FOOD SCIENCE, BS

The study of food science incorporates real-life aspects of chemistry, physics, microbiology, and engineering to solve today's global and local food problems. The curriculum emphasizes high-level technical competence while instilling communication, critical thinking, and problem-solving skills, with a focus on sustainability and health.

Housed in Babcock Hall, the food science major offers close contact with faculty and instructors, opportunities to conduct research, skill-building extracurricular activities, networking with industry professionals, and access to the modern Food Application Lab and a commercial dairy processing plant that manufactures the campus' famous Babcock ice cream.

With a nearly 100% job placement rate, graduates are equipped to compete and succeed in a modern global economy. Students find career opportunities with corporations, government agencies, and nonprofits in product development, quality assurance/control, processing and engineering, technical sales, management, research, sensory analysis, and food law and regulations.

LEARN THROUGH HANDS-ON, REAL-WORLD EXPERIENCE

Hands-on, practical learning is essential to the program, and laboratory courses are included at every level. Most courses use real food examples to teach principles. A capstone course allows students to apply knowledge from earlier coursework to conduct a lab-based research project and analyze and present their findings. Students are encouraged to pursue internships to gain additional experience; many complete more than one before graduation. Some gain practical experience by working in the Babcock Dairy Plant, making consumer dairy products sold on campus. Others participate in undergraduate research projects on food quality, microbiology, chemistry, and food and health.

BUILD COMMUNITY AND NETWORKS

Faculty teach courses at every level and are on a first-name basis with students. The Food Science Club student organization is active and provides students with leadership opportunities and connections to alums and industry professionals. Additionally, more than 50 companies recruit students annually, providing many links to professionals and job opportunities.

CUSTOMIZE A PATH OF STUDY

Students can select from lab-based elective courses focused on dairy, candy, meat, or fermented foods. The program also offers students the option to participate in honors in research and the flexibility to complete a variety of certificates.

MAKE A STRONG START

A course for first-year students, FOOD SCI 120, focuses on discovering food science and includes study skills, on-campus networking, resume writing, job interview skills, and learning from alums about career options.

GAIN GLOBAL PERSPECTIVE

Study abroad is encouraged and students can use the program's roadmap to take advantage of summer and winter break study abroad opportunities or even a semester abroad with careful planning. Students can explore studying abroad as a Food Science major by utilizing the Food Science Major Advising Page. Students work with their advisor and the CALS study abroad office to identify appropriate programs.

HOW TO GET IN

HOW TO GET IN

Requirements	Details
How to get in	No application required. All students who meet the requirements listed below are eligible to declare. For information on how to declare, visit Advising & Careers.
Courses required to get in	None
GPA requirements to get in	None
Credits required to get in	Must have fewer than 86 credits.
Other	Students who do not meet the requirements above or are not in good academic standing should schedule a meeting with CALS Dean on Call (https://go.wisc.edu/g85h79 (https://go.wisc.edu/g85h79/)) to discuss exceptions.

PROSPECTIVE UW-MADISON STUDENTS

All prospective UW–Madison students must apply through the Office of Admissions and Recruitment (https://www.admissions.wisc.edu/).

Students interested in this major should select it as the first choice major on their UW–Madison application. Admitted students who enroll at UW-Madison and attend Student Orientation, Advising, and Registration (SOAR) with the College of Agricultural and Life Sciences have the option to declare this major at SOAR. More information is available here (https://cals.wisc.edu/academics/undergraduate/future-students/).

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin-Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (https://guide.wisc.edu/undergraduate/#requirementsforundergraduatestudytext) section of the Guide.

General Education

- Breadth—Humanities/Literature/Arts: 6 credits
- Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits
- Breadth—Social Studies: 3 credits
- Communication Part A & Part B *
- Ethnic Studies *
- Quantitative Reasoning Part A & Part B *

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

COLLEGE OF AGRICULTURAL AND LIFE SCIENCES REQUIREMENTS

In addition to the University General Education Requirements, all undergraduate students in CALS must satisfy a set of college and major requirements. Courses may not double count within university requirements (General Education and Breadth) or within college requirements (First-Year Seminar, International Studies, Science, and Capstone), but courses counted toward university requirements may also be used to satisfy a college and/or a major requirement; similarly, courses counted toward college requirements may also be used to satisfy a university and/or a major requirement.

COLLEGE REQUIREMENTS FOR ALL CALS BS DEGREE PROGRAMS

Code	Title	Credits
Quality of Work: Students must maintain a minimum cumulative grade point average of 2.000 to remain in good standing and be eligible for graduation.		
Residency: Students must complete 30 degree credits in residence at UW–Madison after earning 86 credits toward their undergraduate degree.		
First year seminar (https://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSFirstYearSeminarCourses)		1
International studies (https://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSInternationalStudiesCourses)		3
Physical science fundamentals		4-5
CHEM 103	General Chemistry I	
or CHEM 108	Chemistry in Our World	
or CHEM 109	Advanced General Chemistry	
Biological science		5
Additional science (biological, physical, or natural)		3
Science breadth (biological, physical, natural, or social)		3
CALS Capstone Learning Experience: included in the requirements for each CALS major (see "major requirements") (https://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSCapstoneRequirement)		

MAJOR REQUIREMENTS

NUTR SCI/A A E 350 World Hunger and Malnutrition is recommended to fulfill the CALS international studies requirement.

