

Ecology of Waterborne Pathogens SWS4307/5308

Instructor:

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Office hours: by appointment in person (**Location:** Genetics Institute, Rm 330E) *or* through Big Blue Button conference in CANVAS/UF e-learning.

Course website: UF CANVAS e-learning portal: <http://elearning.ufl.edu/>

Prerequisites: MCB3020 (Basic Biology of Microorganisms), or MCB3023 or MCB4203 (Bacterial and Viral Pathogens) or equivalent.

Course Objectives and Goals

The *central objective* of this course is to foster students' ability to solve problems related to microbiological quality and safety of drinking and recreational waters. The development of problem-solving skills will require an in-depth understanding of microbial ecology concepts and methodologies for identifying and characterizing pathogens and their behaviors outside of their human hosts.

Course Goals

- Know the most common environmentally transmitted pathogens and the characteristics that make them "good" pathogens
- Understand culture-based, nucleic acid-based and immunological methods for detecting human waterborne pathogens
- Define strategies used by human waterborne pathogens for colonization and survival in hosts and in the environment
- Analyze factors contributing to the rise of emerging and re-emerging environmentally transmitted pathogens
- Understand methods to reduce human exposure to waterborne pathogens and how to assess and communicate risk
- Foster development of critical thinking skills for analysis of popular news stories and/or primary scientific literature

Required Textbook:

Environmental Microbiology. Third Edition
By Pepper et al. Academic Press. 2015.
ISBN: 978-0-12-394626-3

Additional reading assignments and materials including lecture videos and slides will be available through CANVAS/ UF e-learning. Instructor's lectures are loosely based on the assigned readings from the textbook and the research articles.

Topical Outline:

- Module 1: Pathogens & Outbreaks
- Modules 2 and 3: Pathogen Detection
- Modules 4 and 5: Habitats Where Pathogens Survive
- Module 6: Virulence & Antibiotic Resistance
- Module 7: Drinking Water & Waste Water
- Module 8: Food Safety
- Module 9: Pathogens & Environmental Change
- Module 10: Risk Assessment & Communication

Course Description

The course is a “flipped” course. Students are expected to listen to the pre-recorded lectures and read the assigned readings PRIOR to attending each discussion. On-campus students will meet for discussions on **Wednesday mornings** during the scheduled course time. Distance education students will meet for discussions on **Thursday evenings** using Big Blue Button conferences through CANVAS. The online discussions will be recorded for later viewing.

Student Evaluation and Grading

SWS4307		SWS5308	
Self-assessment quizzes (10 Modules)	0%	Self-assessment quizzes (10 Modules)	0%
First exam	15%	First exam	15%
Second exam	15%	Second exam	15%
Case Study	20%	Case study	10%
Pathogen Guide wiki entry	10%	Pathogen Guide wiki entry	10%
“Is this good science?” VoiceThread	10%	“Is this good science?” VoiceThread	10%
Public Service Announcement Activity	10%	Public Service Announcement Activity	10%
Final exam	20%	Final exam	20%
		Paper presentation	10%

Exams will be composed of multiple-choice questions and short answer questions. Exams will be conducted through the course’s CANVAS e-learning portal for both on-campus and distance education students. On-campus students may take the exam during the scheduled course time (and thus be proctored by the instructor). Distance education students and on-campus students that take the exam from any other location will be proctored online through ProctorU. For more information about online proctoring see UF’s resources here:

<http://www.proctoru.com/portal/ufl>

Students will need to register for an account with ProctorU well in advance of the first exam and will be required to schedule an exam time for each exam a few days BEFORE the exam day.

The final grade is a reflection of the individual student’s mastery and comprehension of the subject material presented during the semester. The grading will not be based on a bell curve. UF Grading policies are followed, more information on the UF policies is here: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Passing Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Grade Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	.67	0.66 and below

Grade assignment:

91-100%	A
89-90.9%	A-
85-88.9%	B+
83-84.9%	B
79-82.9%	B-
75-78.9%	C+
73-74.9%	C
69-72.9%	C-
65-68.9%	D+
63-64.9%	D
59-62.9%	D-
below 58.9%	E

Policy on Extra Credit. No extra credit assignments will be accepted. The course is designed so that students can earn points from a variety of assignment types and exams constitute only half of the final grade.

Policy on Class Attendance. It is the instructor's expectation that each student will keep up with posted lectures, readings, and other assignments. It is the student's responsibility to adhere to the agreed upon timeline.

Policy on Make-up examinations and Assignments. Late assignments will not be accepted for credit. Make-up exams (midterm or final) will be administered only to the students who were not able to complete the exam due to a well-documented emergency or illness.

Accommodations for Students with Disabilities:

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

Academic Honesty:

In Fall 1995, the University of Florida student body enacted a new honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by the students.

Preamble: In adopting this honor code, the students of the university of Florida recognize that academic honesty and integrity are fundamental values of the university community. Student who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action.

The Honor Code: *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*

On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: *On my honor, I have neither given nor received unauthorized aid in doing this assignment.*

UF Counseling Services:

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. These resources include 1.) University Counseling Center, 301 Peabody Hall, 392-1575, personal and career counseling; 2.) SHCC Mental Health, Student Health Care Center, 392-1171, personal counseling; 3.) Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling; and 4.) Career Resource Center, Reitz Union, 392-1601, career development assistance and

counseling.

Software Use:

All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Should you have any complaints with your experience with the Distance Education aspects of this course, please visit <http://www.distance.ufl.edu/student-complaints> to submit a complaint.