

PHRD 449 Integrated Lab Sequence II

Contact Information:

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Course Prerequisites: Completion of PHRD 424 Integrated Lab Sequence I

Course Co-requisites:

PHRD 425 Immunology
PHRD 427 Principles of Drug Action/Therapeutics II
PHRD 429 Pharmaceutics II
PHRD 431 Pharmacy Practice Ethics and Laws
PHRD 433 Drug Information Retrieval
PHRD 435 PathophysiologyII
PHRD 447 Parenterals

Course Description: Second in a six-semester longitudinal course sequence reinforcing students' knowledge, skills, and attitudes necessary for current and future pharmacy practice through a broad range of skills. Focus on immunology, drug action, therapeutics, pharmaceutics, law/ethics, drug information retrieval, pathophysiology, and parenterals.

Outcomes:

1. **Provide Comprehensive Patient Specific Pharmaceutical Care. (1)**
 - D. Compound and/or dispense the most optimal formulation for drug delivery consistent with the patient needs and in harmony with the law. (1.D)
 - i. Describe the laws/regulations concerning compounding and dispensing of medications. (1.D.i)
 - ii. Identify pertinent patient and drug specific biopharmaceutic issues and select the most appropriate dosage form, route, method of administration, and formulation. (1.D.ii)
 - iii. Identify chemical stability and incompatibility issues (IV sets/fluids). (1.D.iii)
 - iv. Appropriately package and label the medication. (1.D.iv)
 - v. Discuss sterility issues. (1.D.v)
 - vi. Apply good compounding practices. (1.D.vi)
 - vii. Utilize appropriate weights, measures, and calculations.(1.D.vii)
 - viii. Administer medications when appropriate. (1.D.viii)
2. **Communicate Effectively. (2)**
 - A. Counsel and educate patients regarding medication use, disease-state management, and health maintenance. (2.A)

- i. Assess the patient's level of literacy and health literacy. (2.A.i)
 - a. Assess patients for physical/mental impairment impacting verbal and written communication processes. (2.A.i.a)
 - b. Assess medical, disease-state knowledge, health knowledge, attitudes, and beliefs. (2.A.i.b)
 - ii. Identify educational needs relative to pharmaceutical care. (2.A.ii)
 - iii. Identify educational resources available and select the best method to provide counseling/education. (2.A.iii)
 - iv. Provide information that empowers patients to effectively manage their medication-related health care. (2.A.iv)
 - B. Develop population-based patient education programs. (2.B)
 - i. Develop disease state educational programs. (2.B.i.)
 - ii. Identify educational needs relative to pharmaceutical care that exist among populations. (2.B.ii)
 - iii. Identify the most appropriate means to reach these populations. (2.B.iii)
 - iv. Define the audience. (2.B.iv)
 - v. Evaluate the effectiveness of the program. (2.B.v)
 - C. Collaborate with other healthcare professionals using appropriate effective communication in both written and oral forms. (2.C)
 - i. Demonstrate fluency in medical terminology. (2.C.i)
 - ii. Demonstrate appropriate written, verbal and non-verbal communication skills. (2.C.ii)
 - iii. Demonstrate appropriate listening skills (2.C.iii)
 - iv. Communicate in a professional manner. (2.C.iv)
 - v. Present and defend pharmacotherapy recommendations. (2.C.v)
 - D. Read, write, speak, listen, and use data, media, and computers to send and respond effectively to communications for varied audiences and purposes. (2.D)
 - i. Construct appropriate and professional presentations to support communication. (2.D.i)
 - a. Demonstrate proficiency in appropriate computer software. (2.D.i.a)
 - b. Prepare appropriate and relevant graphical support from available data. (2.D.i.b)
 - c. Use acceptable reference styles. (2.D.i.c)
 - d. Demonstrate appropriate written, verbal, and non-verbal skills. (2.D.i.d)
 - e. Present and defend ideas in a logical and effective order. (2.D.i.e)
 - f. Demonstrate ethical use in the procurement, derivation, use, and reporting of data. (2.D.i.f)
 - ii. Use appropriate and professional communication skills (2.D.ii).
 - iii. Demonstrate appropriate listening skills. (2.D.iii)
- 4. Identify, Interpret, and Evaluate Literature Needed for the Provision of Drug Information and Pharmaceutical Care. (4)**

