

Microbiology webinar CEU submittal

Course title: **Lagoon Microbiology: Meet Your Bugs**

Course location: **Online webinar**

Start date: **March 19, 2019**

End date: **Ongoing (on demand)**

Total classroom hours: **1**

CEUs requested: **0.1**

[Explain how this course meets the professional growth criteria to operate and maintain a domestic wastewater treatment plant or to manage the operation and maintenance of a domestic wastewater treatment plant.]

Attendees will learn about the biological community that performs lagoon-based wastewater treatment and how that knowledge can be used to troubleshoot and optimize lagoon operation.

[How will attendance be monitored/verified?]

Attendance is verified through Go To Webinar, which maintains records of the time and duration of registrants' participation.

[Course summary]

This webinar covers the basics of microbiology and how it works for wastewater treatment in general and lagoons specifically, reviewing bacteria and higher life forms.

Attendees will learn how to apply this knowledge to diagnose and troubleshoot lagoon treatment issues.

[Course agenda with timeline: start and end times]

0:00 Introduction

5:00 Importance of biological treatment

7:30 Biological metabolism

10:10 Respiration vs Fermentation

13:15 Environmental Factors: aerobes vs anaerobes; facultative vs obligate; temperature; pH

- 18:20 Nutrient Requirements: macronutrients, micronutrients**
- 21:05 Heterotrophs vs Autotrophs**
- 23:15 Growth Kinetics and Biological Treatment Efficiency**
- 26:00 Meet the Bugs**
- 26:25 BOD Eating Bacteria**
 - Heterotrophs: Free floating, floc forming, filamentous**
- 29:30 Sludge Digesting Microbes**
- 33:00 Algae**
- 34:45 Nitrification**
- 39:20 Denitrification**
- 42:00 Higher Life Forms**
- 43:00 Diagnosis with Bacteria**
- 46:15 Wet Testing**
- 49:55 Bioaugmentation**
- 52:00 Questions and Answers**

[Instructor bio]

Julie Hartwig is a lagoon specialist for Triplepoint Environmental. She has a BS in Civil Engineering from the University of Illinois at Urbana-Champaign, a Master's in Environmental Engineering from Penn State University, and extensive practical experience working with municipal and industrial wastewater treatment facilities. Julie has presented on lagoon topics at a number of regional conferences.