

INTERDISCIPLINARY
GRADUATE COURSE AND CURRICULUM CHANGES

approved by the
interdisciplinary Food Science faculty
via electronic vote
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**Units outside the college, which may be directly
impacted by these changes are:**
Sociology
Diagnostic Medicine/Pathobiology
Kinesiology

**Please provide the sponsors of a proposed change with any information
regarding fiscal or programmatic impact on your department, program or
students.**

COURSE PROPOSALS

ADD: **FDSCI 750. Food Toxicants.** (2) I. Quantitation metabolism and mechanisms of action of major foodborne toxicants. Toxicant defense and control systems, risk analysis and assessment and application of food laws. Pr.: a course in biochemistry.

RATIONALE: The proposed course will provide students an option for an additional core course to be used in support of the Graduate Certificate in Food Safety and Defense.

EFFECTIVE DATE: Spring 2008

ADD: **FDSCI 751. Food Laws and the Regulatory Process.** (2) I, S. History of the development of the current federal and state food regulations. Guidelines that govern the practice of regulating the wholesomeness of red meats, poultry, and eggs. Presentations by state and federal food regulators. Nonmajor graduate credit. Pr.: (3) credits in food science coursework at 200 level or above.

RATIONALE: The proposed course will provide students an option for an additional elective course to be used in support of the Graduate Certificate in Food Safety and Defense.

EFFECTIVE DATE: Spring 2008

ADD: **FDSCI 753. Risk Assessment for Food, Ag, & Vet Med.** (3) I. Risk assessment principles as applied to biological systems. Exposure and effects characterization in human and animal health and ecological risk assessment. Risk analysis frameworks and regulatory decision-making. Introduction to quantitative methods for risk assessment using epidemiological and distributional analyses. Uncertainty analysis. Pr: A course in statistics or instructor consent.

RATIONALE: The proposed course will provide students an option for an additional elective course to be used in support of the Graduate Certificate in Food Safety and Defense.

EFFECTIVE DATE: Spring 2008

ADD: **FDSCI 810. Fermented Foods.** (2) I, II. Application of the principles of microbiology to the understanding of the fermentation of various categories of foods. Chemical, biochemical and microbiological changes under controlled and uncontrolled conditions.

RATIONALE: The proposed course will provide students a more structured course and an option for an additional elective course to be used in support of the Graduate Certificate in Food Safety and Defense.

EFFECTIVE DATE: Spring 2008

ADD: **FDSCI 820. Advanced Food Microbiology & Biotechnology.** (2) I of odd years. Principles of food biotechnology, including introduction of molecular biology and enzyme immobilization. Theory and concepts of current biotechnology trends as it relates to food safety and security issues. Pr.: A course in food microbiology or general microbiology, and a course in biochemistry.

RATIONALE: The proposed course will provide students an option for an additional elective course to be used in support of the Graduate Certificate in Food Safety and Defense.

EFFECTIVE DATE: Spring 2008

CURRICULUM PROPOSAL**CHANGE: Graduate Certificate in Food Safety and Defense****Curriculum Requirements:****REQUIRED AND ELECTIVE COURSES (Minimum of 12 credit hours)****CORE COMPETENCIES (6 credit hours)**

*Courses offered online.

***FDSCI 600 MICROBIOLOGY OF FOOD (2 credit hours)**

This course deals with the identification, enumeration, and characterization of bacteria, yeast, and molds associated with foods and food processing. Effects of physical and chemical agents on microorganisms will be studied. Microbiological problems in food spoilage, food preservation, food fermentation, and foodborne diseases will be discussed.

***FDSCI 690/ASI 690 HACCP (2 credit hours)**

A comprehensive study of the Hazard Analysis and Critical Control Point System and its application in the food industry.

A course in Food Toxicology is highly recommended but not required and can be taken as a distance transfer or on-campus credit.

