

Antimicrobics: Their Mechanisms of Action and Clinical Use (2016)

PHM 384D and PHM 184H [Fall-2016]

Unique #59440 (384D Austin); #59425 (384D El Paso); #59455 (Pan Am);
#59450 (San Antonio); Honors Antimicrobics [184H #59460]

Tuesday/Thursday

8:00-9:20 am in Austin and UT Pan Am; 7:00-8:20 am El Paso

PHR 4:114 in Austin*

Instructors: Dr. Patrick Davis (Course Coordinator)
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Goals and objectives:

- 1) Provide the student a broader and deeper understanding of antimicrobial agents, both on a basic science and a clinical level.
- 2) Provide insight into the interactions of these agents with the organism and the patient.

- 3) Examine the drug development process as it specifically relates to antibiotics (and responding to resistance development, in particular).
- 4) Rationalize the static vs cidal mechanisms of action of antimicrobial agents.
- 5) Analyze the mechanisms of resistance and its impact on drug selection (and vice versa).
- 6) Analyze new 'pipeline' approaches to antimicrobial therapy and project strategies.
- 7) Articulate and rationalize the main clinical uses of the major antimicrobial drugs prescribed, with an emphasis on acute inpatient therapy.

Required Text: *The Sanford Guide to Antimicrobial Therapy* (2015, 45th Ed.)

Recommended Text: *Antibiotics Simplified* (J.C. Gallagher, 3rd Ed., 2013)

Canvas Website: Go to <http://courses.utexas.edu> (F2015 Antimicrobics)

Demands of the course: Although this is an elective course, we feel (and the students who have taken the course in the past concur) that it will be rather rigorous. We will approach the course material emphasizing both general concepts and details, and plan to cover a lot of material. Handouts will be provided for most classes to help you take notes.

To do well in this course, we list the following recommendations:

- You should enjoy microbiology, medicinal chemistry, and also be interested in the rational use of antimicrobial agents in patients.
- You should have a strong desire to have a deeper understanding on how antibiotics work, how resistance process develop to circumvent their effectiveness, and what we can do prevent and mitigate the impact of resistance.
- You should complete any reading assignments before class; they will be a focal point for discussion.
- You should be able to spend *significant time outside of class* in preparation, be willing to participate in discussions, and ask questions.
- You need to fully commit to your teams weekly exercise as both a preparation for class to expand your understanding of infectious disease issues.

Grading: Grading for the course will be based on four 80 minute tests administered during class time on the dates listed in the syllabus. Although the tests are not cumulative, there may be questions that require that you have learned material taught earlier in the course. Each test is worth 100 points

Your grade will also include a team-based assignment that will be provided each week and should be completed prior to the class on Tuesday. The points for this team-effort will be 4 pts per week for 12 weeks (48 pts). Exam questions may also relate to these exercises. Thus, your total grade will be based on 448 pts and your final grade will be based on test performance as follows:

A Range:		A = 100%-93%	A- = 92%-90%
B Range:	B+ = 89%-87%	B = 86%-83%	B- = 82%-80%
C Range:	C+ = 79%-77%	C = 76%-73%	C- = 72%-70%
D Range:	D+ = 69%-67%	D = 66%-65%	
F =	Below 65%		

Attendance and participation is considered important for this course. Unannounced quizzes may be given during class and incorporated into the total course point total.

Only validated medical or pre-approved excused absences will be accepted for missing a test. You must contact the course coordinator concerning your inability to take an exam *prior* to that exam! If note, an exam grade of “zero” could be recorded. If a make-up exam *is* granted, the nature of that exam will be entirely the prerogative of the instructor(s).

Graded exams will be returned in a timely fashion, and once the key to an exam is posted, the student will have three calendar days to submit *requests for reconsideration of specific questions*. The student must outline his/her arguments *in writing* and submit them (*dated*) to the Faculty. After this three-day period no exams will be re-graded, and no grade changes will be made.

Direct all course administration issues to Dr. Davis, course coordinator. If a particular question arises regarding a particular instructor's material or exam questions, you should first discuss the issue(s) with that instructor.

Additional Requirements for the 184H Honors Companion Course: Students taking this course for additional honors credit must also complete the following:

1. Complete a written evaluation, summary, or analysis of an antimicrobial-related topic which has been approved by the Course Coordinator.
2. Satisfactorily prepare and deliver a 20 minute presentation of the specific topic.

