

Welcome to Honors Biology!

Biology 675

Philosophy

Henry Thoreau asked *Is not disease the rule of existence?* In today's crowded, overpopulated world, in which frequent travel and the mass production and distribution of food and other goods are a way of life, diseases can spread rapidly. A contaminated food or water supply, for example, can affect many thousands of people very quickly. Identifying the causative agent of a disease is desirable so that a disease can be effectively controlled and treated. However, even if you could control all disease environmental change and evolution select for new or emerging diseases so perhaps Thoreau was right.

The science that studies when and where diseases occur and how they are transmitted in populations is called epidemiology. Epidemiologists are sometimes called medical detectives.

We will examine some of the principles of infection and epidemiology. You will learn how these principles are useful in studying and controlling disease. And, you will hone your critical thinking and quantitative analysis skills as you track an outbreak.

Goals

After completing this course, you will be able to:

1. Discuss and understand the role of microorganisms in infectious diseases.
2. List factors that lead to the emergence of diseases.
3. Describe methods of controlling infectious diseases.

Attendance

Regular attendance is expected at every meeting. Role will be taken during each class meeting. When students must be absent because of illness or emergencies they should contact the instructor in advance. A student may be dropped for missing four class meetings. Responsibility for making up work missed because of absence rests with the student.

The Grade of W

You may wish to withdraw from this class. If you withdraw prior to 9-17-08 nothing will appear on your record. If you withdraw between 9-17-08 and 11-17-08, a *W* will appear on your transcript. You will receive a *W* for exceeding four absences *prior* to 11-17-08. Anyone exceeding six absences *after* 11-17-08 will get a final grade of F.

Requirements

All assignments must be completed to earn a passing grade. Class participation will be included in your grade.

| | |
|---------------------|---------------|
| Project | 60 points |
| Labs, 3 @ 10 points | 30 |
| Vector assignment | 20 |
| In-class work | 50 |
| <hr/> | |
| Total | 160 points |
| Grading | A $\geq 88\%$ |
| | B 75-87% |
| | C 60-74% |
| | D 45-59% |
| | F $\leq 44\%$ |

Read each assignment before coming to class and be prepared to discuss the content and answer questions on the content.

Academic honesty. Plagiarized lab reports and papers will receive a score of zero. Refer to the Student Handbook.

Honors credit will be received in this and a concurrent 100 or 200 level biology course upon successful completion of this course.

Corequisite: Concurrent enrollment in any non-Honors Biology level 100 or 200 course.

Office Hours

Please contact the instructor at any time with questions concerning the course, an assignment, etc.

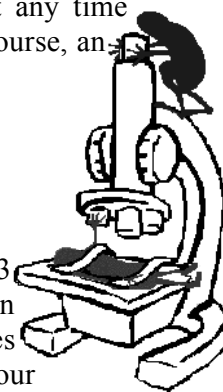
Skyline College, pH 214.

Phone: 650/738-4376.

E-mail: case@smccd.net

Project

You will work in groups of 3 students to find the source of an outbreak. The project guidelines are online. You will receive your outbreak data in class.



Resources

Assignments, reading, a glossary, and an image library are posted on the BIOL 675 home page.

Go to <<http://skylinecollege.edu/case/>> and click on BIOL 675.

Class Schedule. Friday 1:10-2:00 P.M. Read the assignments *before* class. All of the readings are online at <http://skylinecollege.edu/case>.

📖 Print the lab protocol files and bring them to class on the dates indicated.



| Date | Lecture | Reading/Assignments <i>online</i> |
|---------|---|---|
| Aug 22 | Introduction | Introduction. Case Studies. |
| Aug 29 | Microbes & Infectious Disease | Case Studies due Concept map 1 Pathogenicity (12) |
| Sept 5 | Koch's Postulates | Historical perspective (10) Koch's Postulates |
| Sept 12 | Handwashing lab | Handwashing (1) 📖 Handwashing lab protocol (7) |
| Sept 19 | Impact of Infectious Disease on Human History | Typhoid Mary Handwashing lab report due |
| Sept 26 | Epidemiology | Concept map 2 Snow (6) Nightingale (4). Semmelweis (3) |
| Oct 3 | Epidemiology lab | 📖 Epidemiology lab protocol (7) |
| Oct 17 | Vector borne diseases | <i>Aedes albopictus</i> — Vector assignment Epidemiology lab report due |
| Oct 24 | Case-control studies | Hotel Guests Get Dermatitis (11) Vector borne disease assignment due |
| Oct 31 | Control & Prevention | Montagu-Jenner (2) The Problem |
| Nov 7 | Emerging Infectious Diseases | Concept map 3 EID_1 (9) Influenza (13) |
| Nov 14 | Socio-political issues Public Health | Immigration Law Polio (8), Bioweapons (12) Health and Human Society (5) |
| Nov 21 | Molecular epidemiology | Case 1-Diagnosis Case 2-Finding the Source Project due |
| Dec 5 | Molecular epidemiology lab | 📖 Molecular epidemiology lab protocol Molecular epidemiology lab due |

Literature Cited:

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- Case, C. L. and K-T. Chung. "Montagu and Jenner: The Campaign Against Smallpox." *SIM News* 47(2):58-60, 1997.
- Chung, K-T. and C. L. Case. "Semmelweis: A Lesson in Epidemiology." *SIM News* 47(5):234-237, 1997.
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- Hertzman, C. "Health and Human Society." *American Scientist*, Nov-Dec. 2001.
- "John Snow." UCLA Department of Epidemiology. <http://www.ph.ucla.edu/epi/snow.html>.
- Johnson, T. and C. L. Case. *Laboratory Experiments in Microbiology*, 7th ed. San Francisco CA: Benjamin Cummings, 2004.
- Kluger, J. "Polio's Back. Why Now?" *Time Magazine*. May 9, 2005.
- Morse, S. S. "Factors in the Emergence of Infectious Diseases." *Emerging Infectious Diseases* 1(1):7-15, 1995.
- Satcher, D. "Emerging Infections." *Emerging Infectious Diseases* 1(1):1-6, 1995.
- Tortora, G., Funke, B., and Case, C. L. *Microbiology: An Introduction*, 8th ed. San Francisco CA: Benjamin Cummings, 2004.
- Tortora, G., Funke, B., and Case, C. L. *Microbiology: An Introduction*, 9th ed. San Francisco CA: Benjamin Cummings, 2007.
- Webster, R. G. and E. J. Walker. "Influenza." *American Scientist*, March-April 2003.