Instructors: Dr. Jill Sohm
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Office hours: TBA, CAS 100

Time: TTh 2-3:20 **Room:** WPH 107
Units: 4.0 **Recommended Prerequisites:** Bio 120 or 103

Texts:

- Selendy, J.M.H. (2011) Water and Sanitation Related Diseases. Wiley-Blackwell.
- Money, N.P. (2014) Microbiology: A Very Short Introduction. Oxford University Press.
- CDC (2011) Principles of Epidemiology in Public Health Practice, Lesson 1. Available at: http://www.cdc.gov/ophss/csels/dsepd/ss1978/lesson1/index.html

Other resources:

- CDC disease pages: http://www.cdc.gov/DiseasesConditions/
- CDC Emerging and Zoonotic Infectious Diseases: http://www.cdc.gov/ncezid/
- WHO disease pages: http://www.who.int/topics/en/

Course goals:

- Gain background knowledge in microbiology, epidemiology, parasitology
- Understand the ecology and life cycles of diseases that are transmitted from the environment
- Appreciate the ecology and life cycles of diseases whose transmission is effected by environmental degradation
- Discover the importance of environment and climate on disease throughout the world
- Explore the implications of climate change on disease transmission
- Understand how to break the cycle of environmentally transmitted diseases
- Discuss sanitation and its role in preventing disease
- This course is consistent with the Student Learning Objectives of the Environmental Studies Program: https://dornsife.usc.edu/environmental-studies/learning-objectives/

Course requirements and expectations:

- Come to class prepared
- Be respectful of me and other students in class
- Please leave cell phones outside the classroom or turned off
- If you have to miss class make sure you arrange to get notes and announcements.

Other course information:
This course will use Blackboard for communication, information and turning in assignments. Lecture slides will be made available after the lecture is given. Additional readings may be assigned periodically throughout the semester, and these will be announced in class, posted on Blackboard, and an email reminder sent to the class. This course involves a lot of in depth reading and critical analysis outside of lecture, as it is a four unit course.

The written assignment will involve writing a 5-7 page (~1500 word) research paper on an infectious disease that relates to the environment that we will not be covering in class. The paper will address the life cycle of the organism that causes the disease, how it is transmitted, how human activity/environmental change has affected its spread, and how this knowledge can be used to prevent transmission. The group presentation will be a case study of a disease you are interested in and how one country, city, or region implemented a public health campaign to reduce the disease. For this case study, you will also create your own infographic about the disease and how to prevent it that is intended for education of the public that are at risk of the disease. Reading quizzes will be held at the beginning of class – they are short quizzes that will test your knowledge of the articles that you have read for class. They will be worth 6 points each and your lowest score will be dropped.

Grading:

Midterm 1	100 pts (22%)
Midterm 2	100 pts (22%)
Final exam	100 pts (22%)
Written assignment	60 pts (13%)
Group presentation	50 pts (11%)
Infographic	20 pts (4%)
Reading quizzes	30 pts (6%)

Grading scale: A = 92.5-100%
A- = 89.5-92.4%
B+ = 86.5-89.4%
B = 82.5-86.4%
B- = 79.5-82.4%
C+ = 76.5-79.5%
C = 72.5-76.4%
C- = 69.5-72.4%
D = 59.5-69.4%
F = <59.5%

All three exams will cover material immediately after the preceding exam (or beginning of class for midterm 1) up to the exam. The final exam will be a midterm. Exams will focus on lecture and reading material. During exams, students will NOT be allowed to have notes, books, cell phones, etc. Only pens/pencils and a calculator are required. Failure to comply with exam policies will automatically result in a grade of "0" for that particular exam.

Late/make-up policy
If there is a conflict with an exam, you must email the instructors *2 weeks in advance* to see if arrangements can be made (under reasonable circumstances). Otherwise, make-up exams will not be given except in extreme emergencies. Make-up exams will also be more difficult, so it is in your best interest to take the exam on the day it is scheduled. If you have an emergency on exam day, you must get in touch with us before the exam if possible. Assignments will not be accepted late.

Academic Conduct:
Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* http://equity.usc.edu or to the *Department of Public Safety* http://adminopsnet.usc.edu/department/department-public-safety. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* http://www.usc.edu/student-affairs/cwm/ provides 24/7 confidential support, and the sexual assault resource center webpage http://sarc.usc.edu describes reporting options and other resources.

Support Systems:
A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* http://dornsife.usc.edu/ali, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* *http://emergency.usc.edu* will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

Emergency Preparedness/Course Continuity in a Crisis
In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies.

Lecture schedule and reading (may be modified during semester)

Week	Topic	Reading	Assignments
1	Introduction		
	Microbiology basics	Money Ch. 1	Reading quiz
2	Microbiology, human health and disease (including immunology and vaccines)	Money Ch. 5; CDC Lesson 1, sec. 10	
	Epidemiology basics	CDC Lesson 1, sec. 1, 6, 8, 11	
3	Epidemiology case study The importance of water for health	Selendy Ch. 2	
	Environmentally transmitted fungal diseases: Valley Fever, Histoplasmosis, Cryptococcus	Galgiani Bartlett et al. (found on BB)	Reading quiz
4	Environmentally transmitted bacterial diseases: soil associated diseases, infectious diarrhea, Trachoma, Cholera	Baumgardner (on BB) Selendy Ch. 5, 15.5, 14 Disease along the River (BB)	Submission of topic for paper
5	Midterm 1		
	Environmentally transmitted viral diseases: Poliomyelitis, rotavirus, norovirus	Money Ch. 4	
6	Environmentally transmitted protistan diseases: Giardia, Cryptosporidium, Enamoeba hystolitica, Naeglaeria	Marshall (BB)	Reading quiz
	Microscopy: identification of protistan cysts and vegetative cells		
7	Helminths: Guinea worm, blood fluke, Pinworm, Roundworm	Selendy Ch. 7, 10, 13	
	Microscopy: identification of helminth eggs		
8	Vector borne diseases: Malaria, Dengue fever, Bubonic plague, Lyme	Selendy Ch. 9, 12, 32 Frith (BB)	Paper due
9	Environmental change and the spread of disease	Selendy Ch. 31, Worldwatch report 181 Pg. 15-22 (BB)	Submission of topic for presentation
	Epidemics caused by how we live: influenza, mad cow, antibiotic resistance		Reading quiz
10	Midterm 2		
	Sanitation	Selendy Ch. 20, 21, 22	
11	Building a biosand filter	Selendy Ch. 18	
	Environmental toxicology and epidemiology	Friis Ch. 2 (BB)	Reading quiz
12	Water pollution and disease	Selendy Ch. 23, 24, 25, 29	
13	Air pollution and disease	Tibbetts (BB)	Reading quiz
14	Solutions		
15	Presentations		Turn in infographic
Final	Final exam:		