

**IMMUNOLOGY AND PATHOLOGY**  
**BIOL293**  
**Fall 2012**

**GENERAL INFORMATION:**

**Instructor:** Dr. Heather B. Felise

**Classrooms:** Lecture – Priscilla Payne Hurd Academic Complex Room 102

**Time:** Lecture - MWF 11:45 – 12:35pm

**Office:** Hall of Science Room 323

**Office Hours:** Tuesdays 9 – 10am, Thursdays 10 – 11am and Fridays 1 - 3pm

**Phone:** 610-861-1428

**Email:** [feliseh@moravian.edu](mailto:feliseh@moravian.edu)

**Required Textbook:** *Schaechter's Mechanisms of Microbial Disease* 5<sup>th</sup> Edition, by N. Cary Engleberg, Victor J. DiRita, and Terence S. Dermody, Lippincot Williams & Wilkins, 2013.

**Required Book:** *Revenge of the Microbes: How Bacterial Resistance is Undermining the Antibiotic Miracle*, by Abigail A. Slayes and Dixie D. Whitt, American Society for Microbiology Press, 2005.

**Supplemental Textbook:** *Case Studies in Infectious Disease* by Peter M. Lydyard et al. Garland Science, 2010. We will only be using sample case studies from this textbook. These case studies can be purchased online at the following website: <http://store.vitalsource.com/show/978-1-1351-5314-4>.

**COURSE DESCRIPTION:** Although most human-microbe interactions are harmless or even helpful, a few result in disease. In this course we will explore the complex interplay that exists between a pathogen and its host and how it results in disease. Microorganisms responsible for many common human diseases will be introduced in terms of their clinical, therapeutic, and epidemiological aspects as well as their molecular mechanisms of pathogenesis using an organ system approach. Topics will include immunology, bacteriology, virology and microbial pathogenesis.

**COURSE OBJECTIVES:**

By the end of this course students should have mastered content in the following areas:

- Fundamental principles of infectious diseases
- The normal biota and the role it plays in defense
- The biology of infectious agents
- Host defenses, both innate and adaptive immunity
- General strategies used by infectious agents to overcome our immune systems
- Familiarity with representative microbial diseases

By the end of this course students will have had the opportunity to:

- Objectively interpret and analyze primary scientific literature
- Analyze representative case studies of infectious diseases
- Discuss future challenges for the treatment of new and reemerging infectious diseases

**LECTURE:**

**Lecture exams:** There will be four exams, each worth 100 points, given during the designated lecture sessions (Please see the attached course schedule). The 4<sup>th</sup> exam will be given during the final exam period and **will NOT be cumulative**. In the event of special needs (such as medical excuse or family emergency) make-up exams will be given, but arrangements must be made **in advance** and **documentation for the absence, e.g. a doctor's note, is required**. If there is an emergency please contact me ASAP. **Make-up exams may be oral** and will be given at a time I deem appropriate.

**Active Learning Exercises:** In this class I will be using a variety of teaching strategies, including both traditional lecture and active learning pedagogies. Therefore some of these activities will require active involvement on your part. It is my hope that you find these approaches interesting and engaging and that they enable you to be more successful in this course. Active learning techniques that will be used in this course include the following:

*Clicker Questions* – Multiple-choice questions embedded within lectures to provide an opportunity for students to test their newly acquired knowledge as well as allowing me to gauge student comprehension.

*Think, Pair, Share* – In this approach students think about a question, and then share it with one or two other students. Often this will be followed by a class debrief of responses.

*Brainstorming* – Class discussion to generate ideas about a topic. Responses will be recorded on the blackboard.

*Small Group Problem Based Activities* – Students will work together in a small group setting to investigate a case study provided by the instructor.

*Reading Reflections* – Student write a one-page summary of a primary science article, book or a scientific news story involving microbial pathogens. These reading reflections will include student's personal opinions or reflections of the article.

