

EPIDEMIOLOGY OF MICROBIAL PATHOGENS (BSCI 348M)

WINTER 2015 – UNIVERSITY OF MARYLAND, COLLEGE PARK

Professor: Dr. Jeffrey Olimpo

Office Hours: By appointment only – to be held virtually

E-mail: jeolimpo@umd.edu

COURSE DESCRIPTION

Prerequisite: A grade of “C” or better in BSCI 105. This course is intended for students who are interested in programs in medicine, nursing, or other allied/public health fields. You will be introduced to the study of diseases of bacterial and viral origin, the adverse effects of disease outbreaks, and their implications for public health safety and practice.

This course is an accelerated, 3-week class that meets asynchronously on Canvas. Please refer to the schedule at the end of this syllabus for a detailed description of what topics will be covered and when assignments will be collected. You should begin by completing the **online orientation** module prior to the first module opening on **1/5/15**.

COURSE OBJECTIVES

This course is designed to provide students with a broad introduction to the field of Epidemiology & Public Health as it relates to bacterial and viral pathogens. Students completing this course will:

- Gain an understanding of the central tenets of the field of Epidemiology & Public Health, including goals of epidemiological studies, notable figures in the history of the field, and basic epidemiological terminology.
- Be able to explain and apply the basic concepts of disease transmission.
- Be able to explain and apply the basic concepts of morbidity and mortality using real-world data, including the ability to calculate morbidity and mortality statistics.
- Be able to describe the similarities and differences between descriptive and randomized epidemiological studies.
- Gain an understanding of the molecular basis and public health impacts of various bacterial pathogens affecting human and animal hosts.
- Gain an understanding of the molecular basis and public health impacts of various viral pathogens affecting human and animal hosts.

COURSE TEXTBOOKS (REFERENCE)

Epidemiology, 4th Edition, Gordis

Elsevier/Saunders, Publishers ISBN-13: 978-1-4160-4002-6

ACADEMIC INTEGRITY

All UMD students are held accountable to the Student Code of Academic Integrity, which outlines expectations pertaining to academic honesty (including cheating and plagiarism). The Code can be found in full at <http://www.president.umd.edu/policies/docs/III-100A.pdf>. At my discretion and based on the recommendation of the honor council, sanctions may range from a failing grade on the relevant assignment to dismissal from the class and a failing grade. The Student Academic Grievance process can be used if you feel you have been treated unfairly by this policy.

COMMUNICATIONS

You may post general questions about the class in the "Ask Dr. Olimpo" discussion board forum. If you have questions about the weekly materials, post them directly in the weekly forum created for that purpose. Expect a reply within 24-48 hours (students are also encouraged to post a reply!). E-mail should only be used for issues that are not appropriate for the whole class (e.g. questions about your grade or personal issues).

When you send me an e-mail, please include a proper subject, any message you are responding to, the course name, as well as your name. Use your UMD terpmail account to ensure that the e-mail is not blocked by the university's spam filter. If you e-mail directly from Canvas, essential information like the course name and section will automatically be included. I will do my best to respond to your e-mail within 24 hours. If you don't get a response in this timeframe, there is probably a technical problem, and you should please forward me your e-mail again. Ensure that you regularly check the e-mail account listed for you in Canvas, as this is where I will be sending announcements/e-mails.

DISABILITY SUPPORT SERVICES

Students with disabilities who wish to request accommodations should please contact me as soon as possible so that we may have a private conversation to discuss those accommodations. In addition, you should contact DSS services (<http://www.counseling.umd.edu/DSS>), if you have not already done so, as a necessary step in ensuring accommodations can be provided.

TECHNICAL SUPPORT

For minor issues, I may be able to assist you. However, in the event that you encounter larger issues regarding use of Canvas, password/login resets, or university e-mail issues, the Division of Information Technology (DIT) Customer Support Team can assist you. Hours and other helpful information can be found at <http://www.it.umd.edu/>.

COURSE GRADING & EXPECTATIONS

COURSE GRADING

LECTURE POINTS (245 PTS.):

- Homework (3 @ 15 pts.) 45 pts.
- Midterm Exam #1 (Week #1) 50 pts.
- Midterm Exam #2 (Week #2) 50 pts.
- Final Exam - Cumulative (Week #3) 100 pts.

DISCUSSION POINTS (55 POINTS):

- Case Studies (3 @ 15 points) 45 pts.
- End-of-Semester Evaluation 10 pts.

A = ≥ 270 pts.	B = 240 – 269 pts.	C = 210 – 239 pts.
D = 180 – 209 pts.	F = < 180 pts.	

ATTENDANCE

Online attendance and participation in **all parts** of this course is expected. Attendance, in my view, is **essential** and can dramatically impact your learning and final grade in the course. Attendance is defined as the viewing of all online lectures and submission of all assignments, including any required posts to the discussion board (more than merely accessing the course). Since this is an online course, excused absences will only be granted in **extreme cases when advanced notice is provided**. In these cases, any assignments due on the day you were absent **must be completed within 24 hours**. No make-up exams will be administered without prior approval!

