NDSU NORTH DAKOTA STATE UNIVERSITY

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FOOD SCIENCE

Food science deals with the transformation of raw agricultural goods into food products acceptable for human consumption. This field of applied science involves studying diverse scientific disciplines such as chemistry, engineering, microbiology, biochemistry, toxicology and management as they relate to food, and effectively applying the industrial and practical aspects to product development, food processing, preservation and marketing.

The Faculty and Facilities

Food science is a four-year curriculum offered by the College of Agriculture, Food Systems, and Natural Resources through the Department of Plant Sciences. The program draws on the expertise of faculty members in several departments at North Dakota State University who have expertise in both teaching and research. Many have industry experience with numerous connections in the food industry.

The Quentin Burdick Building (QBB) and Harris Hall at NDSU house laboratories and teaching facilities where many of the food science courses are taught. Extensive facilities are available for teaching and food processing research.

The Curriculum

The program includes courses in food chemistry, food analysis, food microbiology, food processing, food engineering, meat science, nutrition science and cereal technology, in addition to basic courses in mathematics, the sciences, humanities and social sciences. Most of the applied courses in food science are taken after the basic courses have laid the groundwork for the student.

The program allows flexibility in selecting suitable electives to direct one's career goal. Areas of emphasis include food safety, microbiology, sciences, business and management, engineering, nutrition and processing.

The curriculum for food science is approved by the Institute of Food Technologists (IFT). The four-year undergraduate program leads to a Bachelor of Science degree in food science. The program enables graduates to recognize, critically analyze and solve problems realistically in both industrial and academic environments. It provides the opportunity to gain industrial experience during undergraduate study by means of industry internships.

Career Opportunities

Challenging and rewarding entry-level positions in the food industry are plentiful for food science graduates. Potential employers include large and small food corporations and government agencies. Career opportunities include positions in food science and technology, food chemistry, food microbiology, product development, quality control, food production and processing, food inspection, packaging, sales and marketing. The average starting salary for an individual with a B.S. degree in food science is $57,000 according to the Institute of Food Technologists' Salary Survey.

Food scientists study food to improve existing products or create new ones. They also analyze the structure and composition of food and the changes that occur during processing and storage. They determine how processing affects flavor, texture, appearance and nutritional value, and explore new ways to protect and stabilize food through packaging.

The food industry is the largest industry in the world. The challenges of food scientists are to provide wholesome, tasty and nutritious foods for the consumer.

Industry Internships

Internships offered through NDSU's food science department and Cooperative Education programs provide opportunities for industry experience at companies such as Cargill, Hormel, Dakota Growers Pasta Co., Jennie-O and others.

Financial Aid and Scholarships

Loans, grants and work-study are made available through the Office of Financial Aid and Scholarships. A number of scholarships are awarded each year to students enrolled in the College of Agriculture, Food Systems, and Natural Resources. Departmental scholarships also are available. Information may be obtained by contacting the coordinator of the food science program. A number of laboratory assistant jobs are available for students majoring in food science.

Food Science Plan of Study

Please note this is a sample plan of study and not an official curriculum. Actual student schedules for each semester will vary depending on start year, education goals, applicable transfer credit, and course availability. Students are encouraged to work with their academic advisor on a regular basis to review degree progress and customize an individual plan of study.

Freshman

Fall	Credits	Spring	Credits
AGRI 189 Skills for Academic Success	1	CHEM 122 General Chemistry II	4
CFS 210 Introduction to Food Science and Technology	3	and 122L General Chemistry II Laboratory	
CHEM 121 General Chemistry I	4	COMM 110 Fundamentals of Public Speaking	3
and 121L General Chemistry I Laboratory		ENGL 120 College Composition II	3
ENGL 110 College Composition I	4	MATH 146 Applied Calculus I	4
Gen Ed Humanities & Fine Arts	3	or 165 Calculus I	
BIOL 150 General Biology I	3	BIOL 151 General Biology II	3
	18		**17**

Sophomore

Fall	Credits	Spring	Credits
CFS 370 Food Processing I	3	BIOC 260 Elements of Biochemistry	4
CSCI 114 Microcomputer Packages	3	(or BIOC 460/460L Foundations of Biochemistry and Molecular	
or MIS 116 Business Use of Computers		Biology I/Foundations of Biochemistry I Laboratory)	
PHYS 211 College Physics I	4	ECON 201 Principles of Microeconomics	3
and 211L College Physics I Laboratory		HNES 250 Nutrition Science	3
Gen Ed Humanities & Fine Arts/Gen Ed Cultural Diversity	3	Gen Ed Social & Behavioral Sciences	3
Elective	3		
	16		**13**

Junior

Fall	Credits	Spring	Credits
MICR 350 General Microbiology	5	STAT 330 Introductory Statistics	3
and 350L Microbiology Lab		CFS 452 or SAFE 452 Food Laws and Regulations	3
ENGL 320 Business and Professional Writing,	3	CFS 470 Food Processing II	3
or 321 Writing in the Technical Professions,		CFS 471 Food Processing Laboratory	1
or 324 Writing in the Sciences		CFS 474 Sensory Science of Foods	3
CHEM 341 Organic Chemistry I	4	Elective	3
and 341L Organic Chemistry I Laboratory			
CFS 450 Cereal Technology	3		
	15		**16**

Senior

Fall	Credits	Spring	Credits
CFS 430 Food Unit Operations	3	CFS 480 Food Product Development	3
or ABEN 263 Biological Materials Processing		CFS 464 Food Analysis	3
CFS 460 Food Chemistry	3	ANSC 340 Principles of Meat Science	3
CFS 461 Food Chemistry Laboratory	1	Electives	4
MICR 453 Food Microbiology	3		
Elective	3		
	13		**13**

Total Credits: 121

View NDSU equivalencies of transfer courses at: www.ndsu.edu/transfer/equivalencies

For Further Information

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