

## Biological Safety

(Listed under ANT 4340, MI 6340, EES 4750/6750)

---

CREDIT HOURS	2.0	DAY	Tuesday and Thursday
LOCATION	In person (room to be determined)	TIME	11:00 a.m. to 11:50 a.m.
INSTRUCTOR	Dawn P. Wooley, Ph.D. Office Phone: 937-775-4993 Mobile/text: 937-776-3642 E-mail: dawn.wooley@wright.edu	OFFICE HOURS	Wed/Fri 3-4 p.m. also by appointment

### COURSE DESCRIPTION

The basic principles and practices of biosafety are examined. This course teaches the identification, handling, and containment of potentially hazardous biological materials, including microorganisms and recombinant DNA.

### GOALS

This course is designed for students, staff, and faculty who are working with or around potentially biohazardous materials in research laboratories. Persons who supervise biosafety staff members or who seek additional knowledge as a component to their job duty may also benefit from this course.

### TEXTS

REQUIRED: Online engagement and testing tool, TOP HAT at [www.tophat.com](http://www.tophat.com).  
Join Code: To be determined

RECOMMENDED (On Reserve, Dunbar Library): Wooley, D. P. and Karen B. Byers (eds.). 2017. *Biological Safety: Principles and Practices*, 5<sup>th</sup> ed. ASM Press, Washington, D.C.

SUPPLEMENTAL (Free Online): Centers for Disease Control and Prevention and National Institutes of Health (CDC/NIH). 2020. *Biosafety in Microbiological and Biomedical Laboratories*, 6<sup>th</sup> ed. P. J. Meehan and J. Potts (ed.). U.S. Government Printing Office, Washington, D.C. Available free at:

[https://www.cdc.gov/labs/pdf/SF\\_19\\_308133-A\\_BMBL6\\_00-BOOK-WEB-final-3.pdf](https://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf).

### PERFORMANCE OBJECTIVES

The purpose of the course is to provide a foundation for the basic principles and practices of biosafety. At the conclusion of this course, the student will be able to:

- Identify potentially hazardous biological materials
- Recognize the risks associated with the use of hazardous biological materials
- Understand methods to minimize risk and to protect against release or exposure

## PERFORMANCE OBJECTIVES (continued)

- Provide effective technical expertise in situations involving potentially hazardous biological materials
- Explain the four levels of containment used in work places
- Identify, locate, and efficiently use key biosafety resources

## GRADING POLICY

Award of letter grades, at course completion, reflecting the level of achievement of the course's performance objective is based on the scale:

A	B	C	D	F
100-90.00%	89.99-80.00%	79.99-70.00%	69.99-60.00%	<60.00%

Achievement is demonstrated through performance on the following measurement and learning devices (Note: Three absences are allowed before deductions, except for in-class exercises):

Exam #1 = 20%    Exam #2 = 20%    Exam #3 = 20%

In-class exercises 15%

Attendance and Participation 15%

Quizzes 10% (Will occur at beginning of class on designated dates below)

## COURSE SCHEDULE [SUBJECT TO CHANGE]

The class will meet twice each week for the semester.

### WEEK 1:

COURSE INTRODUCTION

**LECTURE #1:** RISK ASSESSMENT AND LAB ACQUIRED INFECTIONS (LAIs)  
(Chapters 1, 4, and 5)

### WEEK 2:

**LECTURE #2:** MICROBIOLOGY  
(Chapters 6, 7, 8, 9, and 13)

### WEEK 3:

**LECTURE #3:** HUMAN SOURCE MATERIALS / CELL LINES  
(Chapter 14 and 22); See also:

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051)

### WEEK 4:

**LECTURE #4:** FACILITIES AND EQUIPMENT  
(Chapter 16, 17)

### WEEK 5:

**EXAM #1**

WEEK 6:

**LECTURE #5:** BIOLOGICAL SAFETY CABINETS  
(Chapter 18)

WEEK 7:

**LECTURE #6:** BIOSAFETY PRACTICES AND PERSONAL PROTECTIVE EQUIPMENT  
(Chapter 21)

WEEK 8:

**LECTURES #7:** MOLECULAR BIOLOGY AND VIRAL VECTORS  
(Chapter 28 and [http://oba.od.nih.gov/rdna/nih\\_guidelines\\_oba.html](http://oba.od.nih.gov/rdna/nih_guidelines_oba.html))

WEEK 9:

**LECTURE #8:** WORKING SAFELY WITH LABORATORY ANIMALS

WEEK 10:

**EXAM #2**

WEEK 11:

**LECTURES #9 AND 10:** MEDICAL WASTE & SHIPPING AND TRANSPORTATION (Chapter 24)

WEEK 12:

**LECTURE #11:** DISINFECTION  
(Chapter 23)

WEEK 13:

**LECTURE #12:** BIOSECURITY  
GRADUATE PRESENTATIONS

WEEK 14:

GRADUATE PRESENTATIONS

**EXAM #3: FINALS WEEK**

GRADUATE STUDENTS ONLY:  
PRESENTATION ON A CURRENT TOPIC IN BIOSAFETY (20 MINUTES)