

PHRD 481 Infectious Diseases Pharmacotherapy

I. Contact Information

Course Coordinator: Ronda Akins, Pharm.D.
Assistant Professor
Office: Bienville 393
Hours: TBA
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Course Instructors: TBA

II. Course Prerequisites/Corequisites

Enrollment in the course requires second year pharmacy standing.

III. Course Description

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to infectious diseases therapy management.

IV. Curricular Objectives and Outcomes

1. **Provide Comprehensive Patient Specific Pharmaceutical Care.**
 - A. Evaluate the appropriateness of a given prescription or medication order based on patient and disease-specific factors.
 - i. Analyze the prescription regarding the medication, dose, delivery form, and duration of use as being appropriate for the patient and disease state.
 - a. Collect patient-specific data regarding demographics, medical history, diagnosis, physical assessment, and medication history.
 - 2) Identify and collect pertinent information from the medical chart, database, and/or the patient/caregiver interview.
 - c) Recognize appropriate patient- and drug-specific factors that will impact the drug regimen.
 - 4) Collaborate with other healthcare professionals.
 - b. Analyze and interpret information gathered to identify any drug-related problem.
 - 1) Assess the prescription for interaction potential, including interactions with other medications (both prescription and non-prescription), disease states, foods, and herbals.
 - 2) Determine availability and appropriateness of medications and dosage forms.
 - 3) Identify appropriate duration of therapy for that disease state.
 - C. Develop and implement an evidence-based care plan.
 - i. Identify goals of therapy that are individualized to the patient.
 - ii. Develop a plan of care that includes interventions to resolve drug therapy problems, achieve the goals of therapy, and prevent drug therapy problems.
 - iii. Develop a schedule to follow-up and evaluate the effectiveness of outcomes from drug therapies and assess any adverse events experienced by the patient.
 - iv. Evaluate patient outcomes with respect to the achievement of goals of therapy, patient adherence, patient safety, and the development of new drug therapy problems.
3. **Appropriately Manage and Use Resources of the Health Care System.**
 - B. Apply patient and population specific data, quality assurance strategies, and research processes to:
 - i. Develop disease-specific treatment algorithms/pathways for a health care system.
6. **Think Critically.**
 - A. Identify, retrieve, understand, analyze, synthesize, and evaluate information needed to make informed, rational, and ethical decisions.
 - i. Systematically gather, organize, and extract relevant information using a variety of methods and research tools.

- ii. Analyze information within appropriate scientific, social, and clinical contexts.
 - a. Identify principles of organization and the logic of arguments.
 - b. Identify and test assumptions, biases, and prejudices implicit in arguments.
 - c. Employ appropriate mathematical and statistical tools and electronic technology to analyze information.
 - d. Assess accuracy, soundness, fairness, significance, relevance, completeness, and persuasiveness of information, arguments, and sources. (consider difference between information & the information source)
- iii. Synthesize information in order to draw conclusions, hypothesize, conjecture alternatives, or plan a course of action.
- iv. Evaluate conclusions and solutions according to appropriate criteria, and revise as necessary.
- v. Provide support for rationale, solutions, and results.
- B. Solve complex problems that require an integration of one's ideas and values within a context of scientific, social, cultural, legal, clinical, and ethical issues.
 - i. Interpret problems within appropriate contexts.
 - ii. Prioritize problems based on identifiable criteria and standards.
 - iii. Apply systematic problem-solving strategies.
 - iv. Articulate and implement a defensible solution and apply appropriate criteria to monitor outcomes.
 - v. Implement modifications based on monitoring data.
- C. Display habits, attitudes, and values associated with mature critical thinking.
 - i. Evaluate personal assumptions, biases, prejudices, and opinions.
 - ii. Display an openness to new ideas and a tolerance for ambiguity.
 - iii. Display inquisitiveness and commitment to the pursuit of truth.
 - iv. Adopt multiple perspectives in personal thinking to avoid ethno-centricity and intolerance.
- 7. **Demonstrate Appropriate Interpersonal, Professional, and Ethical Behaviors.**
 - A. Maintain professional competence.
 - i. Continually strive to maintain knowledge and maintain professional competence.
 - ii. Continually assess his or her learning needs and develop the ability to respond appropriately.
 - E. Collaborate proactively with other health care professionals.
 - G. Accept the responsibilities embodied in the principles of pharmaceutical care.
 - H. Demonstrate appropriate interpersonal, inter-group, and cross-cultural behaviors that promote respect and trust from peers, patients, and community members.

V. Course Specific Objectives and Outcomes

- a. Pharmacology
- b. Medicinal chemistry
- c. Pharmaceutics
- d. Therapeutics

VI. Course Topics

This course will address the basic medical chemistry and pharmacology of antimicrobial agents and the pathophysiology, clinical presentation, epidemiology and therapeutic management of common infectious disorders diseases. This will provide the core knowledge and skills required to formulate rational antimicrobial regimens for the treatment of common human infectious disorders.

VII. Instructional Methods and Activities

Instructional methods may include: traditional lectures, internet-based lectures with in-class discussion, distance learning, web based learning, in-class discussion of patient cases, small group discussion, problem-based learning, case-based learning, and individual projects. Quizzes or other graded in-class exercises may also be administered.