CANVAS

This class meets in Canvas® (<http://elms.umd.edu>). You will use Canvas to download lectures, access assignments, download or print course materials, and check your grades. You will notice that our Canvas site is set up in a series of modules, one for each week of the course + one orientation module. **You must complete the modules in order, beginning with the orientation module. New modules will be released each Monday (at the latest).**

LECTURES

Though the class meets asynchronously, I am recommending that you view **two** lectures per day in order to pace yourself. Each lecture consists of a pre-recorded video and accompanying PowerPoint notes, both of which you can download from Canvas. It is in your best interest to print the PowerPoint slides *prior* to each day's lecture, and then add notes as you listen to the lecture recordings. Additionally, you may want to jot down any questions you have in the margin as you're listening; that way, you can submit the questions to the discussion board at a later date without trying to have to remember what the questions were in the first place. Importantly, lectures can be downloaded and played (including fast-forwarding/rewinding) as often as you'd like, so do not hesitate to revisit them as necessary.

MIDTERM & FINAL EXAMS

You are required to complete all examinations. Exams not taken will be averaged in as a grade of zero. This semester, there will be two mid-term exams. These exams will be available online on **Friday, 1/9/2015**, and **Friday, 1/16/2015**, from **8:00am-8:00pm (EST)**. Each exam is comprised of a series of multiple-choice and T/F questions, and you will have **50 min.** to complete the exam once you open it. Note that you MUST complete exams in a single sitting once you begin!

The final exam for this course will be administered on **Friday, 1/23/2015**, from **8:00am-8:00pm (EST)**. Unlike the mid-term exams, the final exam will be CUMULATIVE and will contain 50% new material (material from Module #3) and 50% "old" material (material from Modules 1 & 2). The exam will be comprised of a series of multiple-choice and T/F questions, and you will have **75 min.** to complete the exam once you open it. Note that you MUST complete the exam in a single sitting once you begin!

Please prepare! Though this is an online course and you have access to the entirety of your lecture materials, the questions will be presented to you in random sequence, so you must be prepared. *Under no circumstances may you work with another individual on any portion of these exams—this will result in you receiving a grade of "F" for the course!!!* **No make-up examinations will be given without prior approval.**

HOMEWORK

Homework assignments can be found under the appropriate weekly module. To submit homework #1, for example, you might access the first module, navigate to homework #1 (and download it), click the "homework #1" assignment link (it looks like a graded paper), and then submit your work. All homework assignments should be submitted by **5:00pm (EST)** on the date they are due using the text response box feature in the Canvas "assignment" tool. Homework topics and due dates can be found in the schedule at the end of the syllabus.

CASE STUDIES (CS)

The case studies we will complete this semester focus on issues related to food borne illnesses, vaccine development, and antibiotic resistance. These activities are designed to highlight the real-world applications of the topics we are discussing in class, particularly from a public health perspective. Note that two different formats will be used for submitting case study assignments:

Case Study #1: Typed or scanned-in responses to the case study should be submitted on **Thurs., 1/8/2015, by 5:00pm (EST).**

Case Studies #2 & #3: For these case studies, you will engage in a discussion with your peers regarding the materials presented to you in the *Frontline* videos available in the 2nd and 3rd course modules. Specific instructions and prompts for completing these discussion boards can be found by clicking directly on the discussion board icons within Canvas. Responses to case study #2 will be due on **Thurs., 1/15/2015, by 5:00pm (EST)**, and responses to case study #3 will be due on **Thurs., 1/22/2015, by 5:00pm (EST).** Keep in mind that discussion boards open the Monday the module begins, so you have the opportunity to work ahead, if you so desire.

END-OF-SEMESTER EVALUATION

Your feedback is an important piece of thinking about how to improve the course for future semesters. After completing the final exam, please be sure to take a moment to also complete the end-of-semester evaluation (found under the “Final Exam” section). This evaluation will be due on **1/23/2014 by 8:00pm (EST)**, and will net you an easy 10 pts. toward your final grade in the course.

LECTURE SCHEDULE

Please keep in mind that what follows is a **recommended** outline for how you might go about completing the course. *Assignments and exams are the only items that **MUST** be completed by or on the date specified!* This means that you can watch the lectures at your leisure (not necessarily two per day, as I'm recommending).

Orientation Module: Getting to Know Your Classmates (complete before 1/5/15)

Student Learning Objectives:

- To introduce yourself to other members of the course and to get to know your online learning community

Discussion Board:

Please navigate to the discussion board links under the Orientation module on our Canvas site. You will notice that two discussion boards are open, one titled “Introduce Yourself!” and the other titled “Ask Dr. Olimpo”. Your task is as follows:

1. On the first discussion board, provide a brief introduction of yourself, including your name, academic major, career interests/goals, and hobbies. If you feel comfortable doing so, please also include a picture of yourself! This will help others to get to know you better and to create a more welcoming online community.
2. After you have taken the time to explore the course site, please post any questions or concerns you might have on the second discussion board. In addition, if you have any specific expectations for the course, please post those here as well.

