**FST 5624 Applied Food Microbiology and Sanitation**

**Fall, 2017 Syllabus**

**CRN 88344**

**I. Catalogue Description**

Overview of the causes, transmission, and epidemiology of major environmental, food-, and water-borne diseases in the food industry. Detection, monitoring, and control of important environmental pathogens. Chemical, physical, and biological sanitation to control pathogens in food, water, and the environment.

Pre: Academic and/or professional background in microbiology, food safety, or environmental health. (3H, 3C). Graduate standing.

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| **Course Number:** FST 5624 |
| **ADP TITLE:** Appl Food Micro & Sanitation |

**II. Learning Objectives**

 Upon completion of the course, students will be able to:

1. Describe the role and impact of potential environmental contaminants on the safety of food from the origin of the food in the field to retail purchase.

B. Relate environmental pathogen transmission patterns to prevention of food-borne

disease.

 C. Describe the importance of sanitation and water supply for disease control in

 food industries.

 D. Develop strategies for monitoring and control of food- and water-borne diseases

 in the food industry.

1. Relate microbiological methods used during routine surveillance and monitoring to the safety of food products.

**III. Justification**

Many public health professionals need a strong background in environmental microbiology and sanitation practices. This course is designed for public health practitioners and other professionals and students interested in the safety of food, water, and the environment. FST 5624 addresses the microbiological, social, and public aspects of sanitation and water supply, the microorganisms responsible for disease, their origins, mechanisms for elimination, and the epidemiology of environmental disease.

This course will build on a students’ knowledge of microbiology and food safety. This advanced course addresses and synthesizes theories, methodology and models in the current and/or primary literature. Students will have the ability to adapt and innovate to solve problems and master the capacity to critically analyze and question knowledge claims in microbiology, food safety.

**IV. Prerequisites and Co-requisites**

Academic and/or professional background in microbiology, food safety, or environmental health will provide insights that greatly facilitate learning this course’s content. Graduate standing.

**V. Texts and Special Teaching Aids**

No textbook is required for this course.

Written course instructional material will be provided as electronic files and internet web links in the CANVAS course site.

**VI. Course Topics**

Part One: 30**%**

A. Food and water microbiological safety – 10%

B. Surveillance for foodborne illness – 5%

C. Food and water quality, microbial spoilage – 5%

D. Source, transmission and persistence of microbial contaminants in food

 production and processing; biofilms; – 10%

Part Two: 40**%**

E. Hygiene controls in food processing; worker hygiene; pest control;

 allergen control; waste handling – 10%

F. Maintaining a sanitary environment; facility hygiene and hygienic design;

 verification of the effectiveness of sanitation programs – 10%

G. Selection and use of cleaners and sanitizers; removal of biofilms;

 preventing bacterial attachment – 10%

H. Cleaning and sanitation operations in food processing;

 regulatory requirements – 10%

Part Three: 30**%**

J. Sampling for microorganisms in foods – 5%

K. Sampling for microorganisms in food processing environments and

 product/process zones – 5%

L. Detection of microorganisms in food and environmental samples – 10%

M. Control of environmental pathogens in foods; antimicrobial chemicals;

 antimicrobial processes – 10%

**VII.** **Grades and Grading:**

A. Grade values of exams, quiz, assignments, and discussion forums are listed below. For assignments, quizzes, and exams that are submitted late, the maximum points that can be earned will decrease by 5% for each day. For discussion forums, responses are due within 7 days and late responses are not accepted. The quality and/or quantity of responses will be reflected in scores typically ranging from 36 to 40 points.

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| **Assignments** (ordered by due date) | **Points** | **Date Assigned** | **Date Due** **Mondays @ 11p** |
| Forum A | 40 | Mon Sep 4 | Sep 11 |
| Quiz 1 | 50 | Mon Sep 11 | Sep 18 |
| Exam 1 | 150 | Fri Sep 29 | Oct 2 |
| Forum B | 40 | Mon Oct 2 | Oct 9 |
| Assignment 1  | 100 | Fri Sep 15 | Oct 9 |
| Forum C | 40 | Mon Oct 16 | Oct 23 |
| Assignment 2 | 100 | Fri Oct 6 | Oct 30 |
| Exam 2 | 150 | Fri Nov 3 | Nov 6 |
| Forum D | 30 | Mon Nov 6 | Nov 13 |
| Assignment 3  | 100 | Fri Nov 10 | Dec 4 |
| Forum E | 40 | Mon Nov 27 | Dec 4 |
| Exam 3 | 150 | Fri Dec 15 | Dec 18 |
| TOTAL: | 1000 |  |  |

B. Grading Scale (%):

 93 + = A 90 - 92 = A- 87 - 89 = B+ 83 - 86 = B

 80 - 82 = B- 77 - 79 = C+ 73 - 76 = C 70 - 72 = C-

C. Policy on Posting of Grades:

 Grades will generally be posted one week after an assignment or exam due date. The final course grade will be available on Thursday December 21.

D. Virginia Tech Honor Code:

We will abide by the Virginia Tech Honor System. Your attendance at a test or your submittal of any written or electronic materials shall be your pledge that you subscribe to and accept the Virginia tech honor code and honor system. Specifically, you are expected to:

• Do all written or electronic assignments independently and without assistance.

• Turn in all assignments on time or with a documented excuse if they are late.

• Report any Honor Code violations that you have directly observed, including

 cheating on exams.