Code	Title	Credits
Mathematics and Statistics		
This major requires calculus. Prerequisites may need to taken before enrollment in calculus.		
Complete one of the following:		5
MATH 217	Calculus with Algebra and Trigonometry II	
MATH 221	Calculus and Analytic Geometry 1	
Complete one of the following:		3
STAT 301	Introduction to Statistical Methods	
STAT 371	Introductory Applied Statistics for the Life Sciences	
Chemistry		
General Chemistry		
Complete one of the following:		5-9
CHEM 103 & CHEM 104	General Chemistry I and General Chemistry II	
CHEM 109	Advanced General Chemistry	
Organic Chemistry		
CHEM 343	Organic Chemistry I	3
Physics		
Complete one of the following:		4-5
PHYSICS 103	General Physics	
PHYSICS 201	General Physics	
PHYSICS 207	General Physics	
Biology		
Introductory Biology		
BIOLOGY/BOTANY/ZOOLOGY 151	Introductory Biology	5
Fundamental Biological Sciences		
MICROBIO 101	General Microbiology	3
or MICROBIO 303	Biology of Microorganisms	
MICROBIO 102	General Microbiology Laboratory	2
or MICROBIO 304	Biology of Microorganisms Laboratory	
BIOCHEM 501	Introduction to Biochemistry	3
Nutritional Science		
NUTR SCI/BIOCHEM 510	Nutritional Biochemistry and Metabolism	3
or NUTR SCI 332	Human Nutritional Needs	
Core		
FOOD SCI 301	Introduction to the Science and Technology of Food	3
AN SCI/FOOD SCI 321	Food Laws and Regulations	1
FOOD SCI/MICROBIO 324	Food Microbiology Laboratory	2
FOOD SCI/MICROBIO 325	Food Microbiology	3
FOOD SCI 410	Food Chemistry	3

FOOD SCI 412	Food Analysis	4
FOOD SCI 432	Principles of Food Preservation	3
FOOD SCI 440	Principles of Food Engineering	3
FOOD SCI 514	Integrated Food Functionality	4
FOOD SCI 532	Integrated Food Manufacturing	4
Integrated Food Product Elective		
Complete one of the following (2 credits minimum):		2
FOOD SCI 511	Chemistry and Technology of Dairy Products	
FOOD SCI/ AN SCI 515	Commercial Meat Processing	
FOOD SCI 535	Confectionery Science and Technology	
Capstone		
FOOD SCI 602	Senior Project	2
FOOD SCI 603	Senior Seminar	1
Total Credits		**71-76**

UNIVERSITY DEGREE REQUIREMENTS

Total Degree	To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.
Residency	Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.
Quality of Work	Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.

LEARNING OUTCOMES

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1. Clearly and effectively communicate, both verbally and written, to a diverse range of audiences including technical experts and a lay audience.
2. Apply quantitative problem solving and critical thinking skills in all aspects of food science.
3. Rigorously apply scientific principles and quantitative reasoning to solve food science problems (technical competence).
4. Demonstrate the ability to work both independently and in groups across a wide range of situations.

FOUR-YEAR PLAN

FOUR-YEAR PLAN

This sample four-year plan is a tool to assist students and their advisors. Students should use their DARS report, the degree planner, Guide requirements, and the course search & enroll tools to make their own four-year plan based on their placement scores, credit for transferred courses and approved examinations, and individual interests. Students must complete a minimum of 120 credits. This may require taking 16 credits per semester for at least four semesters.

SAMPLE FOOD SCIENCE FOUR-YEAR PLAN

First Year

Fall	Credits	Spring	Credits
CHEM 103 or 109[1]	4	CHEM 104[1]	5
MATH 221	5	BIOLOGY/BOTANY/ ZOOLOGY 151	5
Communications A requirement (COMM-A)[2]	3	FOOD SCI 201 (recommended)	1
CALS First-Year Seminar	1	Ethnic Studies	3
	13		**14**

Second Year

Fall	Credits	Spring	Credits
CHEM 343	3	STAT 371 or 301	3
FOOD SCI 301	3	PHYSICS 103, 201, or 207	4
MICROBIO 101 & MICROBIO 102	5	Elective	3
CALS International Studies	3	General Education Course	3
	14		**13**

Third Year

Fall	Credits	Spring	Credits
BIOCHEM 501	3	NUTR SCI 332 or 510	3
FOOD SCI 440	3	FOOD SCI/AN SCI 321	1
FOOD SCI 410	3	FOOD SCI 432	3
MICROBIO/ FOOD SCI 324 & MICROBIO/ FOOD SCI 325	5	FOOD SCI 412	4
General Education Course[3]	3	General Education Course	3
		Integrated Food Product Elective[4]	1-3
	17		**17**

