PHM W384D Antimicrobics
Summer 2020

Course Coordinator: Patrick Davis, Professor
   Pronouns: he, him, his
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   Division: BCMC
   Phone: 512-475-9751
   Office: BME 6.202C
   Office Hours: Thursdays at 7 pm; also Upon Request (Zoom)

Course Unique Number(s): 87039
Classroom(s): Virtual via Canvas

Class Days/Times: Lectures are asynchronous (posted); exams are set time (evenings)
Lecture: Equivalent of three class periods per week

Course Faculty:
   Dr. Patrick J. Davis, Professor
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512-475-9751
BME 6.202C
Office Hours: Upon request

Dr. Bryson Duhon, Clinical Assistant Professor
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Division of Pharmacy Practice
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Dr. Grace Lee, Assistant Professor
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MCD 3.4 UTHSCSA
Office hours: Upon request

Dr. Nathan Wiederhold, Associate Professor
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Division of Pharmacotherapy, UTHSCSA
210-567-8355
Office hours: Upon request
Course Information

Course Description:

Course 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.

Course Learning Objectives (CAPE Objectives):

1.1.2 Articulate how knowledge and discovery in foundational sciences is integral to clinical reasoning; evaluation of future advances in medicine; supporting health and wellness initiatives; and delivery of contemporary pharmacy services.
1.1.3 Integrate knowledge from foundational sciences to explain how specific drugs or drug classes, drug products, and dosage forms work and evaluate their potential value in individuals and populations.
1.1.4 Apply knowledge in foundational sciences to solve therapeutic problems and advance patient-centered care.
1.1.5 Access appropriate drug information resources and critically analyze scientific literature related to drugs and disease to enhance clinical decision making.
1.1.6 Identify and critically analyze emerging theories, information, and technologies that may impact patient-centered and population based care.

Course Prerequisite: Completion of PHM486 “Pharmacotherapy of Infectious Diseases”

Course Success:
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 available through Canvas® for most classes to help you take notes, and timely assignments in anticipation (individual or team) will be posted by “Announcement” on Canvas® as well. 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/team assignments before class; they will be the focus 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 team’s weekly exercise as both a preparation for class to expand your understanding of infectious disease issues.

Course Website:
This course uses Canvas, a Web-based course management system in which a password-protected site is created for each course. Canvas will be used to distribute course materials, to communicate, and to post grades. Canvas is available at http://canvas.utexas.edu. Support is provided by the ITS Help Desk at 475-9400 Monday through Friday 8 am to 6 pm.

Course Communications:
Official course communications will take place in class, through e-mail and on the course Canvas website. Students are advised to configure their Canvas settings to forward course announcements to their official e-mail address. Canvas uses only the e-mail address listed on the official University of Texas directory, so please check the University’s online directory to ensure your e-mail address is listed correctly.

Course Video Recordings:
Mediasite® videostreaming will be used to deliver lectures in this course. Any distribution of College- or student-generated recordings (regardless of format) is prohibited without the written and signed permission of the presenter and students identifiable on the recording. Likewise, all course materials developed by the faculty member (handouts, PowerPoints, etc.) are the intellectual property of that faculty member and cannot be distributed further without the permission of that faculty member.

Viewing video-streamed recordings of lectures can be streamed using a DSL broadband connection. Your faculty are not in a position to troubleshoot your video-streaming problems, so please do not ask them to do so; rather, you should access the LRC ‘s help website at https://www.utexas.edu/pharmacy/help/ to address those problems. You will find additional information about the lecture capture system or can report technical issues at http://sites.utexas.edu/phr-lrc/
Course Policies

**Course Grading Policies:** Grading for the course will be based on the following:

1. **Three** 75-minute tests administered during evenings on 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.**

2. Your grade will include three team-based assignments (@10pt each for **30 pts total**) in regards to the current issues in infectious disease tied to the specific elements of this course (drug discovery, clinical impact, determining efficacy, etc).

