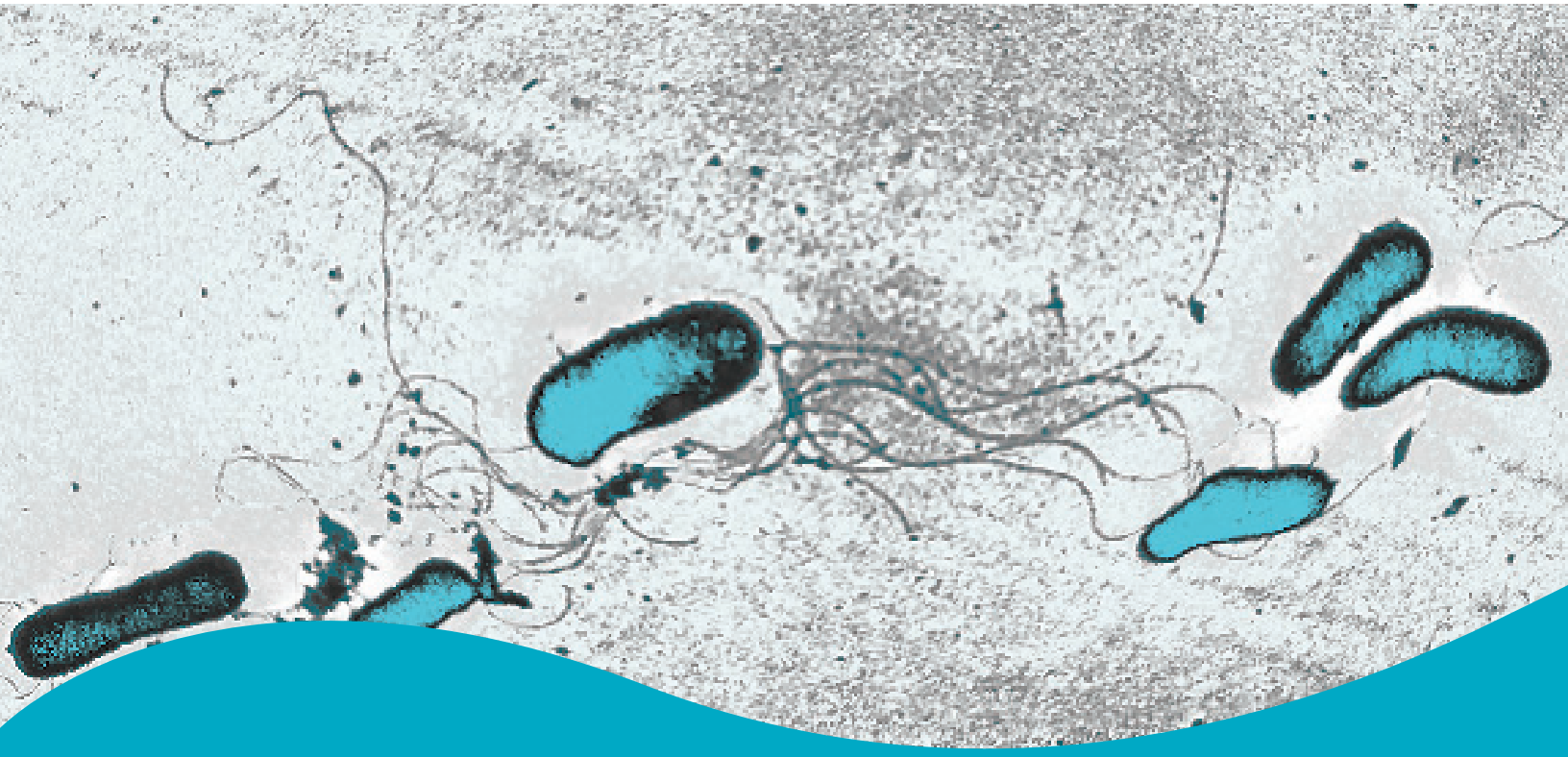
Soil and Water Science:

Modern Methods for Detection of Water– and Soilborne Pathogens

University of Florida

Institute of Food and Agricultural Sciences



June 26-28, 2006

Gainesville, FL

UNIVERSITY OF FLORIDA

IFAS EXTENSION

Soil and Water Science Department

soils.ifas.ufl.edu

JUNE 26-28, 2006
GAINESVILLE, FLORIDA

This unique short course compares and contrasts modern and classical techniques for identification of pathogens in the environment. Techniques for microbial source tracking will be discussed in detail. The main focus will be on the latest published research on bacterial contamination and persistence in drinking, industrial and irrigation water supplies, recreation areas and agricultural produce. We will also discuss in detail the efficacy of water quality tests during routine monitoring and after natural disasters and bioterrorism. Morning lectures will briefly introduce common and emerging water- and soilborne pathogens. Laboratory demonstrations will illustrate advantages and limitations of several culture-dependent methods to identify coliforms. Demonstration exercises will also test the effectiveness of common antibacterial chemicals in controlling planktonic and biofilm bacteria.

This three-day 22-hour course was developed for working professionals who have basic or modest background in biology. Course enrollment is limited to 20 people and a Certificate of Completion will be issued upon conclusion. For more information on the course, or to suggest additional topics for discussion, please contact the course facilitator, Dr. Max Teplitski.