**GRADING:** The final grade in the course will be based upon the following items:

<u>Component:</u>	<u>Total Points</u>	<u>% Final Grade</u>
➤ Lecture Exams 1-4 (4 x 100 points each)	400 pts.	(53%)
➤ Discussion Topic Essays (4 x 30 points each)	120 pts.	(16%)
➤ Case Studies (3 x 30 points each)	90 pts.	(12%)
➤ Class Participation/Attendance	100 pts.	(13%)
○ Attendance		
○ Engagement		
○ Participation in Active Learning Exercises		
➤ Reading Reflections	50 pts.	(6.5%)
○ Scientific Literature		
○ Microbial Pathogens in the News		

**BLACKBOARD:** All information, including announcements, lecture slides, study guides, and grades for this course will be posted on Blackboard. You must register for this course on Blackboard during first week of class. Your opportunity to register will **expire** on Wednesday, September 5<sup>th</sup>. For instructions visit the following website: <http://home.moravian.edu/public/cit/help/blackboard/bbstudent.asp>. The course ID is BIOL293.FA12 and the enrollment code is "pathogens". ***When registering, please use the email account where you would like to receive course notifications.***

**CLASS POLICIES:**

***Cell phones: Turn all cell phones OFF before class! No calls or texting during class.*** If you are observed texting during class you will be asked to leave the classroom. If this occurs, you will not receive your points for attendance.

***Academic Integrity:*** I expect all class members to adhere to the Moravian College policy on academic honesty (please see **Student Handbook**). If dishonesty is observed on a student's exam, a course grade of an F will be assigned and the individual will not be allowed to withdrawal from the course. If dishonesty is observed on an assignment the student will receive a zero for that assignment.

***Disability Support:*** Students who wish to request accommodations in this class for a disability should contact Elaine Mara, Assistant Director of Learning Services for Disability Support at 1307 Main Street or by calling 610-861-1510. Accommodations cannot be provided until authorization is received from the Academic Support Center.

# August 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	
	Introduction		Establishment of Infectious Diseases Chpt.1		The Normal Microbiota Chpt. 2	
		Notes:				

# October 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
	Adaptive Immunity Chpt. 7		Adaptive Immunity Chpt. 7		<i>Discussion Topic:</i> Vaccines	
7	8	9	10	11	12	13
	No Class		No Class		<i>Discussion Topic:</i> "Revenge of the Microbes"	
14	15	16	17	18	19	20
	Damage by Microbial Toxins Chpt. 9		Saphylococci: Abscesses and Toxin-Mediated Diseases Chpt. 11		<b>Exam II</b>	
21	22	23	24	25	26	27
	Streptococci and Enterococci: "Strep Throat" and Beyond Chpt. 12		<i>Pseudomonas aeruginosa:</i> A Ubiquitous Opportunist Chpt. 13		<i>Case Studies</i>	
28	29	30	31			
	Pneumococcus and Bacterial Pneumonia Chpt. 13		Neisseriae: Gonococcus and Meningococcus Chpt. 14			
		<b>Notes:</b>				

# November 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
	Enteric Bacteria: Secretory Diarrhea Chpt. 16		Invasive and Tissue- Damaging Enteric Bacterial Pathogens Chpt.		<i>Case Studies</i>	
11	12	13	14	15	16	17
	<b>Exam III</b>		<i>Helicobacter pylori</i> : Pathogenesis of a Persistent Bacterial		<i>Case Studies</i>	
18	19	20	21	22	23	24
	Mycobacteria: Tuberculosis and Leprosy Chpt 23		No Class		No Class	
25	26	27	28	29	30	
	No Class		Influenza and Its Viruses Chpt. 36			
	<b>Notes:</b>					



# December 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
						1	
2	3	4	5	6	7	8	
	The Human Retroviruses: AIDS and other Diseases Chpt. 38		Viral Hepatitis Chpt. 43		<i>Discussion Topic:</i> Infectious Diseases in the 21st Century		
9	10	11	12	13	14	15	
				Exam IV 8:30am			
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31	Notes:					