150	Critical Thinking and Communication	3
ENGL 250	Written, Oral, Visual, and Electronic Composition	3
LIB 160	Information Literacy	1
SP CM 212	Fundamentals of Public Speaking	3

Total Credits 10

Humanities and Social Sciences: 6-12 cr.

Select Humanities course from approved list	3
ECON 101 Principles of Microeconomics	3
If H Sci student, select:	6
Additional Humanities course	
Additional Humanities or Social Science course	

Ethics and Environmental: 3-6 cr.

FS HN 342 World Food Issues: Past and Present	3
If AgLS student, select from:	2-3
ENV S 120 Introduction to Renewable Resources	
ENV S 201 Introduction to Environmental Issues	

Mathematical Sciences: 7-12 cr.

Food science and technology option:

Select from:	8
MATH 165 Calculus I & MATH 166 and Calculus II	

or

MATH 181 Calculus and Mathematical Modeling for the Life & MATH 182 Sciences I and Calculus and Mathematical Modeling for the Life Sciences II	
Select at least 3 credits from:	3-4
STAT 101 Principles of Statistics	
STAT 104 Introduction to Statistics	
STAT 105 Introduction to Statistics for Engineers	
Total Credits	11-12

Food science and industry option:

Select at least 4 credits from:	4
MATH 160 Survey of Calculus	
MATH 165 Calculus I	
MATH 181 Calculus and Mathematical Modeling for the Life Sciences I	
Select at least 3 credits from:	3-4
STAT 101 Principles of Statistics	
STAT 104 Introduction to Statistics	
STAT 105 Introduction to Statistics for Engineers	
Total Credits	7-8

Physical Sciences: 13-25 cr.

Food science and technology option:

CHEM 177 General Chemistry I	4
CHEM 177L Laboratory in General Chemistry I	1
CHEM 178 General Chemistry II	3
CHEM 331 Organic Chemistry I	3
CHEM 331L Laboratory in Organic Chemistry I	1
CHEM 332 Organic Chemistry II	3
PHYS 111 General Physics	5
PHYS 112 General Physics	5

Total Credits 25

Food science and industry option:

Select from:	5-8
CHEM 163 College Chemistry & 163L and Laboratory in College Chemistry	
CHEM 177 General Chemistry I & 177L and Laboratory in General Chemistry I & CHEM 178 and General Chemistry II	
CHEM 231 Elementary Organic Chemistry	3
CHEM 231L Laboratory in Elementary Organic Chemistry	1
PHYS 115 Physics for the Life Sciences or PHYS 111 General Physics	4-5

Total Credits 13-17

Biological Sciences: 12-13 cr.

Food science and technology option:

BBMB 301 Survey of Biochemistry	3
BIOL 211 Principles of Biology I	3
BIOL 212 Principles of Biology II	3
MICRO 302 Biology of Microorganisms	3
MICRO 302L Microbiology Laboratory	1

Total Credits 13

Food science and industry option:

BBMB 301	Survey of Biochemistry	3
BIOL 211	Principles of Biology I	3
BIOL 212	Principles of Biology II	3
MICRO 201 or MICRO 302	Introduction to Microbiology Biology of Microorganisms	2-3
MICRO 201L or MICRO 302L	Introductory Microbiology Laboratory Microbiology Laboratory	1
Total Credits		12-13

Food Science and Human Nutrition: 44 cr.

FS HN 101	Food and the Consumer	3
FS HN 110	Professional and Educational Preparation	1
FS HN 167	Introduction to Human Nutrition	3
FS HN 203	Contemporary Issues in Food Science and Human Nutrition	1
FS HN 311	Food Chemistry	3
FS HN 311L	Food Chemistry Laboratory	1
FS HN 351	Introduction to Food Engineering Concepts	3
FS HN 403	Food Laws, Regulations, and the Regulatory Process	2
FS HN 405	Food Quality Assurance	3
FS HN 406	Sensory Evaluation of Food	3
FS HN 410	Food Analysis	3
FS HN 411	Food Ingredient Interactions and Formulations	2
FS HN 412	Food Product Development	3
FS HN 420	Food Microbiology	3
FS HN 421	Food Microbiology Laboratory	3
FS HN 471	Food Processing I	3
FS HN 472	Food Processing II	3
FS HN 480	Professional Communication in Food Science and Human Nutrition	1
Total Credits		44

Food science and industry option:

Select 6 credits from the following business courses:		6
ACCT 215	Legal Environment of Business	
ACCT 284	Financial Accounting	
ACCT 285	Managerial Accounting	
ECON 301	Intermediate Microeconomics	
ECON 320	Labor Economics	
MGMT 310	Entrepreneurship and Innovation	
MGMT 370	Management of Organizations	
MGMT 371	Organizational Behavior	
MGMT 414	International Management	
MGMT 472	Management of Diversity	
MIS 301	Management Information Systems	
MKT 340	Principles of Marketing	
MKT 447	Consumer Behavior	
MKT 448	Global Marketing	
Total Credits		6

Electives: 0-23 cr. Select from any university coursework to earn at least 120 total credits.

