

# HARTNELL COLLEGE

## COURSE OUTLINE

CC Approval: 05/21/2009  
Board of Trustees: 07/07/2009  
Last Revised:

DESIGNATOR & NUMBER: ABT 134

COURSE TITLE: Environment Effects on Food Borne Pathogens

CREDIT UNITS: 1.5

FACULTY INITIATOR: Larry Adams

SEMESTER HOURS:

24.00 - 27.00	Lecture Contact Hours
0.00	Lab Contact Hours
0.00	Total Contact Hours
0.00	Total Out-of-Class Hours
0.00	Total Student Learning Hours

TOTAL CONTACT HOURS (BASED ON 16-18 WEEKS)

24.00 - 27.00	Lecture
0.00	Lab
0.00	By Arrangement Lab Hours (DHR)

GRADING BASIS:

Grade Only

PREREQUISITE:

COREQUISITE:

ADVISORY:

OTHER:

COURSE DESCRIPTION:

Potential environmental sources and transport mechanisms of food borne pathogens. Students will learn how to make informed decisions about the potential effects of local site conditions on food safety. Covers the role of site conditions in pathogen transport such as: livestock proximity, wildlife behavior and habitat, rainfall and irrigation runoff, soil types, slope, aspect, climate, soil erosion and deposition by water and wind, flooding, vegetation and the behavior of pathogens in the environment. Field trips may be required.

COURSE OBJECTIVES:

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

1. interpret and discuss the food safety objectives for a given site.
2. describe the behavior of pathogens in the environment.
3. create a specific inventory of local site conditions.
4. identify and evaluate potential sources of food borne pathogens.
5. formulate and evaluate management alternatives.
6. propose alternative agronomic practices and estimate the effects on the surrounding environment.
7. assess and critique alternate solutions to an environmental case study problem.

COURSE CONTENT:

- I. Food Safety Objectives
  - A. Balancing food safety needs with resource protection
  - B. Regional Water Quality Control Board regulation
- II. Pathogen Behavior in soil, water, and animals
  - A. Survival in soil – moisture and temperature conditions, soil ecology
  - B. Survival in water – irrigation and flood water
  - C. Survival in and on animals: probability of serving as vector by species, population dynamics
- III. Assessing Site Conditions and risks
  - A. Irrigation water storage and distribution systems
  - B. Flood and runoff hazards: topography, waterway condition and capacity
  - C. Animal intrusion: animal behavior, shelter, food supply, wildlife corridors
  - D. Wind and dust conditions
- IV. Management Alternatives: farm and landscape scale issues
  - A. Waterway management
  - B. Windbreaks/hedgerows
  - C. Risks or benefits of filter strips
  - D. Adjacent land uses and buffer options
  - E. Watershed flood management
  - F. Wildlife: habitat management and biodiversity to reduce risk
- V. Agronomic practices
  - A. Organic and conventional farming
  - B. Composting
  - C. Hydroponic farming
- VI. Case studies

INSTRUCTIONAL METHODOLOGY:

Lecture

Individual Assistance

Audiovisual (including PowerPoint or other multimedia)

Demonstration

Discussion

Group Activity

Requires a minimum of three (3) hours of work per unit including class time and homework.

