

## How to Avoid the Walking Dead: Understanding Biosafety

COMP MED 182 | 2 unit | Class # 24594 | Section 01 | Grading: ROP(Ltr-S/NC) | SEM  
06/26/24 – 08/14/24

Wednesday 1:30PM – 4:00PM in Alway M112 (Except July 17 – Alway M015A)

**Course Instructor:** David Bentzel VMD, MPH, DAACLAM, DACVPM  
Clinical Professor, Department of Comparative Medicine  
**E-mail:** [dbentzel@stanford.edu](mailto:dbentzel@stanford.edu)  
**Office:** Research Animal Facility, Room AF067H  
*Office hours by appointment*

**Prerequisite(s):** None

**Course Length:**

8-week course. Students should plan on ~3-4 hours per week of homework, on average. The class will meet once per week for lectures, student presentations and class discussion.

**Course Description:**

Are you concerned the Walking Dead will soon rise? Are we on the verge of World War Z? What can be done to prevent the escape of Zombie-producing agents from labs? This course seeks to save the world through the introduction of biosafety history, concepts, and principles & practices as seen through the lens of specific diseases and research at Stanford. The course will be of interest to students looking to pursue careers in biomedical research or those wishing to pursue professional medical education.

**Course Objectives:**

Upon successful completion of this course, the student will be able to:

1. Describe fundamental terminology, principles, and concepts of biosafety in biomedical research facilities
2. Understand the concept of biowarfare/bioterrorism and how they relate to Select Agents
3. Have a breadth of knowledge of diseases associated with the different biosafety levels

**Course Outline:**

**Week 1 (6/26):** History of Microbiology and Biosafety & Reference Documents & Tour of Animal Biosafety Level (ABSL) 1 & 2 Facilities

**Week 2 (7/3):** Biosafety Principles & Occupational Health

**Week 3 (7/10):** Biosafety Level (BSL)/ABSL-1 & 2 and Associated Agents

**Week 4 (7/17):** BSL/ABSL-3 and Associated Agents & Agricultural Biosafety – Dr. Kate Gates

**Week 5 (7/24):** BSL/ABSL-4 and Associated Agents & Working in an ABSL-4 Facility

**Week 6 (7/31):** Student Presentations

**Week 7 (8/7):** Stanford Environmental Health and Safety/Careers in Biosafety & Institutional Biosafety Committee & Recombinant DNA/GMOs – Dr. Susan Vleck

**Week 8 (8/14):** Biowarfare/Bioterrorism & Select Agents

**Grading:**

10% Class participation/attendance

40% Student Presentation

50% Comprehensive Final Exam

98-100=A+

94-97.99= A

90-93.99= A-

87-89.99= B+

84-86.99= B

80-83.99= B-

77-79.99= C+

74-76.99= C

70-73.99= C-

60-69.99= D

<59.99= F

**Textbook:** No required textbook for this class. Electronic versions of reference materials will be provided by the instructor to correspond to weekly lectures.

**Attendance:**

We only meet once a week and really need to have everyone present to make this class an enriching experience for all. Please let me know prior to class if you will need to be absent. Excused absences will not impact on your grade. An unexcused absence will impact your overall grade (1 class= no impact, 2= -5%; 3≤= -10%).

**Student Presentations:**

Students will be expected to provide a presentation to class describing microbiological agents of their choice. The final number of agents will be determined by class size. Students may choose the type and biosafety level of the agent. A sign-up procedure will be established to assure there is no duplication by students. Students are expected to present information in a similar manner as to how specific agents are presented during lectures. At a minimum, information should include organism and the BSL/ABSL, incubation period, natural occurrence (location/time), transmission, clinical signs, diagnosis, treatment, prevention, and recent or relevant outbreaks (if applicable), and particularly any examples of laboratory-acquired infections.

Students will also be required to develop three multiple choice exam questions related to their material which may be included in the comprehensive final exam.

A list of agents and their corresponding Biosafety Levels can be found at <https://ehs.stanford.edu/reference/biosafety-levels-biological-agents>.

### **Final Exam:**

The final exam will be a comprehensive take home test through Canvas. Lectures, reference material, and guest speaker and student presentations will be included in the final, so make sure to keep up with the class materials!

### **Honor Code:**

All work on the student presentation and take-home exam is to be solely the work of the individual student. Unpermitted collaboration and giving or receiving unpermitted aid on a take-home examination are violations of the Stanford Honor Code.

<https://communitystandards.stanford.edu/policies-guidance/honor-code>

*Students with Documented Disabilities: Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty. Unless the student has a temporary disability, Accommodation letters are issued for the entire academic year. Students should contact the OAE as soon as possible since timely notice is needed to coordinate accommodations. The OAE is located at 563 Salvatierra Walk (phone: 723-1066, URL: <https://oae.stanford.edu/>).*