FOOD SCIENCE (MFS)

Graduate School

Program Website (https://cals.cornell.edu/education/degrees-programs/graduate-field-of-food-sciences-technology/master-of-food-science-mfs)

CIP: 01.1001 | **HEGIS:** 01.13 | **NYSED:** 13073

Graduate Field

Food Science and Technology (https://catalog.cornell.edu/graduate-school/food-science-technology/)

Program Description

The master of food science (M.F.S.) is a one-year, STEM-designated, course-based master's degree program ideal for career-focused students aiming to enhance their skills. This professional master's degree is ideal for people already established in their careers.

A hallmark of the M.F.S. program is the balanced portfolio of technical knowledge, analytical skills, and professional development built into the curriculum, designed to equip students with the skill set and knowledge necessary for careers in industry, government, or nonprofit agencies.

The field of food science and technology offers eight concentrations for M.F.S. degree candidates. Each concentration cultivates the skillset and develops the theoretical problem-solving capacity required for careers in these fields within food science:

- Dairy processing
- Enology
- Food chemistry
- Food engineering
- Food microbiology/food safety
- Food science
- Sensory evaluation
- Food toxicology

Program Information

- Program Mode of Delivery: In Person
- Program Location: Ithaca, NY
- Minimum Credits for Degree: 30

Program Requirements

Food Science MFS Concentrations

Food Science

Code	Title	Hours
Core Courses		**5-8**
FDSC 6000	Seminar in Food Science (must take fall and spring)	1
FDSC 6950	Current Readings in Food Science	1
ALS 5900	Project Development: CALS Professional Master's Programs	1-5
ALS 5910	Project Completion: CALS Professional Master's Programs	1
Concentration Competency		**12**
Required Courses		
FDSC 6010	Food Science and Technology Graduate Boot Camp	1
Additional Options		
FDSC 5010	Concepts of Food Product Development	2
FDSC 6170	Food Chemistry	3
FDSC 5100	Sensory Evaluation of Food	2-3
FDSC 5210	Food Engineering Principles	4
FDSC 5230	Unit Operations and Food Packaging	2
FDSC 5960	Food Safety Assurance	2
FDSC 6220	Foods, Dietary Supplements, and Health	3
FDSC 6250	Food Processing: Conventional and Emerging Technologies	2
FDSC 6650	Food and Bioprocessing Systems	2
FDSC 6040	Chemistry and Functional Properties of Food Ingredients	2
CHEM 6700	Fundamental Principles of Polymer Chemistry	3
BIOMI 7910		
FDSC 5206	Fermentation of Food	1
FDSC 5940	Applied and Food Microbiology	3
FDSC 6310	The Science and Technology of Beer Laboratory	2
VTPEH 6123	Food Systems Approaches to Food Safety	3
BIOMI 6850	Bacterial Genetics	2-3
BEE 5310	Bio-Fluid Mechanics	4
BEE 5500	Heat and Mass Transfer in Biological Engineering	4
VIEN 5204	Principles and Practices of Growing Grapes and Making Wines	3
ANSC 6510	Dairy Herd Business Management	4
VIEN 5205	Growing Grapes and Making Wines Graduate Laboratory	2
VIEN 5400	Wine and Grapes: Composition and Analysis	2
VIEN 6700	Advanced Winemaking Theory and Practice II	2
VIEN 6710	Advanced Winemaking Theory and Practice II Laboratory	2
VIEN 5300	The Science of Grapevines	2
VIEN 5400	Wine and Grapes: Composition and Analysis	2
VIEN 6400	Wine and Grape Flavor Chemistry	3
AEM 5480	From Labels to Lab-Grown Meat: Consumer Behavior and the Food Industry	1.5
BIONB 5910	Principles of Neurophysiology	4
ANSC 6270	Endocrinology: Biology of Hormones	3
VTPMD 6640	Introduction to Epidemiology	3
BIOMG 8370		
VTPEH 6121	Food Systems and Health	3

