Aim 5 - Develop and implement multi-institutional graduate training programs in food safety

Aim 5 Title:

Develop and implement multi-institutional course-based Masters of Professional Studies (MPS), research-based M.S., and Ph.D. training programs in food safety

Aim 5 Project Team:

Aim 5 team leader:

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Aim 5 Current Efforts:

Aim 5 Completed Efforts:

Selected case study materials from the multi-institutional graduate level food safety course described below were also used by Dr. Teresa Bergholz at N orth Dakota State University for MICR 453 ("Food Microbiology").

A new, multi-institutional graduate level food safety course was offered during the Spring 2013 semester. This distance learning course was taught collaboratively at **Cornell**, **Texas Tech University**, **Purdue University** and **North Carolina State University**. Enrollment was approximately 30 students across all universities.

The course provided an overview of foodborne pathogens (bacterial and viral), detection/subtyping of foodborne pathogens along with epidemiological approaches to foodborne disease surveillance and outbreak investigation. Participants completed four instructor-guided case studies on foodborne pathogen contamination, transmission, and disease (i.e., pre-harvest, processing plant, retail, and outbreak investigation) and developed a case study to be presented to the class. An online video conferencing system was used to communicate across institutions during each scheduled weekly class meeting.

We also used social media to share food safety related news. The course twitter account is FoodSafetyNewsCNCPT (Cornell, North Carolina State, Purdue, Texas Tech students sharing food safety news) and students used their own accounts to share food safety related tweets. Follow FoodSafetyN ewsCNCPT on twitter to see more!

After completing this course, students were able to...

- 1. Understand (i) the biology and transmission characteristics of different foodborne pathogens (including typical sources and transmission routes) and (ii) the characteristics of the associated foodborne diseases.
- 2. Evaluate the primary methods used to detect and subtype foodborne pathogens.
- 3. Describe the causes and mechanisms of food contamination in various food-associated environments, and apply this knowledge to solving problems related to contamination of food.
- 4. Integrate and apply core competencies in epidemiology and microbiology to solve/explain practical food safety problems.
- 5. Apply critical thinking, problem solving and systems analysis skills to new situations.
- 6. Develop a case study learning module and supporting materials.

Class schedule:

1-28-13 "Introduction to foodborne pathogens, molecular detection/subtyping and epidemiological approaches to foodborne disease surveillance and outbreak detection"

2-4-13	Case Study 1 (Part 1): "Pre-harvest food safety: Foodborne pathogens and produce"
2-11-13	Case Study 1 (Part 2): "Pre-harvest food safety: Foodborne pathogens and produce"
2-18-13:	Case Study 2 (Part 1): "Persistence of Foodborne pathogens in the Food Processing Plant Environment"
2-25-13:	Case Study 2 (Part 2): "Persistence of Foodborne pathogens in the Food Processing Plant Environment"
3-4-13	Spring Break North Carolina State University (Students work in groups to develop case studies outside of class)
3-11-13	Spring Break Texas Tech University/Purdue University (Students work in groups to develop case studies outside of class)
3-18-13	Spring Break Cornell University (Students work in groups to develop case studies outside of class)
3-25-13	Case Study 3 (Part 1): "Foodborne Virus Transmission at Retail"
4-1-13	Case Study 3 (Part 2): "Foodborne Virus Transmission at Retail"
4-8-13	Case Study 4 (Part 1): "Foodborne Disease Outbreak Investigation"
4-15-13	Case Study 4 (Part 2): "Foodborne Disease Outbreak Investigation"
4-22-13	Student Presentations
4-29-13	Final Exam