

MEDICAL BACTERIOLOGY  
Bio 312/512  
Spring 2014

INSTRUCTOR: Dr. Colleen M. McDermott  
OFFICE: Nursing Ed 101 or HS 154  
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OFFICE HOURS: MF 10:20-11:20AM  
MWF 1:30-2:30 PM  
And by appointment\*\*\*

LECTURE: TR 8:00-9:00 AM

TEXTBOOK: Bacterial Pathogenesis: A Molecular Approach, 3<sup>rd</sup> Ed.  
2011. Wilson, B., Salyers, A. A, Whitt, D.D. and Winkler, M.  
ASM Press, Washington, DC.

GRADING POLICY: There will be three (3) one hour exams during the course and are worth 100 points each. Times are as listed on the course schedule. All make-up exams will be comprehensive and oral. Please call instructor or Biology Departmental Office (424-1102) if unable to attend exam due to illness or emergency. Those students needing additional time to complete exams must make arrangements with instructor prior to examination period.

Exam format will be short essay, fill in the blank, definitions, etc. Grading will take into account spelling, grammar, and organization. Each exam is worth 100 points.

A review paper will be written by each student in the class. Paper topics will be determined by the instructor, with student input. The review paper will be a comprehensive examination of a particular bacterial disease agent, and will include signalment (who is the patient, age, gender, occupation, other important information), clinical signs, organism identified, brief description of how disease is diagnosed, pathogenesis, treatment, and outcomes. It will be properly referenced. The review paper will be written in a manner similar to those published in "Clinical Microbiology Reviews". See Review Paper Instruction sheet on D2L for more information. This will be worth 100 points and will be due on **May 8, 2014**

Short quizzes will be given as per the schedule. Quizzes will be worth 20 points each and will total 100 points. Quizzes will cover material from the previous classes, as well as general information about that day's class. Quizzes will occur during the first 5-10 minutes of the class period. If you are not present for a quiz, you will receive a zero. Quizzes are designed to keep you current. Reviewing your notes and reading the textbook will help with this!

Grades will be based on the following averages\*:

A	100-94%	C	76-74
A-	93-90	C-	73-70
B+	89-87	D+	69-67
B	86-83	D	66-64
B-	82-80	D-	63-60
C+	79-77	F	<60

\*Instructor reserves the right to adjust grades (i.e. curve) if necessary.

PREREQUISITE: Bacteriology (Biol 309) and Immunology (Biol 341) are prerequisites for this course. Students will be expected to have knowledge of the following topics:

Phagocytosis	Antigen/antibody interactions
Complement	Inflammation

MEDICAL BACTERIOLOGY Bio 312/512  
Lecture Schedule 2013

<u>WEEK</u>	<u>DATE</u>	<u>TOPIC</u>	<u>CHAPTER</u>
<b>Basic Principles</b>			
1	Feb. 4	Introduction	1 pp. 1-15
	Feb. 6	Host Defenses	2 pp. 16-27 5 pp. 73-97 6 pp. 98-110
2	Feb. 11	Host Defenses, cont.	
	Feb. 13	Virulence Factors: Microbial Subversion	7 pp. 111-129 8 pp. 130-138 11 pp. 193-224
3	Feb. 18	Virulence Factors: Bacterial Toxins	3 pp. 47-50 12 pp. 225-255 (13 pp. 256-274)
		<b>QUIZ 1</b>	
	Feb. 20	Vaccines	17 pp. 373-398
4	Feb. 25	Antibiotics	7 pp. 111-120 15 pp. 317-346 16 pp. 347-372
<b>GRAM POSITIVE BACTERIAL DISEASES</b>			
	Feb. 27	Staphylococcal Disease	18 pp. 399-414
		<b>QUIZ 2</b>	
5	March 4	Staphylococcal Disease, cont.	“Community-associated methicillin-resistant <i>Staphylococcus aureus</i> : Epidemiology & clinical consequences of an emerging epidemic”
	March 6	<b>EXAM 1</b>	
6	March 11	Group A & Group B Streptococci, Enterococci	“Prevention of perinatal Group B Streptococcal disease” “Pathogenesis of Group A Streptococcal infections”
	March 13	Streptococci and Enterococci, cont.	11 pp. 221-222 “The Life and Times of the Enterococcus”

7 March 18 *Streptococcus pneumoniae* 18 pp. 414-423

**QUIZ 3**

March 19 Clostridial diseases 18 pp. 423-436  
20 pp. 468-470

“The Changing  
Epidemiology of  
*Clostridium difficile*  
Infections”

**SPRING BREAK**

**BIOSECURITY ISSUES**

8 April 1 Anthrax 20 pp. 457-466

“Use of Anthrax Vaccine in  
the United States”

April 3 Listeriosis 20 pp. 470-475  
*Yersinia pestis* 20 pp. 467-468

“*Yersinia pestis*—Etiologic  
Agent of Plague”

**GRAM NEGATIVE BACTERIAL DISEASES**

9 April 8 *E. coli* and GI disease 19 pp. 437-440

**QUIZ 4**

April 10 Case studies/Discussion

10 April 15 *E. coli* and Urinary Tract Disease 19 pp. 440-441

April 17 Salmonellosis 11 pp. 216-218

“Clinical pathogenesis of  
typhoid fever”

“Molecular Pathogenesis  
of *Salmonella enterica*  
Serotype Typhimurium-  
Induced Diarrhea”

**(EXAM 2: Given at Testing Center. May be taken April 17 & 18)**

11 April 22 Salmonellosis, cont.

April 24 Ulcers and *Helicobacter pylori*

“*Helicobacter pylori*  
and gastric cancer:  
Factors that modulate  
disease risk”

**Review Paper Draft Due April 24**

12 April 29 *Pseudomonas aeruginosa* 19 pp. 443-446  
“Alginate Synthesis by *Pseudomonas aeruginosa*: A Key Pathogenic Factor in Chronic Pulmonary Infections of Cystic Fibrosis Patients”

**QUIZ 5**

**MISCELLANEOUS INFECTIOUS DISEASES**

May 1 Sexually Transmitted Disease “Sexually Transmitted Diseases Treatment Guidelines, 2010”

13 May 6 The Spirochetes: Lyme Disease, Ehrlichiosis & Syphilis 19 pp. 447-456  
“Biological Basis for Syphilis”  
“Coinfections Acquired from *Ixodes* Ticks”

May 8 Anaerobic Bacterial infections 19 pp. 441-443  
“Enterotoxigenic *Bacteroides fragilis*: a Rogue among Symbiotes”  
Taxonomy, Biology, and Periodontal Aspects of *Fusobacterium nucleatum*

**Review Paper Due May 8**

14 May 13 Tuberculosis 11 pp. 216-218  
“*Mycobacterium tuberculosis* Pathogenesis and Molecular Determinants of Virulence”

May 15 **EXAM 3**

***For each organism examined over the course of the semester, we will discuss the following: Clinical Signs, Predisposing factors and transmission, pathogenesis of infection, treatment and disease prevention.***