Go to FS HN courses. (http://catalog.iastate.edu/previouscatalogs/2016-2017/azcourses/fs_hn)

Food Science, B.S. - Food science & industry option

First Year

Fall	Credits	Spring	Credits
FS HN 101	3	FS HN 167	3
FS HN 110	1	CHEM 178 (if CHEM 177 was taken) or elective*	3
CHEM 163 or 177	4	BIOL 212	3
CHEM 163L or 177L	1	MATH 160, 165, or 181	4
BIOL 211	3	ECON 101	3
ENGL 150	3		
LIB 160	1		
	16		16

Second Year

Fall	Credits	Spring	Credits
CHEM 231	3	BBMB 301	3
CHEM 231L	1	FS HN 203	1
PHYS 115 (4cr) or 111 (5cr)	4-5	MICRO 201 or 302	2-3
ENGL 250	3	MICRO 201L or 302L	1
STAT 101 or 104 or 105	3-4	Humanities/Social Sci. (H Sci) or ENV S (AgLS)	2-3
		Humanities (H Sci) or elective (AgLS)*	3
	14-16		12-14

Third Year

Fall	Credits	Spring	Credits
FS HN 311	3	FS HN 342	3
FS HN 311L	1	FS HN 351	3
FS HN 420	3	FS HN 403	2
SP CM 212	3	FS HN 405	3
Humanities course	3	FS HN 421	3
Elective*	1	Elective*	2
	14		16

Fourth Year

Fall	Credits	Spring	Credits
FS HN 406	3	FS HN 412	3
FS HN 410	3	FS HN 472	3
FS HN 411	2	FS HN 480	1
FS HN 471	3	Business course	3
Business Course	3	U.S. Diversity (if not already taken) or Elective*	3
Elective*	2	Elective*	3
	16		16

Total Credits: 120-124

* Choose elective courses to total equal to or greater than 120 credits.

Note: This sequence is only an example. The number of credits taken each semester should be based on the individual student's situation. Factors that may affect credit hours per semester include student ability, employment, health, activities, and grade point considerations.

Food Science, B.S. - Food science and technology option

First Year

Fall	Credits Spring	Credits
FS HN 110	1 FS HN 101	3
CHEM 177	4 FS HN 167	3
CHEM 177L	1 CHEM 178	3
BIOL 211	3 BIOL 212	3
ENGL 150	3 MATH 166 or 182	4
LIB 160	1	
MATH 165 or 181	4	
	17	16

Second Year

Fall	Credits Spring	Credits
CHEM 331	3 CHEM 332	3
CHEM 331L	1 FS HN 203	1
PHYS 111	5 PHYS 112	5
ENGL 250	3 MICRO 302	3
STAT 101, 104, or 105	3-4 MICRO 302L	1
	Elective*	2
	15-16	15

Third Year

Fall	Credits Spring	Credits
BBMB 301	3 FS HN 351	3
FS HN 311	3 FS HN 403	2
FS HN 311L	1 FS HN 405	3
FS HN 420	3 FS HN 421	3
SP CM 212	3 ECON 101	3
Humanities course	3	
	16	14

Fourth Year

Fall	Credits Spring	Credits
FS HN 406	3 FS HN 342	3
FS HN 410	3 FS HN 412	3
FS HN 411	2 FS HN 472	3
FS HN 471	3 FS HN 480	1
Humanities/Social Sci. (H Sci) or ENV S (AgLS)	2-3 US Diversity (if not already taken) or elective*	3
Humanities (H Sci) or elective (AgLS)*	1-3	
	14-17	13

Total Credits: 120-124

* Choose elective courses to total equal to or greater than 120 credits.

Note: This sequence is only an example. The number of credits taken each semester should be based on the individual student's situation. Factors that may affect credit hours per semester include student ability, employment, health, activities, and grade point consideration.