***FDSCI 730 A MULTIDISCIPLINARY OVERVIEW OF FOOD SAFETY AND SECURITY (2 credit hours)**

This course provides students with an overview appreciation and understanding of the many multidisciplinary aspects of food safety and security. Such an overview will inform and enhance preparedness, prevention, response, and recovery related activities. Note: This course is currently offered as an FDSCI 630 Problems course. However, the course is currently seeking a permanent course number of FDSCI 730 through course and curriculum.

ELECTIVE COURSES**FDSCI 713 Rapid Methods and Automation in Microbiology (2 credit hours)**

Rapid Methods and Automation is a dynamic area in applied microbiology dealing with the study of improved methods in the isolation, early detection, characterization, and enumeration of microorganisms and their products in clinical, food, industrial and environmental samples. This workshop will focus on the practical application of conventional and new commercial systems of rapid identification of micro-organisms from medical specimens, foods, etc. On-campus short course.

~~*FDSCI 961 Problems/Food Fermentation (2 credit hours)~~

~~Application of the principles of microbiology to the understanding of the fermentation of various categories of foods. Chemical, biochemical and microbiological changes under controlled and uncontrolled conditions.~~

***SOCWK 610 Fundamentals of Communication for the Agriculture and Food Science Community (3 credit hours)**

It is often difficult to communicate agriculture and food related issues to the public without generating misunderstanding. This course is designed to develop communication skills among the agriculture and food science community to effectively disseminate scientific information. Fundamentals of active listening as well as techniques to address misinformation and misunderstanding will be provided. Opportunities through online exercises and homework assignments will give students experience in the application of communication skills. Individual feedback will be provided by the instructors. Students taking the course for graduate credit will be required to complete an observational project including a summary paper.

DMP 806 Environmental Toxicology (3 credit hours)

An advanced toxicology course concerned with the occurrence, biological effect, detection, and control of foreign chemicals in the environment.

DMP 854 Veterinary Epidemiology (3 credit hours)

Epidemiologic principles relative to infectious and noninfectious diseases transmissible from animals to humans, and application of these principles by use of case investigations.

KIN 818 Social and Behavioral Bases of Public Health (3 credit hours)

The role of behavioral, social, psychological, economic, environmental, and social structural factors in both the occurrence of health problems in groups and populations, and in the development of the risk factors that contribute to these problems. Principles of health behavior change and the application of these principles to a variety of health issues as well as an emphasis on how social structural factors impact health are examined to better understand health behavior and health inequities in contemporary society.

Note: It is possible that a student may already have taken one or more of these courses or their equivalent on another degree or certificate program. Upon approval by the major professor, three hours of credit could be accepted toward the 12 hour minimum required for this certificate.

TO: Graduate Certificate in Food Safety and Defense Graduate (offered via the Great Plains Interactive Distance Education Alliance and on campus)

Curriculum Requirements:**REQUIRED AND ELECTIVE COURSES (Minimum of 12 credit hours)****CORE COMPETENCIES (8 credit hours):**

*Courses offered online.

***FDSCI 600 MICROBIOLOGY OF FOOD (2 credit hours)**

This course deals with the identification, enumeration, and characterization of bacteria, yeast, and molds associated with foods and food processing. Effects of physical and chemical agents on microorganisms will be studied. Microbiological problems in food spoilage, food preservation, food fermentation, and foodborne diseases will be discussed.

***FDSCI 690/ASI 690 HACCP (2 credit hours)**

A comprehensive study of the Hazard Analysis and Critical Control Point System and its application in the food industry.

***FDSCI 730 A MULTIDISCIPLINARY OVERVIEW OF FOOD SAFETY AND SECURITY (2 credit hours)**

This course provides students with an overview appreciation and understanding of the many multidisciplinary aspects of food safety and security. Such an overview will inform and enhance preparedness, prevention, response, and recovery related activities.

***FDSCI 750 FOODBORNE TOXICANTS (2 credit hours)**

Quantitation metabolism and mechanisms of action of major foodborne toxicants. Toxicant defense and control systems, risk analysis and assessment and application of food laws.