Code	Title	Hours
Free Electives		**at least 10**
5000 and up - Selected with Advisor and MFS Director		

Food Chemistry

Code	Title	Hours
Core Courses		**5-8**
FDSC 6000	Seminar in Food Science (must take fall and spring)	1
FDSC 6950	Current Readings in Food Science	1
ALS 5900	Project Development: CALS Professional Master's Programs	1-5
ALS 5910	Project Completion: CALS Professional Master's Programs	1

Code	Title	Hours
Concentration Competency		**12**
Required Courses		
FDSC 6010	Food Science and Technology Graduate Boot Camp	1
Additional Options		
FDSC 5010	Concepts of Food Product Development	2
FDSC 6170	Food Chemistry	3
FDSC 5100	Sensory Evaluation of Food	2-3
FDSC 5210	Food Engineering Principles	4
FDSC 5230	Unit Operations and Food Packaging	2
FDSC 6220	Foods, Dietary Supplements, and Health	3
FDSC 6040	Chemistry and Functional Properties of Food Ingredients	2
CHEM 6700	Fundamental Principles of Polymer Chemistry	3
VTPEH 6121	Food Systems and Health	3

Code	Title	Hours
Free Electives		**at least 10**
5000 and up - Selected with Advisor and MFS Director		

Food Microbiology and Food Safety

Code	Title	Hours
Core Courses		**5-8**
FDSC 6000	Seminar in Food Science (must take fall and spring)	1
FDSC 6950	Current Readings in Food Science	1
ALS 5900	Project Development: CALS Professional Master's Programs	1-5
ALS 5910	Project Completion: CALS Professional Master's Programs	1

Code	Title	Hours
Concentration Competency		**12**
Required Courses		
FDSC 6010	Food Science and Technology Graduate Boot Camp	1
Additional Options		
FDSC 6170	Food Chemistry	3
FDSC 5230	Unit Operations and Food Packaging	2
FDSC 5010	Concepts of Food Product Development	2
FDSC 5960	Food Safety Assurance	2
BIOMI 7910		
FDSC 5206	Fermentation of Food	1
FDSC 5940	Applied and Food Microbiology	3
FDSC 6310	The Science and Technology of Beer Laboratory	2
VTPEH 6123	Food Systems Approaches to Food Safety	3
BIOMI 6850	Bacterial Genetics	2-3
BIOMG 8370		
VTPEH 6121	Food Systems and Health	3

Code	Title	Hours
Free Electives		**at least 10**
5000 and up - Selected with Advisor and MFS Director		

Food Engineering

Code	Title	Hours
Core Courses		**5-8**
FDSC 6000	Seminar in Food Science (must take fall and spring)	1
FDSC 6950	Current Readings in Food Science	1
ALS 5900	Project Development: CALS Professional Master's Programs	1-5
ALS 5910	Project Completion: CALS Professional Master's Programs	1

Code	Title	Hours
Concentration Competency		**12**
Required Courses		
FDSC 6010	Food Science and Technology Graduate Boot Camp	1
Additional Options		
FDSC 5210	Food Engineering Principles	4
FDSC 5230	Unit Operations and Food Packaging	2
FDSC 5010	Concepts of Food Product Development	2
FDSC 6650	Food and Bioprocessing Systems	2
FDSC 6250	Food Processing: Conventional and Emerging Technologies	2
BEE 5310	Bio-Fluid Mechanics	4
BEE 5500	Heat and Mass Transfer in Biological Engineering	4
VTPEH 6121	Food Systems and Health	3

Code	Title	Hours
Free Electives		**at least 10**
5000 and up - Selected with Advisor and MFS Director		

Dairy Processing

Code	Title	Hours
Core Courses		**5-8**
FDSC 6000	Seminar in Food Science (must take fall and spring)	1
FDSC 6950	Current Readings in Food Science	1