Training Information:
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Modern Methods for Detection of Water– and Soilborne Pathogens

Introduction & Course Overview

Illnesses caused by water- and soilborne human pathogens lead to thousands of deaths annually. In addition, they cost the U.S. economy millions of dollars. This short course was developed in response to growing public concern over the microbiological quality of our water supplies, agricultural produce and recreation areas. Lectures, discussions and hands-on laboratory exercises will build on your expertise and help you optimize environmental management and monitoring programs to avoid these preventable illnesses.

Who Should Attend?

- Agricultural Engineers
- Consultants
- Developers
- Ecologists
- Environmental Engineers
- Environmental Regulators
- Environmental Scientists
- Extension Agents
- First Responders
- Health Department Scientists
- Waste Managers
- Water Scientists
- Others Seeking Training in Bacterial Ecology

6 Ways to Benefit

As a participant of this short course:

1. You will learn about recent culture-dependent and molecular techniques for pathogen identification and microbial source tracking.
2. Lectures and hands-on laboratory exercises will clarify different microbiological quality testing techniques. Upon completion of this course, you will be equipped to choose commercial testing methods, which best fit your specific needs.
3. Summaries of the research presented during the course will help you rationalize management program details to monitor, control and eliminate *E. coli* and *Salmonella* outbreaks. Course discussions should inspire you to introduce new, more effective environmental, water or waste management programs.
4. You will learn about the latest published research to control and reduce *E. coli* and *Salmonella* contamination of poultry, cattle, pigs, pets, and agricultural produce.
5. You will be able to put the latest news stories into their proper biological and historical framework.
6. Upon completion of this short course, each participant will be comfortable with developing and evaluating culture-dependent and culture-independent techniques.

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Course Instructor

Dr. Max Teplitski is an Assistant Professor in the Department of Soil and Water Science at the University of Florida/IFAS. His research focuses on molecular ecology of soil and water bacteria. Dr. Teplitski studies genetic mechanisms, which allow *Salmonella* and related bacteria to survive in soil and water environments outside their animal hosts. Dr. Teplitski is a recipient of W. E. Krauss Director's Award for Excellence in Research from the Ohio Agricultural Research and Development Center. More information about him can be found on his website http://quorumsensing.ifas.ufl.edu

Registration Information

Enrollment in this course is limited to the first 20 participants, and registrations will be accepted on a first-come, first-served basis. Advance registration is required to participate and the final deadline to register is Friday, June 16, 2006 or until the course is full.

All figures are presented in US dollars ($).

Early Reduced Registration	**$450** *(on or before May 19, 2006)*
Regular Registration	**$500** *(after May 19, 2006)*

What Does the Fee Include?

The full registration fee includes one copy of the printed course manual, course instruction, training materials and daily refreshments. Participants are on their own for all meals.

HOW TO REGISTER

ONLINE Registration and Payment Options are located via the short course web site located at: http://soils.ifas.ufl.edu/

REFUND POLICY: Requests for registration refunds will be honored if written notification of cancellation is received by the Office of Conferences no later than **May 26, 2006.** A $100.00 processing fee will be deducted from all refunds.

SPECIAL NEEDS: Participants with special needs can be reasonably accommodated by contacting Dr. Max Teplitski at least 10 working days prior to the conference. He can be reached by phone at 352-392-1952, x254 or EMAIL: maxtep@ufl.edu

Location

Training Site: This course will be held on the University of Florida campus in Room 2103 in McCarty Hall B. A link of the map with detailed directions to the training site will be sent to you in your Registration Confirmation email upon completion of your online registration.

Hotel Accommodations: Several hotel and motel establishments are available in the Gainesville area to provide guest room accommodations throughout the course. Participants are responsible for making their own hotel guest room reservations and a list of properties and applicable guest room rates will be sent to you upon request.

Daily Agenda

Monday, June 26, 2006

10:00 am-noon	Brief Introduction to Soil and Waterborne Pathogens. Overview of Detection Methods
1:00pm - 3:00pm	Computer Lab
3:00pm - 6:00pm	Laboratory Work ("wet lab")

Tuesday, June 27, 2006

8:00 am - noon	Laboratory Work, Group Discussions
1:30 pm -3:00 pm	Computer Lab
3:00 pm -5:30 pm	Wet lab

Wednesday, June 28, 2006

8:00 am - noon	Wet Lab
1:00 pm - 4:00 pm	Discussions, Concluding Remarks

Course Topics

This short course combines brief lectures with inquiry-based hands-on laboratory exercises. The course focuses on methods for detection and source tracking of water- and soilborne human pathogens, and explores questions such as:

1) What are the most common water- and soilborne human pathogens? What are the "emerging" pathogens? Where do they come from? How do we detect and deal with them?

2) There are hundreds of ways to test microbiological quality of waters, soils and produce. Why do we need so many? How do I make sense of them all?

3) How do new indicator media differ from the classic formulations? What are the "secret ingredients" that justify higher prices?

4) What exactly are the "molecular" techniques? What can I learn from them? How reliable is this information?

5) What are the sources of microbial contamination in drinking, soil and recreational waters? How do I track these sources of contamination?

6) How and why do we detect viruses and phages in drinking water? What exactly are "phages"?

7) What is the latest research on monitoring water quality after natural disasters? What are the best ways to provide safe drinking water after natural disasters or other disruptions in water supply?

8) Are there portable kits for testing microbiological quality of drinking water? How effective are they?