**Course Grade:** Letter grades will be assigned according to the following scale:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93–100%</td>
<td>A</td>
</tr>
<tr>
<td>90–92%</td>
<td>A-</td>
</tr>
<tr>
<td>87–89%</td>
<td>B+</td>
</tr>
<tr>
<td>83–86%</td>
<td>B</td>
</tr>
<tr>
<td>80–82%</td>
<td>B-</td>
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<tr>
<td>77–79%</td>
<td>C+</td>
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<tr>
<td>73–76%</td>
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<tr>
<td>70–72%</td>
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<td>67–69%</td>
<td>D+</td>
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<tr>
<td>63–66%</td>
<td>D</td>
</tr>
<tr>
<td>60–62%</td>
<td>D-</td>
</tr>
<tr>
<td>0–59%</td>
<td>F</td>
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</tbody>
</table>

Grades will be rounded up (at 0.5%). Faculty retain the prerogative to grade the scale more leniently.

**Assessments:**
- Three 2 hr 100 pt exams on the evenings of X, XX, and XXX [Total 300 pts]
- Team-based assignments; 3@10pts [Total 330 pts]

**Attendance:**
Since this is an asynchronous course, attendance is not a factor. However, students expected to keep up with the team assignment schedule and posted lectures in order to be prepared for the scheduled exams.

**Recommended Materials:**
3. *Pharmacological Basis of Therapeutics* (G&G, Access Pharmacy) for class-by-class
Exam Policies

Exam Logistics: Exams will be administered online in Canvas®. 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 not, 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).

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, as described in the previous paragraph.

Request for an Alternate Exam Time: No allowances will be made for an exam being missed, other than documented illness or emergency, or by prior approval by the Course Coordinator. An unexcused absence from an exam may result in a grade of “zero” for that exam. Any student requesting accommodation for an upcoming exam must submit the request to the course coordinator using the online form posted on Canvas® at least one week prior to the exam.

Exam Format:
Exam questions may include: multiple choice, true/false, fill-in-the-blank, matching and/or short answer, or essay. The question type(s) are entirely the prerogative of the instructor authoring the questions.

Exam Grading:
Grading of exams, along with statistical analysis and review of exam questions, will be the responsibility of the course coordinator and faculty, who may choose to grant credit for statistically poor questions.

Exam Return:
Examinations will not be returned. Exam scores will be posted on the course Canvas site.

Exam Review and Reconsideration Requests:
Grades will be posted in a timely fashion. Any student can arrange with the course coordinator to view their exam results within three days of the grade posting, and that starts the clock allowing that student three days to submit requests for reconsideration of specific questions. The student must outline his/her arguments in writing and submit them (dated) to the Course Coordinator. After this three-day period no exams will be re-graded, and no grade changes will be made. Regardless of the reconsideration request process, any student should feel free to contact any faculty member concerning clarification of lecture or exam material.

Final Exam Re-Examination Policy:
There is no final exam in this course.

Request for an Alternate Exam Time:
No allowances will be made for an exam being missed, other than documented illness or emergency, or by prior approval by the Course Coordinator. An unexcused absence from an exam may result in a grade of "zero" for that exam. Any student requesting accommodation for an upcoming exam must submit the request to the course coordinator using the online form posted on Canvas® at least one month prior to the exam.
Note the new policy that an alternate exam time will be considered *only* if the student documents that they can’t be physically present on the date the exam is already scheduled.¹

**Academic Integrity:**
Students who violate University rules on academic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. See College Policies and Information, and University Policies and Information for more details.

**Religious Holy Days**
If you will miss a class, an examination, a work assignment or a project in order to observe a religious holy day, you must notify the course coordinator the first week of class so that arrangements for all such students can be made for the full semester.

**Services for Students with Disabilities:**
Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities at 471-6259 (voice) or 232-2937 (video phone) or [https://diversity.utexas.edu/disability/](https://diversity.utexas.edu/disability/). 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*, it will be assumed that the student is not requesting special accommodations for that exam, and will be expected to take the exam with the rest of the class at the regularly scheduled exam time.