ALS 5900	Project Development: CALS Professional Master's Programs	1-5
ALS 5910	Project Completion: CALS Professional Master's Programs	1

Code	Title	Hours
Concentration Competency		**12**
Required Courses		
FDSC 6010	Food Science and Technology Graduate Boot Camp	1
Additional Options		
FDSC 6170	Food Chemistry	3
FDSC 5210	Food Engineering Principles	4
FDSC 5230	Unit Operations and Food Packaging	2
FDSC 5010	Concepts of Food Product Development	2
FDSC 6650	Food and Bioprocessing Systems	2
FDSC 6250	Food Processing: Conventional and Emerging Technologies	2
FDSC 6040	Chemistry and Functional Properties of Food Ingredients	2
FDSC 5206	Fermentation of Food	1
ANSC 6510	Dairy Herd Business Management	4

Code	Title	Hours
Free Electives		**at least 10**
5000 and up - Selected with Advisor and MFS Director		

Enology

Code	Title	Hours
Core Courses		**5-8**
FDSC 6000	Seminar in Food Science (must take fall and spring)	1
FDSC 6950	Current Readings in Food Science	1
ALS 5900	Project Development: CALS Professional Master's Programs	1-5
ALS 5910	Project Completion: CALS Professional Master's Programs	1

Code	Title	Hours
Concentraton Competency		**12**
Required Courses		
FDSC 6010	Food Science and Technology Graduate Boot Camp	1
Additional Options		
FDSC 5100	Sensory Evaluation of Food	2-3
FDSC 5206	Fermentation of Food	1
VIEN 5204	Principles and Practices of Growing Grapes and Making Wines	3
VIEN 5205	Growing Grapes and Making Wines Graduate Laboratory	2
VIEN 5400	Wine and Grapes: Composition and Analysis	2
VIEN 6700	Advanced Winemaking Theory and Practice II	2
VIEN 6710	Advanced Winemaking Theory and Practice II Laboratory	2
VIEN 5300	The Science of Grapevines	2
VIEN 5400	Wine and Grapes: Composition and Analysis	2
VIEN 6400	Wine and Grape Flavor Chemistry	3

Code	Title	Hours
Free Electives		**at least 10**
5000 and up - Selected with Advisor and MFS Director		

Sensory Evaluation

Code	Title	Hours
Core Courses		**5-8**
FDSC 6000	Seminar in Food Science (must take fall and spring)	1
FDSC 6950	Current Readings in Food Science	1
ALS 5900	Project Development: CALS Professional Master's Programs	1-5
ALS 5910	Project Completion: CALS Professional Master's Programs	1

Code	Title	Hours
Concentration Competency		**12**
Required Courses		
FDSC 6010	Food Science and Technology Graduate Boot Camp	1
Additional Options		
FDSC 6170	Food Chemistry	3
FDSC 5100	Sensory Evaluation of Food	2-3
FDSC 5010	Concepts of Food Product Development	2
FDSC 6040	Chemistry and Functional Properties of Food Ingredients	2
VIEN 6400	Wine and Grape Flavor Chemistry	3
AEM 5480	From Labels to Lab-Grown Meat: Consumer Behavior and the Food Industry	1.5
BIONB 5910	Principles of Neurophysiology	4

Code	Title	Hours
Free Electives		**at least 10**
5000 and up - Selected with Advisor and MFS Director		

Food Toxicology

Code	Title	Hours
Core Courses		**5-8**
FDSC 6000	Seminar in Food Science (must take fall and spring)	1
FDSC 6950	Current Readings in Food Science	1
ALS 5900	Project Development: CALS Professional Master's Programs	1-5
ALS 5910	Project Completion: CALS Professional Master's Programs	1