Module 1: Exploring the Essentials of Epidemiology (1/5/15 – 1/9/15)

Student Learning Objectives:

- To describe the central tenets of the field of epidemiology & public health, including goals of epidemiological studies, notable figures in the history of the field, and basic epidemiological terminology
- To explain and apply the basic concepts of disease transmission
- To explain and apply the basic concepts of morbidity and mortality using real-world data, including calculating morbidity and mortality statistics
- To describe the similarities and differences between descriptive and randomized epidemiological studies

DATE	LECTURE/DISCUSSION TOPIC	TO READ...
M., Jan. 5 th	Introducing the Field of Epidemiology	Chapter 1 (G)
	Disease Transmission	Chapter 2 (G)
T., Jan. 6 th	Measures of Morbidity	Chapter 3 (G)
	Measures of Mortality	Chapter 4 (G)

W., Jan. 7 th	Descriptive Studies: Person, Place, Time	Chapter 2 (G)
	Experimental (Randomized) Studies	Chapters 7 & 8 (G)
H., Jan. 8 th	Case Study #1	CS1
	<i>Foodborne Outbreak at a Church Supper</i>	
F., Jan. 9 th	Mid-Term Exam #1	
	<i>Note: You will need a calculator!!</i>	
Module Homework Assignments:		
Homework #1: Forms of Disease		1/6/15
Case Study (CS1): <i>Foodborne Outbreak at a Church Supper</i>		1/8/15

Module 2: Epidemiology of Bacterial Pathogens (1/12/15 – 1/16/15)		
Student Learning Objectives:		
<ul style="list-style-type: none"> To gain a broad understanding of the molecular basis and public health impact of various bacterial pathogens that affect human and animal hosts 		
DATE	LECTURE/DISCUSSION TOPIC	TO READ...
M., Jan. 12 th	Bacterial Pathogenesis: An Introduction	
	Penicillin: An Age-Old Antibiotic	See link below
T., Jan. 13 th	<i>Mycobacterium tuberculosis</i> – respiratory infections	Chapter 22.5 (N)
	<i>Streptococcus mutans</i> – oral/digestive health	Chapter 25.3 (N)
W., Jan. 14 th	<i>Neisseria gonorrhoeae</i> – urogenital diseases	Chapter 26.2 (N)
	<i>Listeria monocytogenes</i> – nervous system infections	Chapter 27.2 (N)
H., Jan. 15 th	Case Study #2: <i>Hunting the Nightmare Bacteria</i>	CS2 (discussion)
	http://www.pbs.org/wgbh/pages/frontline/hunting-the-nightmare-bacteria/	
F., Jan. 16 th	Mid-Term Exam #2	
	<i>Note: You will need a calculator!!</i>	
Module Homework Assignments:		
Homework #2: Penicillin – The Miracle Drug		1/13/15
Case Study (CS2): <i>Hunting the Nightmare Bacteria</i>		1/15/15

Penicillin: An Age-Old Antibiotic

<http://www.sciencedaily.com/releases/2014/12/141205114011.htm>

Module 3: Epidemiology of Viral Pathogens (1/19/15 – 1/23/15)		
Student Learning Objectives:		
<ul style="list-style-type: none"> To gain a broad understanding of the molecular basis and public health impact of various viral pathogens that affect human and animal hosts 		
DATE	LECTURE/DISCUSSION TOPIC	TO READ...
M., Jan. 19 th	== NO CLASS ==	
	Martin Luther King holiday	
T., Jan. 20 th	Viral Pathogenesis: An Introduction	
	Human Immunodeficiency Virus (HIV)	Chapter 29 (N)
W., Jan. 21 st	Rhinoviruses, Noroviruses, & Influenza: Oh My!	Chapter 22.4/22.6 (N)
	Foot-and-Mouth Disease Virus	
H., Jan. 22 nd	<i>Watch Frontline Video: Vaccine Wars</i>	CS3 (discussion)
	http://www.pbs.org/wgbh/pages/frontline/vaccines/	
F., Jan. 23 rd	Final Exam (Cumulative)	
	<i>Note: You will need a calculator!!</i>	
Module Homework Assignments:		
Homework #3: Basics of Viral Pathogenesis		1/20/15
Case Study (CS3): <i>Vaccine Wars</i>		1/22/15

*Disclaimer: The professor reserves the right to change the contents of this syllabus due to unforeseen circumstances. Students will be given notice of relevant changes through Canvas and e-mail. Exam dates will **NOT** change.*

WELCOME TO BSCI 348M!!!