ELECTIVE COURSES (4 credit hours)**FDSCI 713 RAPID METHODS AND AUTOMATION IN MICROBIOLOGY (2 credit hours)**

Rapid Methods and Automation is a dynamic area in applied microbiology dealing with the study of improved methods in the isolation, early detection, characterization, and enumeration of micro-organisms and their products in clinical, food, industrial and environmental samples. This workshop will focus on the practical application of conventional and new commercial systems of rapid identification of micro-organisms from medical specimens, foods, etc. *On-campus short course.*

***SOCWK 610 FUNDAMENTALS OF COMMUNICATION FOR THE AGRICULTURE AND FOOD SCIENCE COMMUNITY (3 credit hours)**

It is often difficult to communicate agriculture and food related issues to the public without generating misunderstanding. This course is designed to develop communication skills among the agriculture and food science community to effectively disseminate scientific information. Fundamentals of active listening as well as techniques to address misinformation and misunderstanding will be provided. Opportunities through online exercises and homework assignments will give students experience in the application of communication skills. Individual feedback will be provided by the instructors. Students taking the course for graduate credit will be required to complete an observational project including a summary paper.

DMP 806 ENVIRONMENTAL TOXICOLOGY (3 credit hours)

An advanced toxicology course concerned with the occurrence, biological effect, detection, and control of foreign chemicals in the environment.

DMP 854 VETERINARY EPIDEMIOLOGY (3 credit hours)

Epidemiologic principles relative to infectious and noninfectious diseases transmissible from animals to humans, and application of these principles by use of case investigations.

KIN 818 SOCIAL AND BEHAVIORAL BASES OF PUBLIC HEALTH (3 credit hours)

The role of behavioral, social, psychological, economic, environmental, and social structural factors in both the occurrence of health problems in groups and populations, and in the development of the risk factors that contribute to these problems. Principles of health behavior change and the application of these principles to a variety of health issues as well as an emphasis on how social structural factors impact health are examined to better understand health behavior and health inequities in contemporary society.

***FDSCI 751 FOOD LAWS AND THE REGULATORY PROCESS (2 credit hours)**

History of the development of the current federal and state food regulations. Guidelines that govern the practice of regulating the wholesomeness of red meats, poultry, and eggs. Presentations by state and federal food regulators.

***FDSCI 753 RISK ASSESSMENT FOR FOOD, AG, & VET MED (3 credit hours)**

Risk assessment principles as applied to biological systems. Exposure and effects characterization in human and animal health and ecological risk assessment. Risk analysis frameworks and regulatory decision-making. Introduction to quantitative methods for risk assessment using epidemiological and distributional analyses.

***FDSCI 810 FERMENTED FOODS (2 credit hours)**

Application of the principles of microbiology to the understanding of the fermentation of various categories of foods. Chemical, biochemical and microbiological changes under controlled and uncontrolled conditions.

***FDSCI 820. ADVANCED FOOD MICROBIOLOGY & BIOTECHNOLOGY (2 credit hours)**

Principles of food biotechnology, including introduction of molecular biology and enzyme immobilization. Theory and concepts of current biotechnology trends as it relates to food safety and security issues.

Note: It is possible that a student may already have taken one or more of these courses or their equivalent on another degree or certificate program. Upon approval by the major professor, three hours of credit could be accepted toward the 12 hour minimum required for this certificate.

RATIONALE:

By offering the certificate through the Great Plains IDEA, students would have the opportunity to take a broader scope of courses and would have more classes available to them throughout the year. In addition, it would share the teaching load amongst the four universities and decrease duplication of courses being taught or developed. The certificate program will continue to be offered on campus. The proposed course additions and changes will provide students additional options for core and elective courses to be used in support of the Graduate Certificate in Food Safety and Defense.

EFFECTIVE DATE: Spring 2008