



### **Twin Cities Campus**

## **Food Science B.S.**

*Food Science & Nutrition*

### **College of Food, Agricultural and Natural Resource Sciences**

- Program Type: Baccalaureate
- Requirements for this program are current for Spring 2012
- Required credits to graduate with this degree: 120
- Required credits within the major: 95
- Degree: Bachelor of Science

Food science applies chemistry, microbiology, and engineering to the science and technology of making foods.

Chemistry--because foods undergo chemical reactions when they are heated, frozen, mixed with each other, and stored.

Microbiology--because many foods are made by microorganisms (e.g., bread, cheese, yogurt, sauerkraut, tempeh) and because microorganisms cause extensive, rapid, and often dangerous spoilage.

Physics and engineering--because foods must be constructed, moved through the factory, made safe, and distributed intact to the consumer.

Food science involves creating new food products and making current products more stable, nutritious, convenient, reliable, and safe.

The food science program is offered through the College of Food, Agricultural and Natural Resource Sciences.

## **Program Delivery**

This program is available:

- via classroom (the majority of instruction is face-to-face)

## **Admission Requirements**

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

## **General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](#). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

## **Program Requirements**

All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C- or better.

### **Foundation Courses**

[BIOL 1009](#) - General Biology [BIOL] (4.0 cr)

[CHEM 1021](#) ~~{Inactive}~~ [PHYS] (4.0 cr)

[CHEM 1022](#) ~~{Inactive}~~ [PHYS] (4.0 cr)

[CHEM 2301](#) - Organic Chemistry I (3.0 cr)

[CHEM 2302](#) - Organic Chemistry II (3.0 cr)

[CHEM 2311](#) - Organic Lab (4.0 cr)

[PHYS 1301W](#) - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

[STAT 3011](#) - Introduction to Statistical Analysis [MATH] (4.0 cr)

[MATH 1142](#) - Short Calculus [MATH] (4.0 cr)

or take this pair of courses

[MATH 1271](#) - Calculus I [MATH] (4.0 cr)

[MATH 1272](#) - Calculus II (4.0 cr)

[BIOC 3021](#) - Biochemistry (3.0 cr)

or take the following course pair

[BIOC 4331](#) - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)

[BIOC 4332](#) - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)

[FSCN 2021](#) - Introductory Microbiology (4.0 cr)

or [VBS 2032](#) - General Microbiology With Laboratory (5.0 cr)

or [MICB 3301](#) - Biology of Microorganisms (5.0 cr)

[BIOL 4003](#) - Genetics (3.0 cr)

or [GCD 3022](#) - Genetics (3.0 cr)

### **Professional Courses**



BBE 4744 - Engineering Principles for Biological Scientists (4.0 cr)  
FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)  
FSCN 1112 - Principles of Nutrition [TS] (3.0 cr)  
FSCN 3102 - Introduction to Food Science (3.0 cr)  
FSCN 4121 - Food Microbiology (3.0 cr)  
FSCN 4122 - Food Fermentations and Biotechnology (2.0 cr)  
FSCN 4131 - Food Quality (3.0 cr)  
FSCN 4312W - Food Analysis [WI] (4.0 cr)  
FSCN 4332 *{Inactive}* (3.0 cr)  
FSCN 4311 - Chemical Reactions in Food Systems (2.0 cr)  
FSCN 4349 - Food Science Capstone (2.0 cr)  
FSCN 4112 - Food Chemistry and Functional Foods (3.0 cr)

#### Communication

WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)  
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)  
or PSTL 1461 *{Inactive}* [CIV] (3.0 cr)

#### Professional Courses

#### Internship, UROP, or Study Abroad Experience

FSCN 4096 - Professional Experience Program: Internship (1.0 - 4.0 cr)  
or UROP research project  
or Study abroad for one semester

### Program Sub-plans

A sub-plan is not required for this program.

#### Honors UHP

This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:  
[http://www.honors.umn.edu/academics/curriculum/dept\\_courses\\_current.html](http://www.honors.umn.edu/academics/curriculum/dept_courses_current.html)

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.

As part of their honors program, CFANS students complete CFAN 3100H; they must submit their project for this faculty-mentored honors experience to the honors committee for approval prior to registration.