Please provide a copy of the letter to the course coordinator and the office of the Associate Dean for Academic Affairs as soon as possible after receipt.
<table>
<thead>
<tr>
<th>Lec #</th>
<th>Post Date</th>
<th>Title</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>June 4²</td>
<td>Course Introduction</td>
<td>Davis</td>
</tr>
<tr>
<td>2</td>
<td>June 8</td>
<td>Monitoring Resistance: Locally to Globally</td>
<td>Davis</td>
</tr>
<tr>
<td>3</td>
<td>June 8</td>
<td>Antibiotic Discovery (Classic &amp; Genomic Approaches)</td>
<td>Davis</td>
</tr>
<tr>
<td>4</td>
<td>June 15</td>
<td>Antibiotic Discovery (Classic &amp; Genomic Approaches)</td>
<td>Davis</td>
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<td>5</td>
<td>June 15²</td>
<td>Clinical Use of Antifungals</td>
<td>Wiederhold</td>
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<td>6</td>
<td>June 22</td>
<td>Pandemic Influenza &amp; Emerging Viral Infections</td>
<td>Wiederhold</td>
</tr>
<tr>
<td>7</td>
<td>June 22</td>
<td>Rapid Molecular Diagnostics</td>
<td>Lee</td>
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<tr>
<td>8</td>
<td>June 29</td>
<td><strong>Thurs, June 25 7-9pm</strong> Exam #1 online (Lec 2-7)</td>
<td>Davis/Lee/Wiederhold</td>
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<tr>
<td>9</td>
<td>June 29</td>
<td>CWSI’s: Glycopeptides - MOA/Resistance</td>
<td>Davis</td>
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<tr>
<td>10</td>
<td>June 29</td>
<td>CWSI’s: B-lactams - MOA/Resistance (45 min)</td>
<td>Davis</td>
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<tr>
<td>11</td>
<td>July 6</td>
<td>Therapy with Penicillins &amp; Vancomycin</td>
<td>Wiederhold</td>
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<tr>
<td>12</td>
<td>July 6³</td>
<td>Therapy with Other Beta-Lactams</td>
<td>Duhon</td>
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<tr>
<td>13</td>
<td>July 13</td>
<td>B-lactamases and B-Lactamase Inhibitors</td>
<td>Duhon</td>
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<tr>
<td>14</td>
<td>July 13</td>
<td>Mycobacterial Infections (TB)</td>
<td>Davis</td>
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<tr>
<td>15</td>
<td>July 20</td>
<td><strong>Thurs, July 16 7-9pm</strong> Exam #2, online (Lec 8-14)</td>
<td>Davis/Duhon/Wiederhold</td>
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<tr>
<td>16</td>
<td>July 20</td>
<td>Protein Synthesis Inhibitors - MOA/Resistance</td>
<td>Davis</td>
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<tr>
<td>17</td>
<td>July 27</td>
<td>Protein Synthesis Inhibitors – Clinical Applications</td>
<td>Lee</td>
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<tr>
<td>18</td>
<td>July 27</td>
<td>Nucleic Acid Inhibitors – MOA/Resistance</td>
<td>Davis</td>
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<tr>
<td>19</td>
<td>Aug 3</td>
<td>Quinolones – Clinical Applications</td>
<td>Duhon</td>
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<tr>
<td>20</td>
<td>Aug 3</td>
<td>New Approaches &amp; Molecular Targets</td>
<td>Davis</td>
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<tr>
<td>21</td>
<td>Aug 10</td>
<td>New Approaches &amp; Molecular Targets</td>
<td>Duhon</td>
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<tr>
<td>22</td>
<td>Aug 10</td>
<td><strong>Thurs, Aug 13 7-9pm</strong> Exam #3, online (Lec 15-22)</td>
<td>Davis/Lee/Duhon</td>
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</tbody>
</table>

² Dr. Davis will post the first team assignment and deadline.
³ Dr. Duhon will post the third team assignment and deadline