- A. Define the question that needs to be answered. (4.A)
- B. Distinguish among lay, professional, and scientific literature. (4.B)
- C. Identify appropriate literature search engines for lay, professional, and scientific literature. (4.C)
- D. Explain the method to construct an appropriate search strategy for various literature types. (4.D)
- E. Evaluate literature source validity. (4.E)
- F. Explain methods for systematically evaluating literature. (4.F)
- G. Evaluate the appropriateness of research methodologies and statistical methods. (4.G)
- H. Draw appropriate conclusions from research results. (4.H)
- I. Assess the potential impact and implication of published information on current practices. (4.I)

6. Think Critically. (6)

- A. Identify, retrieve, understand, analyze, synthesize, and evaluate information needed to make informed, rational, and ethical decisions. (6.A)
 - i. Systematically gather, organize, and extract relevant information using a variety of methods and research tools. (6.A.i)
 - ii. Analyze information within appropriate scientific, social, and clinical contexts. (6.A.ii)
 - a. Identify principles of organization and the logic of arguments. (6.A.ii.a)
 - b. Identify and test assumptions, biases, and prejudices implicit in arguments. (6.A.ii.b)
 - c. Employ appropriate mathematical and statistical tools and electronic technology to analyze information. (6.A.ii.c)
 - d. Assess accuracy, soundness, fairness, significance, relevance, completeness, and persuasiveness of information, arguments, and sources. (consider difference between information & the information source) (6.A.ii.d)
 - iii. Synthesize information in order to draw conclusions, hypothesize, conjecture alternatives, or plan a course of action. (6.A.iii)
 - iv. Evaluate conclusions and solutions according to appropriate criteria, and revise as necessary. (6.A.iv)
 - v. Provide support for rationale, solutions, and results. (6.A.v)
- 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. (6.B)
 - i. Interpret problems within appropriate contexts. (6.B.i)
 - ii. Prioritize problems based on identifiable criteria and standards. (6.B.ii)
 - iii. Apply systematic problem-solving strategies. (6.B.iii)
 - iv. Articulate and implement a defensible solution and apply appropriate criteria to monitor outcomes. (6.B.iv)
 - v. Implement modifications based on monitoring data. (6.B.v)

- C. Display habits, attitudes, and values associated with mature critical thinking. (6.C)
 - i. Evaluate personal assumptions, biases, prejudices, and opinions. (6.C.i)
 - ii. Display an openness to new ideas and a tolerance for ambiguity. (6.C.ii)
 - iii. Display inquisitiveness and commitment to the pursuit of truth. (6.C.iii)
 - iv. Adopt multiple perspectives in personal thinking to avoid ethnocentricity and intolerance. (6.C.iv)

7. Demonstrate Appropriate Interpersonal, Professional, and Ethical Behaviors. (7)

- A. Maintain professional competence. (7.A)
 - i. Continually strive to maintain knowledge and maintain professional competence. (7.A.i)
 - ii. Continually assess his or her learning needs and develop the ability to respond appropriately. (7.A.ii)
- B. Represent the profession in an ethical manner. (7.B)
- C. Identify, analyze, and resolve ethical problems involved in pharmacy practice. (7.C)
- D. Provide service to the profession and the community. (7.D)
- E. Collaborate proactively with other health care professionals. (7.E)
- F. Practice in a manner that is consistent with state and federal laws and regulations (7.F)
- G. Accept the responsibilities embodied in the principles of pharmaceutical care. (7.G)
- H. Demonstrate appropriate interpersonal, intergroup, and cross-cultural behaviors that promote respect and trust from peers, patients, and community members. (7.H)

Instructional Methods and Activities:

Teaching methods may include, but are not limited to: case/scenario based teaching; problem-based learning; service learning; individual/group exercises; self-directed learning; errors and omissions; role playing; online teaching; applied learning; projects/presentations; assignments/exercises; traditional lectures and the use of technology such as Power Point, Audience Response System, Human Patient Simulation, Distance Learning, Camtasia and Moodle.

