

Applied Biological Safety Course

University of Manitoba, Department of Microbiology
Interdisciplinary Undergraduate Course, 3 Credits,

Contact:

Steven Theriault E.M.C.A, HBSc, MSc, PhD.
CYTOPHAGE TECHNOLOGIES
Email: MBIO3000@cytophage.com

Applied Biological Safety Course:

This course is designed to meet the needs of Microbiology undergraduate students for a comprehensive overview in the historical, theoretical, and practical aspects of applied biological safety in research and industrial environments. The course consists of lectures and practical hands-on components (dependent on class size).

The lecture component of this course will include topics in:

- Principles of containment laboratories
- Select agents
- History of Infectious disease
- Diagnostic evaluation of infectious disease
- Applied biosafety research principles
- Research principles for Biosafety
- Containing infectious disease outbreaks
- Biological safety principles
- History of Argo/Bioterrorism

Course Components:

Classes will consist of lectures and hands-on work (dependant on class size) or demonstrations using biological safety equipment. Each participant will be part of a group project on either practical or theoretical aspects of applied biosafety principles; or an assignment covering theoretical aspects of applied biosafety principles.

Course Flow for 2021:

As the COVID pandemic continues there will be some changes to the course for this year.

- Class will be held at the normal class times
- Evaluations for this course will still use written exams, times for the exam will be discussed in class
- I can be reached at the above email for questions or comments

Final exam for 2021:

The final exam, worth 50% of the grade. Due to COVID the exam format will be discussed closer to the end of the term.

Proposed Objectives:

1. To provide a comprehensive overview of select agents, infectious diseases, applied biosafety research, and containment laboratory issues.
2. To understand the underlying causes of laboratory acquired infections, the need for a safety program and the administrative, engineering controls and personal protective equipment measures available to maintain biological safety.
3. To provide a better understanding of current and new technologies and procedures used for decontamination in the laboratory environment.
4. To provide the students with the opportunity to learn about alternative career choices in the area of health and safety.

Course breakdown	Date
Group project/Assignment.....25%	TBA
Midterm.....25%	TBA
Final exam.....50%	TBA

Guidelines:

1. Laboratory Biosafety Manual, World Health Organization, 2nd ed., Geneva, 1993
2. Biosafety in Microbiological and Biomedical Laboratories, Centers for Disease Control and Prevention/National Institutes of Health, 4th ed., U.S. Government Printing Office, Washington, D.C., 1999
3. Laboratory Biosafety Guidelines, Health Canada, 1990
4. Containment Standards for Veterinary Facilities, Agriculture and Agri-Food Canada, 1996

Textbooks:

1. Collins CH, Kennedy DA. Laboratory-acquired Infections: History, incidence, causes and preventions. 4th ed. Butterworth-Heinemann, Oxford, 1999
2. Fleming DO, Hunt DL. Biological Safety, Principles and Practices. 3rd ed. ASM Press, Washington, D.C., 2000
3. Richmond JY. Anthology of Biosafety: I. Perspective on Laboratory Design. American Biological Safety Association, Mundelein, 1999
4. Richmond JY. Anthology of Biosafety: II. Facility Design Considerations. American Biological Safety Association, Mundelein, 2000
5. Richmond JY. Anthology of Biosafety: III. Application of Principles. American Biological Safety Association, Mundelein, 2000

6. Richmond JY. Anthology of Biosafety: IV. Issues in Public Health. American Biological Safety Association, Mundelein, 2001
7. Richmond JY. Anthology of Biosafety: I. BSL-4 Laboratories. American Biological Safety Association, Mundelein, 2002