



*DEPARTMENT OF ANIMAL AND FOOD SCIENCES*

Food Science employs scientific principles in the design of new food products and explores ways to process, package and preserve the thousands of food items we consume to ensure their safety and quality.

**Bachelor of Science in Food Science at UD**

In the Food Science major, students initially obtain a broad background in the sciences (chemistry, biology, physics and math) as a basis for in-depth studies of the food science disciplines of food chemistry, food processing, food engineering, food safety, food microbiology, and food product development. Electives provide the opportunity for course work in areas ranging from business to molecular biology and allow students to obtain specialized knowledge in other fields important to Food Science, depending on their own interests. Graduates of the major will acquire the skills and knowledge for a successful and well paid career in all sectors of society concerned with the development and production of safe and healthy food. Sustainable food production is key to the US and its role in the global economy. The major also lays the foundation for students who want to pursue an advanced degree in Food Science.

**Program Highlights**

One of the strengths of the Food Science program is the connection between students and faculty. Not only do students and faculty interact in class and in laboratories, but they work together on research projects, in club activities, and through independent studies. Faculty serve as academic advisors, assisting with course selection, providing internship advice, and helping with career planning. Students who demonstrate strong academic performance and who wish to

get practical research experience may choose to participate in the Science & Engineering Scholars program or pursue a Degree with Distinction under the supervision of a faculty mentor. The Food Science program emphasizes the acquisition of practical experience.

For example, all upper level food science courses include a laboratory component; all faculty encourage and offer undergraduate research opportunities; and established links with regional food companies and government research facilities provide access to valuable internship experiences. In the Food Science Capstone course, students conduct a semester-long project that includes the development of a novel food product, starting from basic ingredients and ending with the finished product. Along the way, the students conduct such tasks as taste testing, marketing research and quality control.

Many Food Science majors enhance their undergraduate experience by joining the Food Science Club, which sponsors social and professional-development activities and serves as a student chapter of the Institute of Food Technologists (IFT). Students have the opportunity to meet, learn from, and network with professional food scientists at the monthly meetings of the Philadelphia Chapter of the IFT. The Club also fosters interaction with Food Science students from other universities through participation in the Food Science College Bowl and by sponsoring trips to the annual national meeting of the IFT.

**Facilities and Resources**

The College of Agriculture and Natural Resources houses the Food Science major, and its facilities are readily accessible to our students. Townsend and Worriow Halls house our classrooms, faculty offices, and our food-science

laboratories with high-tech equipment related to food processing, food microbiology and packaging. A test kitchen and small pilot-scale processing area located in the Newton Building are equipped for preparation of food-grade items that are only limited by students' imagination. The UDairy Creamery is also onsite where students can invent new flavors, and perform sensory and market analysis. This delicious new addition to the CANR family is a great way for students to see and experience food development first hand. Students work with UDairy Creamery staff and interns in course work and in extracurricular activities. An agriculture library and computing site with access to E-mail and the Internet provide support services for class work and research projects.

**Career Paths**

Upon graduation, job opportunities are vast and include positions within the food and allied industries, government, and independent research institutions. The role of the food scientist in such positions may involve product and process development, food safety, engineering, quality control and analysis, technical service and sales, with opportunities in regulatory agencies, education, and basic research. Qualified students from our program go on to pursue graduate degrees in food safety, food chemistry, process engineering, food microbiology, and molecular biology. We encourage all students to participate in job-search workshops and career days, to seek internships, to develop communication skills, and to learn to network with prospective employers. This, in addition to doing well academically, greatly enhances post-graduate opportunities.

# The Food Science Curriculum

Starting with the first semester, Food Science majors usually have at least one course in the major each term. To earn a bachelor's degree, students must complete **124 credits** and meet specific requirements, as outlined in the *University of Delaware Undergraduate Catalog*. Each semester's courses will vary, depending on the student's concentration, interest, background, and academic preparation. **The following plan is only one example; not every student will take every course in the same order. Most students take 12 -17 credits per semester;** Winter and Summer sessions may be used to lighten the loads of regular semesters.

## FALL SEMESTER

### Freshman Year

ANFS 159 Topics in Food Science (1 cr)  
ANFS 165 First Year Experience (1 cr, FYE)  
NTDT 200 Nutrition Concepts (3 cr)  
CHEM 103 General Chemistry (4 cr)  
MATH 221 Calculus I (3 cr)  
ANFS 111 Animal Science Laboratory (1 cr)  
Additional classes to total 12 to 17 credits

### Sophomore Year

ANFS 230 Foodborne Diseases (3 cr)  
CHEM 321 Organic Chemistry (4 cr)  
PHYS 201 Intro. Physics I (4 cr)  
Additional classes to total 12 to 17 credits

### Junior Year

ANFS 428 Food Chemistry (even years) or  
ANFS 409 Food Processing (4 cr)  
BISC 208 Intro Biology II (4 cr)  
CHEM 220 Quantitative Analysis (3 cr)  
CHEM 221 Quantitative Analysis Lab (1 cr)  
FREC 408 Statistics (3 cr)  
Additional classes to total 12 to 17 credits

### Senior Year

ANFS 428 Food Chemistry (4 cr, even years) or  
ANFS 409 Food Processing (4 cr)  
ANFS 439 Food Microbiology (4 cr)  
CHEM 418 Intro Physical Chemistry I (3 cr)  
Additional classes to total 12 to 17 credits

<sup>1</sup>A course that fulfills the University's Second Writing Requirement is usually taken in the junior or senior year

<sup>2</sup>Strongly recommended but not required

## SPRING SEMESTER

### Freshman Year

ENGL 110 Critical Reading & Writing (3 cr)  
CHEM 104 General Chemistry (4 cr)  
MATH 222 Calculus II (3 cr)  
ANFS 102 Food for Thought (3 cr)  
Additional classes to total 12 to 17 credits

### Sophomore Year

BISC 207 Intro. Biology I (4 cr)  
CHEM 322 Organic Chemistry (4 cr)  
ANFS 305 Food Science (3 cr)  
PHYS 202 Intro. Physics II (4 cr)  
<sup>2</sup>ANFS 265 Career Development (1 cr)  
Additional classes to total 12 to 17 credits

### Junior Year

ANFS 429 Food Analysis (even years) or  
ANFS 443 Food Engineering (4 cr)  
BISC 300 Intro. Microbiology (4 cr)  
CHEM 214 Elementary Biochemistry (3 cr)  
<sup>1</sup>Second Writing Requirement (3 cr)  
Additional classes to total 12 to 17 credits

### Senior Year

ANFS 429 Food Analysis (4 cr, even years) or  
ANFS 443 Food Engineering (4 cr)  
ANFS 449 Food Biotechnology (4 cr)  
ANFS 411 Food Science Capstone (DLE) (4 cr)  
Additional classes to total 12 to 17 credits

## FOR MORE INFORMATION

**You are welcome to come talk with us about our majors and the ways in which we can help you reach your goals. Please contact us:**



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