



Course Information

FOOD 2161
HACCP: Environmental Monitoring for Pathogens

Duration:	2 days
Prerequisite:	FOOD 1179 - HACCP: Prerequisite Programs (formerly FOOD 1178 - Prerequisite Programs for HACCP) or equivalent education (enrollment by permission) or certified Public Health Inspector / Environmental Health Officer

■ **Course Description**

Learn to develop and implement an active Environmental Monitoring Program to achieve product safety and confidence. Building on the principles of microbiology, food processing operations, sanitation, and SOPs explored in FOOD 1179, this course furthers participant understanding of environmental microbiological hazards and compares the importance of Environmental Monitoring Programs to finished product testing in hazard control. Bacterial enumeration, data trending, and methods for corrective action investigation and continuous improvement are examined in detail. Workshop format allows participants to engage in a variety of interactive lessons, lab exercises, and case study activities. **NOTE: Participants are required to bring a laptop computer able to read Microsoft Office Excel (2007) files, or prearrange with Program Assistant for shared access.** BCIT issues a statement of completion to participants who achieve the pass grade of 70%.

■ **Course Learning Outcomes/Competencies**

- Identify sources of microbial contamination in a food processing environment.
- Demonstrate and provide rationale for steps used to develop an Environmental Monitoring Program.
- Categorize a processing facility into four Environmental Zones.
- Apply sampling strategies to establish an environmental baseline measure and inform the Program development process.
- Create an Environmental Monitoring Program SOP, sampling matrix, and associated Work Instructions.
- Perform hands-on microbiological sampling, plating, and enumeration for a food process environment.
- Generate PivotTables and graphs to analyze and interpret environmental data trends.
- Use Root Cause Analysis as an investigative tool to guide the corrective action process.
- Integrate a company's business model into Environmental Monitoring Program development, implementation, and continual improvement processes.

■ **Evaluation**

Exam	100%
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■ **Learning Resources (Required)**

- Course manual which is supplied by instructor (no cost)
- **Laptop computer able to read Microsoft Office Excel (2007) files** (or prearrange with Program Assistant for shared access)

■ Information for Participants

Workshops are conducted in accordance with the BCIT Policy 5101 and Policy 5104. To review the full policy, including information about attendance/illness, academic misconduct, and course attempts, please refer to: www.bcit.ca/files/pdf/policies/5101.pdf; www.bcit.ca/files/pdf/policies/5104.pdf.

■ Course Schedule (Example)

Instructor: Rebecca Robertson

Day 1

08:00 – 09:45	Course Orientation Lessons Learned: Cases of Pathogen Contamination from the Food Production Environment Introduction to Environmental Monitoring Programs
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Break

10:00 – 12:00	Step 1 - Performing Environmental Baseline Sampling Pilot Plant & Laboratory Hands-On Exercises: Environmental Baseline Sample Collection & Plating
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Lunch

13:00 – 14:30	Step 2 - Analyzing Environmental Baseline Results
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Break

14:45– 16:30	Steps 3 & 4 - Designing the On-Going Environmental Monitoring Program
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Day 2

08:00 – 08:45	SOP, Sampling Matrix, & Work Instructions Debrief
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08:45 – 09:45	Step 5 - Determining Environmental Monitoring Data Trends
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Break

10:00 – 12:00	Step 6 - Responding to Environmental Monitoring Results & Trends
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Lunch

13:00 – 14:00	Step 7 - Verification & Continual Improvement of Environmental Monitoring Programs
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14:00 – 14:45	Pilot Plant & Laboratory Hands-On Exercises: Enumeration, Interpretation, & Implications
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Break / Questions

15:15 – 16:30	Exam
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