VIII. Evaluation and Grade Assignment

| <u>Assessment method</u> | <u>Points</u> |
|---------------------------|------------------------------|
| Examinations (number TBD) | To total 60% of course grade |

Assignments/quizzes/etc.
Final examination

To total 10% of course grade
To total 30% of course grade

Grading Scale (based upon total number of points for semester):

90.0 – 100% A
80.0 – 89.9% B
70.0 - 79.9% C
60.0 – 69.9% D
<60.0% F

Undergraduate mid-term grades will be posted on-line for students to view via Arrow. Mid-term grades indicate a student's status at mid-semester only and do not indicate the final performance outcome of a student.

IX. Class Policies and Procedures

At a minimum, all policies stated in the current ULM *Student Policy Manual & Organizational Handbook* should be followed (see <http://www.ulm.edu/studentpolicy/>). Additional class policies include:

A. Textbook(s) and Materials:

- i. Required
 - a. Dipiro JT, Talbert RL, Yee G, et al. *Pharmacotherapy: A Pathophysiologic Approach*. 6th edition, New York, McGraw-Hill, Inc., 2005.
 - c. Lemke TL, Williams DA. *Foye's Principles of Medicinal Chemistry*. 6th edition, Baltimore, Walters Kluwer/Lippincott Williams & Wilkins, 2008.
 - d. Brunton L, Lazo J, Parker K. *Goodman and Gilman's, The Pharmacological Basis of Therapeutics, Eleventh Edition*, McGraw-Hill, 2006.
- ii. Recommended
 - a. Mandell GL, Bennett JE, Dolin R. *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, 6th edition, Churchill Livingstone.
- iii. Additional reading materials may be posted by course faculty.

B. Attendance Policy:

Class attendance is required. Class attendance is regarded as an obligation as well as a privilege, and students are expected to know attendance regulations and to attend regularly and punctually at classes in which they are enrolled. Failure to do so: (1) may prevent access to the classroom during regularly scheduled times; (2) may jeopardize a student's scholastic standing; and (3) may lead to suspension from the college or University. Students shall submit excuses for all class absences to professor within three class days after returning to classes. Professors shall accept an official University excuse. With the following exceptions professors are to determine whether absences are excused or unexcused: 1) Absences arising from authorized trips away from the University or from special duties at the University shall be excused. 2) Absences arising from a student's confinement in a hospital or other in-patient facility or doctor's excused absences shall be excused. Students are responsible for verifying this information to the faculty. 3) Absences arising from a death in the immediate family shall be excused. The immediate family is defined as spouse, child, step-child, mother, father, sister, brother, grandmother, grandfather, step-mother, step-father, step-brother, step-sister, aunt, uncle, mother-in-law or father-in-law.

C. Make-up Policy:

Excused make-ups will be within one week of the student's return to class at the convenience of the instructor. Excused absences will be determined using the guidelines stated in the University Catalog.

D. Academic Integrity: Faculty and students must observe the ULM published policy on Academic Dishonesty (see Page 4 in *ULM Student Policy Manual* - <http://www.ulm.edu/studentpolicy/>).

Cheating, plagiarism, or other inappropriate conduct will not be tolerated. Academic cheating includes but is not limited to the accomplishment or attempted accomplishment of the following:

1. Copying or obtaining information from another student's test paper.*
2. Using, during a test, materials not authorized by the person giving the test.**
3. Collaborating, conspiring, or cooperating during an in-class or take-home test with any other person by giving or receiving information without authority.
4. Stealing, buying, or otherwise obtaining all or part of an unadministered test.
5. Selling or giving away all or part of an unadministered test or any information concerning specific questions and items on an unadministered test.
6. Requesting, bribing, blackmailing, or in any other way causing any other person to obtain an unadministered test or information about an unadministered test or a test in the process of being administered.
7. Substituting for another student, or permitting any other person to substitute for oneself to take a test.
8. Submitting as one's own, in fulfillment of academic requirements, any work prepared totally or in part by another person.
9. Any selling, giving, or otherwise supplying to another student for use in fulfilling academic requirement any work.
10. Submitting artificially produced data or information in the place of descriptive, experimental, or survey results.
11. Any other devious means of securing an unearned grade in a non-credit course or in a course offered for credit.
12. Using, during a test, any electronic storage device, wireless and/or internet-based technology, or any other means that provides information not authorized for use during the testing period.

*A student looking on another student's paper is considered cheating.

**The presence on one's person (or in close proximity thereto) of a condensation of test information which could be regarded as a "cheat sheet" will be considered adequate evidence to establish cheating.

Plagiarism is the use of any other person's work (such work need not be copyrighted) and the unacknowledged incorporation of that work in one's own work offered for credit.

Censures (Penalties)

Academic dishonesty will result in a referral to Committee on Ethical and Professional Standards with a recommendation for a grade of "F" for the course and expulsion from the College. Academic dishonesty includes but is not limited to the use of information taken from others work or ideas, the provision of help to others on non-collaborative evaluations (tests, quizzes, etc.), collaboration on take home exams, or the use of unapproved information or electronic devices to assist in obtaining an answer to the question.