Timeline:	November 1 st	Topic identified and approved
	November 15 th	Preliminary outline of paper/presentation due
	Nov 29 th -Dec 5 th	Oral presentation
	December 7 th	Written paper & Powerpoint (if used) due

Extra Credit Laboratory Tour: Early in the semester, Dr. Martin will be arranging several opportunities to choose from for you to visit a hospital laboratory involved in bacterial identification and antimicrobial sensitivity testing. This is an optional exercise, but we strongly encourage you to participate in this important learning opportunity.

Policy on academic dishonesty: The “Statement on Scholastic Dishonesty of the College of Pharmacy” reads as follows: “Pharmacy practitioners enjoy a special trust and authority based upon the profession's commitment to a code of ethical behavior in its management of client affairs. The inculcation of a sense of responsible professional behavior is a critical component of professional education, and high standards of ethical conduct are expected of pharmacy students. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including failure of the course involved and dismissal from the college and/or the University. Since dishonesty harms the individual, fellow students, and the integrity of the University and the College of pharmacy, policies of scholastic dishonesty will be strictly enforced in this class”.

Students are expected to work independently on all examinations. Any student caught cheating will be given a "zero" on the exam (minimum). Any student suspected of dishonesty will be reported to the Dean of the College of Pharmacy and to the Dean of Students, as per University regulations.

Students are expected to have read and understood the current issue of the General Information Catalog published by the Registrar's Office for information about procedures and about what constitutes scholastic dishonesty. Students are also expected to be familiar with and abide by the College Honor Code, and will be expected to sign the Honors Statement at the end of each examination.

Students with Disabilities

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. All University rules concerning accommodations must be followed, including the student arranging for special accommodations *prior* to *each* examination. In the absence of such *prearrangement*, the student will be expected to take the exam with the rest of the class at the regularly scheduled exam time. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY.

Finalized

Antimicrobics 384D Course Schedule - Fall 2016

Lec #	Date	Title	Instructor
1	Thurs, Aug 25	Course Introduction	Davis
2	Tues, Aug 30	Pandemic Influenza & Emerging Viral Infections	Wiederhold
3	Thurs, Sept. 1	Antibiotic Discovery (Classic Approaches)	Davis
4	Tues, Sept. 6	Antibiotic Discovery (Genomics Approaches)	Davis
5	Thurs, Sept. 8	Bad Bugs: Major Clinical Pathogens	Martin
6	Tues, Sept. 13	Antibiotic Development Focused on Resistance	Davis
7	Thurs, Sept. 15	Antibiotic Resistance in Clinical Practice	Martin
	Tues, Sept. 20	Exam #1 (Lec 1-7)	Davis/Martin/Wiederhold
8	Thurs, Sept. 22	Cell Wall Synthesis Inhibitors - MOA/Resistance	Davis
9	Tues, Sept. 27	Cell Wall Synthesis Inhibitors - MOA/Resistance	Davis
10	Thurs, Sept 29	Therapy with Penicillins & Vancomycin	Wiederhold
11	Tues, Oct. 4	Therapy with Cephalosporins	Duhon
12	Thurs, Oct. 6	Therapy with Other Beta-Lactams	Duhon
	Tues, Oct. 11	Exam #2 (Lec 8-12)	Davis/Duhon/Wiederhold
13	Thurs, Oct. 13	Protein Synthesis Inhibitors - MOA/Resistance	Davis
14	Tues, Oct. 18	Nucleic Acid Synthesis Inhibitors - MOA/Resistance	Davis
15	Thurs, Oct 20	Clinical Use of Antifungals	Wiederhold
16	Tues, Oct. 25	Clinical Use of Quinolones	Duhon
17	Thurs, Oct. 27	Erythromycins, Aminoglycosides, Streptogramins	Martin
	Tues, Nov. 1	Exam #3 (Lec 13-17)	Davis/Duhon/Martin/Wiederhold
18	Thurs, Nov 3	TB-Bug From Another Planet	Davis
19	Tues, Nov. 8	B-lactamases and B-Lactamase Inhibitors	Duhon
20	Thurs, Nov. 10	Risks Associated with Antimicrobials	Martin
21	Tues, Nov. 15	New Approaches & New Molecular Targets	Davis
22	Thurs Nov. 17	Pharmacist's Role in Antibiotic Stewardship	Martin
	Tues, Nov. 22	Exam #4 (Lec 18-22)	Davis/Martin/Duhon
	Thurs, Nov. 24	(Thanksgiving Holiday)	
	Nov 29, Dec 1	Honors Presentations (as needed)	