Fourth Year

Fall	Credits	Spring	Credits
FOOD SCI 532	4	FOOD SCI 514	4
FOOD SCI 602	2	FOOD SCI 603[2]	1
General Education Course	3	Elective	3-5
Integrated Food Product Elective[4]	1-3	General Education Course	3

Elective	3-5 Integrated Food Product Elective[4]	1-3
	17	**15**

Total Credits 120

1 Students taking CHEM 109 do not take CHEM 104.
2 Note that the communications B requirement is met through FOOD SCI 602 Senior Project & FOOD SCI 603 Senior Seminar
3 Students may choose to complete a general education course requirement this semester. Note: Enrolling in 17 credits this semester is not recommended.
4 Students are required to take at least one integrated food product elective course; students may choose to meet the integrated food product elective requirement during this semester.

ADVISING AND CAREERS

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ADVISING

All students are assigned a faculty advisor, who they will come to know on a first-name basis, once they declare the major. Advisors are prepared to help with curricular planning and course access; major and degree questions; discussion of independent study and lab research experience; and navigating internship and scholarship opportunities. Declared food science majors must meet with their assigned advisor each semester before enrolling in coursework. Additional information can be found on the department's website listed in the Contact Information Box.

Prospective food science majors should contact the Department of Food Science for more information (see the Contact Information Box).

CAREER OPPORTUNITIES

More than 50 organizations recruit students each year, and nearly all food science majors receive a job offer before graduation. Careers include working in product development, quality assurance/control, processing and engineering, technical sales, management, research, sensory analysis, and food law and regulations for corporations, nonprofits, and government agencies. Faculty advisors and course assignments help prepare students to write resumes, interview for jobs, and network with professionals in the field.

GRADUATE STUDY

Students considering post-graduate study should consult with their advisor and review the admissions requirements for graduate programs of interest. Post-graduate study may require preparatory coursework beyond the food science major requirements.

WISCONSIN EXPERIENCE

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STUDENT ORGANIZATIONS

The Food Science Club organizes many programs, including mentoring first-year students, organizing company visits and tours, monthly socials, K-12 educational outreach, a food and health initiative, and a food systems initiative. Club meetings usually include presentations by companies and include food. Faculty advise the club, and activities are coordinated with coursework.

COMPETITIVE TEAMS

The Food Science Club coordinates many competitions. Each year, there are several different product development competitions, which are very popular with students. There is also a College Bowl, which is a food science trivia competition, and a dairy judging team that competes regionally and nationally.

INTERNSHIPS

Advisors encourage students to pursue internships with one of the dozens of companies connected to the program. Most students complete at least one internship before graduation, but some complete as many as three. Students spend their summers at companies that include General Mills, Pepsico, Kraft-Heinz, Organic Valley, Danone, Agropur, Schreiber Cheese, Lindt Chocolate, and many more. These internships are generally paid, and many have lodging subsidies.

Students can also gain experience in several campus centers and programs focused on food, including the Babcock Dairy Plant, Center for Dairy Research, Food Research Institute, or Bucky's Varsity Meats.

RESEARCH EXPERIENCE

First-year students are encouraged to pursue research experiences in faculty labs to get involved. Undergraduates can participate for credit through independent study or work for pay. Students working in faculty labs have been co-authors of scientific publications in food science and nutrition journals.

GLOBAL ENGAGEMENT

With advance planning, students can study abroad and complete the degree in four years. Opportunities include France, the Netherlands, and Australia. Read more about study abroad as a food science major. (https://studyabroad.wisc.edu/academics/major-advising-pages-maps/food-science/)

COMMUNITY ENGAGEMENT AND VOLUNTEERING

The Food Science Club organizes various volunteer activities. These have included dinners at the Ronald McDonald House, working with food pantries, and reducing food waste.

RESOURCES AND SCHOLARSHIPS

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SCHOLARSHIPS

Students in the College of Agricultural and Life Sciences receive more than $1.25 million in scholarships annually. Learn more about college scholarships.

Food science students are additionally eligible for approximately $50,000-60,000 in annual scholarships. Well-qualified students receive awards ranging from $1,000-$3,000.

RESOURCES

Babcock Dairy Plant: Want practical experience in a fully operational dairy plant? Consider signing up for part-time work in the Babcock Dairy Plant

to gain experience in a wide range of practical jobs, from quality control to production.

Babcock Hall Food Application Lab: This lab has 11 culinary workstations, food service equipment, and other amenities needed to prepare food at both small and food service scales.

Center for Dairy Research (CDR): Also within Babcock Hall is the internationally-renowned Center for Dairy Research. Students can conduct research, work in the analytical labs, or participate in the CDR Sensory Panel to gain invaluable practical experience.

Food Research Institute (FRI): Housed in the Microbial Sciences Building, FRI conducts industry-oriented research on various food safety topics.

Bucky's Varsity Meats: Interested in meat science? The meat processing facilities within the Department of Animal and Dairy Sciences apply many food science principles and provide a unique opportunity for students to get hands-on experience with all aspects of meat production.