E. Course Evaluation Policy: Students are expected to complete the on-line course evaluation. It is requested that they also complete the College of Pharmacy course and instructor evaluations, including providing comments. In addition, individual feedback is encouraged throughout the course.

F. Student Services: Information concerning student services in the College of Pharmacy can be found in the College of Pharmacy Student Handbook. In particular, students should pay special attention to the Colleges technical standards and policies concerning students with special needs (<http://www.ulm.edu/studentpolicy/studentpolicy.pdf>, pages 21-22). ULM student services, such as Student

Success Center (<http://ulm.edu/cass/>), Counseling Center (<http://ulm.edu/counselingcenter/>), and Student Health Services, is available at the following Student Services web site <http://ulm.edu/studentaffairs/>

G. Emergency Procedures: (Include appropriate emergency information)

Please review the emergency escape plan in the classrooms and hallways of the Bienville building. Move quickly and orderly to the appropriate stairwell and exit the building. The meeting place for this class will be the far end of the north parking lot between Bienville and Broadmoor Blvd. Under no circumstances is the elevator to be used for emergency evacuation. Any student needing assistance should notify the professor immediately. For emergencies, to contact University Police, call 1-911 from landlines and 342-5350 from cell phones.

H. Discipline/Course Specific Policies: Students are responsible for all course information on Moodle and/or instructor websites. They are expected to check these sources regularly to access class materials, required readings, assignments, and other information necessary to excel in this course.

X. Tentative Course Schedule

A. Contact Information:

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Assistant Professor
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B. Schedule: *The instructor reserves the right to adjust the schedule as needed.*

| Topic (75 minute lecture period) | Lecturer (TBA) | Date | Required reading/ Assignments |
|---|----------------|--------|-------------------------------|
| Microbiology Review | | | |
| Common organisms, normal flora, pathogenesis and bacterial identification | | Week 1 | |
| Antimicrobial testing and laboratory analysis | | | |
| Medicinal Chemistry – Antibacterial cell wall active agents | | | |
| Medicinal Chemistry – Antibacterial cell wall active agents | | | |
| | | | |
| Pharmacology – Antibacterial cell wall active agents | | Week 2 | |
| Pharmacology – Antibacterial cell wall active agents | | | |
| Medicinal Chemistry – Antibacterial protein synthesis inhibitor agents | | | |
| Medicinal Chemistry – Antibacterial protein synthesis inhibitor agents | | | |
| | | | |
| Pharmacology – Antibacterial protein synthesis inhibitor agents | | Week 3 | |
| Pharmacology – Antibacterial protein synthesis inhibitor agents | | | |
| Medicinal Chemistry – Antibacterial misc. agents | | | |
| Pharmacology – Antibacterial misc. agents | | | |
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| Case & Review Day | | Week 4 | |
| Exam 1 | | | |
| General therapeutic concepts | | | |
| Pharmacokinetic and Pharmacodynamic principles | | | |
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| Pharmacokinetics and Therapeutic Drug Monitoring: vancomycin | | Week 5 | |
| Pharmacokinetics and Therapeutic Drug Monitoring: aminoglycosides | | | |
| Skin/Soft Tissue Infections, Bite Wounds | | | |
| Osteomyelitis and Septic Arthritis | | | |
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| Urinary Tract Infections | | Week 6 | |
| Otitis Media, sinusitis, pharyngitis | | | |
| Lower respiratory tract infections | | | |
| Central nervous system infections | | | |
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| Case & Review Day | | Week 7 | |
| Exam 2 | | | |
| Catheter-related infections / Infective Endocarditis | | | |
| Intra-abdominal Infections | | | |
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| SIRS / Sepsis / Septic Shock | | Week 8 | |
| STDs | | | |
| Medicinal Chemistry: Antimycobacterials | | | |
| Pharmacology: Antimycobacterials | | | |
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| Mycobacterial Infections | | Week 9 | |
| Medicinal Chemistry: Antifungals | | | |
| Pharmacology: Antifungals | | | |
| Fungal Infections | | | |
| | | | |
| Medicinal Chemistry: Antiparasitics | | Week 10 | |
| Pharmacology: Antiparasitics | | | |
| Parasitic Infections | | | |
| Case & Review Day | | | |
| | | | |
| Exam 3 | | Week 11 | |
| Medicinal Chemistry: Viral agents (non-HIV) | | | |
| Pharmacology: Viral agents (non-HIV) | | | |
| Viral Infections (including Herpes Zoster and Viral Hepatitis) | | | |
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| Medicinal Chemistry: HIV agents | | Week 12 | |
| Medicinal Chemistry: HIV agents | | | |
| Pharmacology: HIV agents | | | |
| Pharmacology: HIV agents | | | |
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| HIV | | Week 13 | |
| HIV | | | |
| OI | | | |
| OI | | | |
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| Case & Review Day | | Week 14 | |
| Case & Review Day | | | |
| Hot Topics in ID | | | |
| Optional Course Review Day | | | |