

Graduate Programs in Food Science and Nutrition

SCHOOL OF APPLIED TECHNOLOGY AT ILLINOIS TECH

Why a graduate program at Illinois Tech?

Department of Food Science and Nutrition (FdSN) students at Illinois Institute of Technology leverage the power of the collaborative research team at Illinois Tech's Institute for Food Safety and Health (IFSH):

- **World-class researchers** from FdSN and the U.S. Food and Drug Administration (FDA), as well as highly respected industry professionals, combine to provide an unparalleled mix of faculty found nowhere else.
- **Research Opportunities.** FdSN students have the opportunity to conduct cutting-edge research at IFSH under the supervision of FdSN faculty and FDA scientists.
- **Unrivaled food industry networking.** Students are enabled and encouraged to take part in IFSH meetings, conferences, seminars, and task forces, providing access to more than sixty industry companies.

Illinois Tech students also benefit from being located in Chicago, Illinois, the second largest hub of food manufacturing in the U.S., providing outstanding employment opportunities in the food industry. In addition, Chicago offers students full immersion in the multicultural experience of the third largest city in the United States.

Degrees Offered

Thesis Degrees:

- Master of Science Food Process Engineering
- Master of Science Food Safety and Technology
- Doctor of Philosophy in Food Science and Nutrition

Non-Thesis Degrees:

- Master of Food Process Engineering
- Master of Food Safety and Technology
- Master of Food Safety and Technology with Specialization in Business or Industrial Management

Our Research Focus

Collaboration with the US Food and Drug Administration—FdSN Faculty collaborate regularly with FDA scientists through Illinois Tech's world renowned Institute for Food Safety and Health. Students have the opportunity to work directly with FDA scientists in research that directly impacts the potential safety of the food supply.

Novel processing technologies—The food industry is constantly looking for ways to improve on food safety while retaining or enhancing the quality of food products. FdSN faculty are experts and innovators in novel processing technologies, such as high pressure processing, cold plasma, pulsed UV light, pulsed electric field, and microwave pasteurization. Research in these areas place students on the cutting edge of food processing.

Clinical Nutrition—Our Clinical Nutrition Research facility helps the food industry align nutrition objectives with food safety requirements, determine the health promoting properties of food components, and evaluate the impact of food processing and packaging technologies on nutritional values. In addition, our research furthers understanding of the mechanisms, agents, and chemistries of nutrition components to advance applied science in the area of health promoting foods.



ILLINOIS TECH

Key Courses

Nutrition, Metabolism, and Health

(FDSN 501): Study of chemical structures, types, and metabolism of carbohydrates, lipids, and proteins. Discussion of the biological and chemical roles of vitamins and minerals. Application and integration of metabolic knowledge with health promotion and chronic disease.

Food Biotechnology

(FDSN 504): Introduction of biotechnology in the food industry including genetic engineering of microorganisms. Fundamentals of microbial genomics and proteomics. Practice of a variety of software and bioinformatics tools including database search, sequence alignment, phylogenetic and cluster analyses, gene production, genomic map construction, and structural and functional prediction of proteins. Applications of DNA fingerprinting techniques in food safety and public health.

Food Microbiology

(FDSN 505): Principles of occurrence and control. Importance of sanitation and prevention of public health problems. Microbiological contaminants and methods of their detection. Mechanisms of microbial inactivation.

Food Product Development

(FDSN 508): Identify key steps in the food product development process; develop a formulation approach with ability to effectively understand how to work well with vendors, handle labeling regulations, food safety, and consumer acceptability requirements; create a product unit costing; identify key performance requirements for product shelf life testing and packaging specifications; evaluate product quality and safety; and develop a strategy to monitor and improve product performance.

Food Process Engineering

(FDSN 521): Food engineering fundamentals, heat transfer in food processing, food rheology, freezing of foods, food dehydration, kinetics of chemical reactions in foods, refrigeration and thermal process calculations, and alternative methods of food processing.

HACCP Planning and Implementation

(FDSN 531): Examination of the Hazard Analysis and Critical Control Point (HACCP) principles; microbiological and process overviews; generic HACCP models, Good Manufacturing Practices (GMP); monitoring of critical control points (CCPs), process control and implementation.

Admission Requirements

Admission to the graduate program normally requires a bachelor's degree in chemistry, biology, food science, or chemical, agricultural, food or environmental engineering, or a related field.

- Cumulative undergraduate GPA 3.0/4.0
- GRE of 305 (Verbal + Quantitative), Thesis
- GRE of 295 (Verbal + Quantitative), Non-thesis
- TOEFL of 550 (paper); 213 (computer); 80 (Internet)

Students applying for non-thesis academic programs with an undergraduate degree from a major U.S. university with a cumulative GPA of 3.0/4.0 or higher may not be required to submit a GRE score.



Contact

For questions regarding admission to the Department of Food Science and Nutrition at Illinois Tech, visit our website at:

<https://appliedtech.iit.edu/food-science-and-nutrition/>

Or contact the department directly:

Todd Diel
Manager, Academic Programs and Initiatives
Department of Food Science and Nutrition
Illinois Institute of Technology

10 West 35th Street
Suite 18C5-2
Chicago, IL 60616
Phone: 708-269-2903
diel@iit.edu

ILLINOIS TECH