

# Great Plains Institute of Food Safety

## Great Plains Institute of Food Safety

An interdisciplinary team of faculty with expertise in food safety from various departments within NDSU's Colleges of: Agriculture, Food Systems, and Natural Resources (<http://www.ag.ndsu.edu/academics>) ; Arts, Humanities and Social Sciences (<http://www.ndsu.edu/ahss>) ; Human Development and Education (<http://www.ndsu.edu/hde>) ; Engineering (<http://www.ndsu.edu/cea>) ; and Science and Mathematics (<http://www.ndsu.edu/scimath>) has formed the Great Plains Institute of Food Safety and developed a unique educational experience for NDSU students. The comprehensive food safety curriculum leads to B.S., M.S., and Ph.D. degrees in Food Safety, an Undergraduate Minor in Food Safety. A graduate Certificate in Food Protection is also offered (see Graduate School (<http://www.ndsu.edu/gradschool>) web site for complete curriculum requirements). All these programs are unified around the single issue of food safety, an area of concern for many Americans, the current target of tremendous interest, effort, and spending worldwide, and an area in which shortages of expertise are manifest. Students in food safety are heavily recruited for employment in the food safety fields.

The curriculum is based on contemporary educational theory and employs experiential learning techniques to foster development of students' critical-thinking abilities, collaborative and problem-solving skills, and awareness of employment opportunities. Courses are fully integrated so that students have the opportunity to troubleshoot food-safety issues from "farm-to-fork." The program strives to meet students' present and future educational needs.

## Food Safety Major

A number of undergraduate and graduate programs of study in food safety are offered through the Great Plains Institute for Food Safety. Food safety is an area of concern for many Americans, the current target of tremendous interest, effort, and spending worldwide and an area in which shortages of expertise are manifest. For further information, refer to the Interdisciplinary Programs (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/interdisciplinary-studies>) section of this Bulletin.

## Food Safety Minor

Students may minor in Food Safety by completing a total of 16 credits. A minimum of eight credits must be taken at NDSU.

## Major Requirements

### Major: Food Safety

Degree Type: B.S.

Required Degree Credits to Graduate: 128

### General Education Requirements

#### First Year Experience (F):

AGRI 189	Skills for Academic Success (Students transferring in 24 or more credits do not need to take AGRI 189.)	1
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#### Communication (C):

ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
One Course in Upper Level Writing: Select one of the following:		3
ENGL 320	Business and Professional Writing	
ENGL 321	Writing in the Technical Professions	
ENGL 324	Writing in the Sciences	
COMM 110	Fundamentals of Public Speaking	3
<b>Quantitative Reasoning (R):</b>		
STAT 330	Introductory Statistics	3
<b>Science &amp; Technology (S):</b>		
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory	4
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory	4
PHYS 211 & 211L	College Physics I and College Physics I Laboratory	4
<b>Humanities &amp; Fine Arts (A): Select from current general education list</b>		6
<b>Social &amp; Behavioral Science (B):</b>		
ECON 201	Principles of Microeconomics	3
ECON 202	Principles of Macroeconomics	3
<b>Wellness (W): Select from current general education list</b>		2
<b>Cultural Diversity (D): Select from current general education list</b>		
<b>Global Perspectives (G):</b>		
ECON 201	Principles of Microeconomics	3
Total Credits		42

## Major Requirements

Students must declare a minor as part of the requirements for this major.

<b>General Education Requirements</b>		40
<b>Required Core Courses for Food Safety</b>		
AGRI 150	Agriculture Orientation (Students transferring in 24 or more credits do not need to take AGRI 150.)	1
ANSC 340	Principles of Meat Science	3
CFS 200	Introduction to Food Systems	2-3
or CFS 210	Introduction to Food Science and Technology	
Select one from the following:		3-4
CFS 460 & CFS 461	Food Chemistry and Food Chemistry Laboratory	
CFS 464	Food Analysis	
Select one from the following:		3-4
CFS 370	Food Processing I	
CFS 470 & CFS 471	Food Processing II and Food Processing Laboratory	
MICR 350 & 350L	General Microbiology and General Microbiology Lab	5
SAFE 401	Food Safety Information & Flow of Food	1
SAFE 402	Foodborne Hazards	1
SAFE 403	Food Safety Risk Assessment	1
SAFE 404	Epidemiology of Foodborne Illness	1
SAFE 405	Costs of Food Safety	1
SAFE 406	Food Safety Crisis Communication	1
SAFE 407	Food Safety Risk Management	1

SAFE 408	Food Safety Regulatory Issues	1
SAFE 409	Food Safety Risk Communication & Education	1
SAFE 452	Food Laws and Regulations	3
SAFE/MICR 474		3
SAFE 484	Food Safety Practicum	1-3
SAFE/COMM 485	Crisis Communication	3
<b>Supporting Courses</b>		
BIOC 260	Elements of Biochemistry	3-4
or BIOC 460	Foundations of Biochemistry and Molecular Biology I	
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
CHEM 341 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	4
Select one of the following:		3-4
MATH 105	Trigonometry	
MATH 146	Applied Calculus I	
MATH 165	Calculus I	
<b>Degree Requirements: Potential of a minimum of 36 credits to reach 128.</b>		36
Total Credits		128-135

## Minor Requirements

### Food Safety Minor

#### Minor Requirements

Required Credits: 16

**Required Courses**

SAFE 401	Food Safety Information & Flow of Food	1
SAFE 402	Foodborne Hazards	1
SAFE 403	Food Safety Risk Assessment	1
SAFE 404	Epidemiology of Foodborne Illness	1
SAFE 405	Costs of Food Safety	1
SAFE 406	Food Safety Crisis Communication	1
SAFE 407	Food Safety Risk Management	1
SAFE 408	Food Safety Regulatory Issues	1
SAFE 409	Food Safety Risk Communication & Education	1

**Elective Courses: Select 7 credits from the following:** 7

AGEC 339	Quantitative Methods & Decision Making	
AGEC 344	Agricultural Price Analysis	
AGEC 375	Applied Agricultural Law	
AGEC 484	Agricultural Policy	
ANSC 340	Principles of Meat Science	
ANSC 344	Fundamentals of Meat Processing	
ANSC 370	Fundamentals/Animal Disease	
ANSC 482	Sheep Industry and Production Systems	
ANSC 484	Swine Production/Pork Industry Systems	
ANSC 486	Beef Industry and Production Systems	
ANSC 488	Dairy Industry and Production Systems	
CFS 471	Food Processing Laboratory	
CFS 480	Food Product Development	
COMM 486	Principles of Risk Communication	

EMGT 261	Disaster Preparedness	
EMGT 263	Disaster Response	
EMGT 461	Business Continuity and Crisis Management	
HNES 141	Food Sanitation	
HNES 361 & 361L	Foodservice Systems Management I and Foodservice Systems Management I Laboratory	
HNES 460 & 460L	Foodservice Systems Management II and Foodservice Systems Management II Laboratory	
MICR 350 & 350L	General Microbiology and General Microbiology Lab	
MICR 453	Food Microbiology	
MICR 460 & 460L	Pathogenic Microbiology and Pathogenic Microbiology Laboratory	
MICR 470	Basic Immunology	
MICR 471	Immunology and Serology Laboratory	
PLSC 110	World Food Crops	
PPTH 460	Fungal Biology	
SAFE 452	Food Laws and Regulations	
SAFE 474		
SAFE 484	Food Safety Practicum	
SAFE/COMM 485	Crisis Communication	
Total Credits		16

**Minor Requirements and Notes:**

- A minimum of 8 credits must be taken at NDSU