

ETHICS AND ISSUES IN MICROBIOLOGY 11:680:401:

Diane Davis davis@aesop.rutgers.edu

215 Lipman Hall

Text: Macrina, F. SL. 2005. *Scientific Integrity*. Text and cases in responsible conduct of research. (3rd. Ed). American Society for Microbiology (ASM Press), Washington, DC.

Prerequisites: 11:680:390 Open to microbiology majors and to others by special permission.

Course description:

Ethical and current issues in microbiology are discussed from the perspective of scientific and ethical conduct. Case studies will be analyzed. The course is targeted for students in their junior/senior year majoring microbiology and provides a fundamental understanding of a code of ethics for microbiologists, including ethical conduct, scientific integrity and the dignity of the profession and practice of microbiology.

Credits: 1

Student Learning Goals:

1. Explain expectations and practice of academic/scientific integrity and responsible conduct of research.
2. Formulate and support personal positions on ethical issues of science relevant to the study of microbiology and related fields.
3. Formulate a well-reasoned moral response to any dilemma in scientific research.
4. Effectively communicate scientific information to other scientists and the greater community.

Grading is based on:

- I. Class participation (30%): - participation in discussion in class. Grading includes the significance of the discussion and of any materials introduced. Note that comments of "I agree" do not merit participation points.
- II. Current Ethical Issue in microbiology or related field. (10%) -
- III. Position Paper (25%)
- IV. Book Review & Presentation (35%)

Lecture Topics

TOPIC
Course Expectations & Text Introduction
Course Overview; Standard Practices; Who makes the rules?
Ethics and the Scientist; Academic Integrity
Mentoring
Authorship & Peer Review
Intellectual property; Scientific Record Keeping
The Publishing Process
Responsible Conduct of Research
Dual Use
Genetic Technology and Scientific Integrity
Current Ethical Issues in Microbiology
Student presentations

Assignments:

Position Paper: 1-2 page paper making a well-reasoned argument supporting or rejecting the stated position on one of the following ethical dilemmas:

- **Mandatory vaccination:** Requirement for mandatory vaccination before admission to public school should not be waived.
- **Accountability of scientists in areas of public safety:** Principal research investigators should be liable for costs and consequences resulting from the accidental release of pathogens from their research facilities.
- **Academic integrity:** Currently Rutgers Academic Integrity Policy may impose as a sanction a permanent notation of expulsion on the student's transcript. This sanction should be mandatory and included in every case of repeated offense.
- **DURC:** Gain of function research should not be supported by NIH funding.

Book Review: You will read and critique a book from the bibliography provided or a pre-approved book of your own choosing. This assignment includes a presentation and a short written summary. Your review should include the following:

- **SUMMARY:** Discussion of major ethical themes and ideas presented in the book.
- **AUTHOR:** Provide a discussion of the author's background and qualifications.
- **CRITIQUE:** Thoughts, responses and reaction to the book including the subject of the book, the author's position, how well it is written and overall success or failure of the book. Did you enjoy the book? Would you recommend the book? To whom?

Current Ethical Issue in Microbiology (10%) – Identify a current ethical issue in microbiology or a related field that you became aware of OUTSIDE of the classroom. Be prepared to lead a short discussion in class about the issue.

Bibliography for Book Review:

1. **Alcabes, Philip.** 2009. *Dread: How Fear and Fantasy Have Fueled Epidemics from the Black Death to Avian Flu.* Public Affairs, New York, NY.
2. **Carroll, Michael.** 2004. *Lab 257.* Harper, NY.
3. **Cave, Stephanie.** 2001. *What Your Doctor May Not Tell You About Children's Vaccinations.* Wellness Central, NY.
4. **Einstein, Mayer.** 2010. *Make an Informed Vaccine Decision.* New Atlantean Press, Santa Fe, NM.
5. **Lax, Eric.** 2005. *The Mold in Dr. Florey's Coat.* Henry Holt, NY, NY.
6. **Moritz, Andreas.** 2011. *Vaccine-nation: Poisoning the Population One Shot at a Time.* Ener-chi Wellness Press, USA.
7. **Needham, Cynthia and Richard Canning.** 2003. *Global Disease Eradication: The Race for the Last Child.* ASM Press, Washington, DC
8. **Oshinsky, David.** 2005. *Polio: An American Story.* Oxford University Press, New York, NY
9. **Offitt, P. A.** 2005. *The Cutter Incident: How America's First Polio Vaccine Let the Growing Vaccine Crisis.* Yale University Press, New Haven, CT.
10. **Offitt, P. A.** 2007. *Vaccinated.* HarperCollins Publishers, New York, NY.
11. **Offitt, P. A.** 2010. *Deadly Choices.* Basic Books, A Member of the Perseus Books Group, NY.
12. **Peters, C.J.** 1997. *Virus Hunter.* Anchor Books, NY.
13. **Preston, Richard.** 1994. *The Hot Zone.* Anchor Books, NY.
14. **Preston, Richard.** 2002. *The Demon in the Freezer.* Ballantine Books, NY.
15. **Peter, Pringle.** 2012. *Experiment Eleven: Dark Secrets Behind the Discovery of a Wonder Drug.* Walker & Company, NY.
16. **Rhodes, Peter.** 1998. *Deadly Feasts.* Touchstone. New York, NY