Code	Title	Hours
Concentration Competency		**12**
Required Courses		
FDSC 6010	Food Science and Technology Graduate Boot Camp	1
Additional Options		
FDSC 6170	Food Chemistry	3
FDSC 6040	Chemistry and Functional Properties of Food Ingredients	2
VTPEH 6123	Food Systems Approaches to Food Safety	3
BIOMI 6850	Bacterial Genetics	2-3
ANSC 6270	Endocrinology: Biology of Hormones	3
VTPMD 6640	Introduction to Epidemiology	3
BIOMG 6311	Principles of Biochemistry: Proteins and Metabolism	3
BIOMG 8370		
VTPEH 6121	Food Systems and Health	3

Code	Title	Hours
Free Electives		**at least 10**
5000 and up - Selected with Advisor and MFS Director		

University Graduation Requirements

Requirements for All Students

In order to receive a Cornell degree, a student must satisfy academic and non-academic requirements.

Academic Requirements

A student's college determines degree requirements such as residency, number of credits, distribution of credits, and grade averages. It is the student's responsibility to be aware of the specific major, degree, distribution, college, and graduation requirements for completing their chosen program of study. See the individual requirements listed by each college or school or contact the college registrar's office (https://registrar.cornell.edu/service-resources/college-registrar-directory) for more information.

Non-academic Requirements

Conduct Matters. Students must satisfy any outstanding sanctions, penalties or remedies imposed or agreed to under the Student Code of Conduct (Code) or Policy 6.4. Where a formal complaint under the Code or Policy 6.4 is pending, the University will withhold awarding a degree otherwise earned until the adjudication process set forth in those procedures is complete, including the satisfaction of any sanctions, penalties or remedies imposed.

Financial Obligations. Outstanding financial obligations will not impact the awarding of a degree otherwise earned or a student's ability to access their official transcript. However, the University may withhold issuing a diploma until any outstanding financial obligations owing to the University are satisfied.

CALS Graduation Requirements for the Master of Professional Studies/Master of Food Science

Requirements

The individual program pages provide additional information about field-specific requirements.

- 30 credits in graduate-level courses (5000 and above). Note: language (including ELSO) and physical education courses do not count toward the required 30 credits. Physical education courses also do not count toward the minimum 12 credits required for full-time status and good academic standing.
  - A minimum of 20 CALS credits
    - CALS credits include all courses with the following subjects: AGSCI, AIISP, ALS, ANSC, BEE, BIOG, BIOAP, BIOCB, BIOEE, BIOMG, BIOMI, BIOMS, BIONB, BIOSM, COMM, EAS, EDUC, ENTOM, ENVS, FDSC, GDEV, INFO, LA, LEAD, NS, NTRES, PLSCI, STSCI, VIEN
  - A minimum of 18 letter-graded credits
  - A total of 2-6 capstone project credits:
    - 1-5 credits of ALS 5900 Project Development: CALS Professional Master's Programs.
    - 1 credit of ALS 5910 Project Completion: CALS Professional Master's Programs in final term.
- A minimum cumulative grade point average of 2.5.
- Enrollment in a minimum of 12 credits each semester. It is advised that students enroll in 15 credits each semester to stay on track for this one-year program.
- Completion of the degree within 1 year from admission date.

Admissions

Application Requirements and Deadlines

Application Deadlines

Fall, December 1; Spring, September 1

Requirements Summary

- Complete Cornell's online Graduate School application. Get started by setting up an ApplyWeb account. Once you have an account, you can go to the online application to begin the process.
- Submit unofficial copies of official college and university transcripts.
- Submit your résumé or CV.
- Submit a statement of purpose.
- Submit a personal statement.
- Submit two to three letters of recommendation.
- All applicants must meet the Graduate School minimum requirements including the English language proficiency requirement (https://gradschool.cornell.edu/admissions/prepare/english-language-proficiency-requirement/).
- The GRE general test is not required or accepted.

Admissions Contact Information

Email: fdscigrad@cornell.edu
Website: https://cals.cornell.edu/food-science