

Discipline: Agriculture	Sub-discipline: Food Safety
General Course Title: Environmental Effects on Food-Borne Pathogens	Min. Units: 1.5 Semester
Proposed Suffix:	
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.	
Required Prerequisites or Co-Requisites ¹	
Advisories/Recommended Preparation ² AG-PS 28 Introduction to Soils	
Course Objectives: <i>At the conclusion of this course, the student should be able to:</i> <ul style="list-style-type: none"> • determine food safety objectives. • describe the behavior of pathogens in the environment. • develop a specific inventory of local site conditions. • identify and evaluate potential sources of food-borne pathogens. • formulate and evaluate management alternatives. 	

<p>Course Content:</p> <ol style="list-style-type: none"> 1. Food Safety Objectives <ol style="list-style-type: none"> a. Balancing food safety needs with resource protection b. Regional Water Quality Control Board regulation 2. Pathogen Behavior in soil, water, and animals <ol style="list-style-type: none"> 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 3. Assessing Site Conditions and risks <ol style="list-style-type: none"> 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

¹ Prerequisite or co-requisite course need to be validated at the CCC level in accordance with Title 5 regulations; co-requisites for CCCs are the linked courses that must be taken at the same time as the primary or target course.

² Advisories or recommended preparation will not require validation but are recommendations to be considered by the student prior to enrolling.

4. Management Alternatives: farm and landscape scale issues
 - a. Waterway management
 - b. Windbreaks/hedgerows
 - c. Filter strips: risk and benefit
 - d. Adjacent land uses and buffer options
 - e. Watershed flood management
 - f. Wildlife: habitat management and biodiversity to reduce risk
5. Agronomic practices
 - a. Organic and conventional farming
 - b. Composting
 - c. Hydroponic farming
6. Case studies

Methods of Evaluation: Lecture
 Comprehensive Quizzes and Exams
 Written Critical Thinking Scenarios
 Problem Analysis and Solution
 Research Papers

Methods of Evaluation:

Typical Textbooks, Online "Best practices" Manuals, or Other Support Materials

CSU GE Area

Statewide Articulation: TBD

FDRG Lead Signature:

Date: 4/15/09

Neil Ledford, Hartnell College

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Internal Tracking Number