PLS 174: Microbiology and Safety of Fresh Fruits and Vegetables

Offered Every Year (usually in the winter quarter)

Instructor: Maeli Melotto melotto@ucdavis.edu

Course Objectives

This course will introduce basic concepts and current knowledge of issues relevant to microbial safety of fresh produce. We will discuss pre- and postharvest factors influencing risk of microbial contamination, attachment of microorganisms to produce, multiplication during postharvest handling and storage, methods of detection, as well as current mitigation strategies and regulations.

Topics
Introduction to safety of fresh produce – The One Health Concept
Foodborne hazards; Intro to HACCP, GAP, GHP, and FSMA
Survival of pathogens in soil and water: Real-world lessons learned
Seed and root microbiota, bacterial root internalization
Foodborne viruses: A produce safety concern
Microbial colonization of the phyllosphere
Produce washing procedures
Implications of farming practices on crop safety
Wildlife and food safety
Raw animal manure: An excellent fertilizer or a microbial hazard?
Environmental monitoring program – *Listeria*
Safety of dried fruits and vegetables
Microbiome and food safety
Breeding for food safety