Evaluation and Grade Assignment:

OTC and IV drug quizzes will be given at the beginning of class, and students will be allowed to drop their lowest quiz grade. Students not returning quizzes immediately after being requested to do so will be given a grade of zero (0) for that quiz (i.e. late quizzes will be given a grade of zero (0)).

Midterm and final exams will be given during the assigned lab times. Midterm exams will cover all medical terminology, calculations, top 200 drugs and concepts covered in

the laboratory exercises. The final exam will be cumulative. Exam dates and times will only be changed in the event of a University closing. Each exam may contain a mixture of question types and may include multiple choice, true/false, short answer, mathematical calculations, literature evaluations and clinical situations. **NO** informational resources (i.e. class notes, textbook, internet, electronic storage device, etc.) of any kind are to be used during an examination.

For exams, quizzes and final exams, the students are responsible for material contained in all required reading, handout and lecture materials and homework. Students are responsible for all assigned reading materials whether or not they are covered in lecture.

Exams and/or quizzes will NOT be given early.

OTC Drug Quizzes	10%
IV Drug Quizzes	10%
Midterm	20%
Final	20%
Reflective writing	10%
Laboratory Exercises	<u>30%</u>
Total	100%

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Evaluation and Grade Assignment for Service Learning

To receive credit for the service learning project, *all* of the following requirements must be met:

- Arrive 10 minutes prior to assigned time.
- Complete the reflective writing assignment in PEMS within one week of completing the project.
- Provide a *University-approved excuse* for any missed projects.
- Participate in all group meetings and planning if project is a group project.
- For group projects, complete a peer evaluation form on all members of the group to which you are assigned.

You will receive an incomplete for this project if all of the above requirements are not met, which will then result in an incomplete for the class this project is assigned in. The project will have to be made-up in order to receive credit for the project and your grade in the class. The make-up project will not necessarily be during the same semester as the assigned project, nor does it have to be the same exact project.

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/>).

- A. Textbook:** Intravenous and Nonprescription Drug Card Sets (most recent edition with Updates) . Texts for co-requisite courses. A calculator (TI 35 II) will be required for some class assignments. Please have available at all times. Optional text, Handbook of Institutional Pharmacy Practice, 4th Edition

- B. Attendance Policy:** Class attendance is mandatory in all pharmacy courses. Students reported for accumulating more than three unexcused absences in a course during an academic semester will be administratively dropped from the course with a “W” grade. In accordance with College of Pharmacy policy and procedure, a grade of “W” will be counted as an “F” grade with respect to academic standards. Tardiness and disruptive behavior will not be tolerated.
- C. Make-up Policy:** If a student can not attend an exam, he/she must speak with the course coordinator prior to the examination. If the student has a university approved excuse for missing the exam, a make-up exam will be administered. This exam will be in the format chosen by the instructor, and will be given at the convenience of the instructor.
- D. Academic Integrity:** Faculty and students must observe the ULM published policy on Academic Dishonesty (see the ULM Student Policy Manual – <http://www.ulm.edu/studentpolicy/>). All students must observe the ULM College of Pharmacy Code of Ethical and Professional Conduct (<http://rxweb.ulm.edu/pharmacy/policies/copcodeofconduct.pdf>)
- E. Course Evaluation Policy:** At minimum, students are expected to complete the on-line course evaluation as well as any evaluation administered in class by the College of Pharmacy.
- 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 you pay special attention to the Colleges technical standards and policies concerning students with special needs. 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. Fire Emergency Plan:** Please review the emergency escape plan in the classrooms and hallways of Bienville. Move quickly and orderly when exiting the building. Any student needing assistance should notify the professor immediately.
- H. Cell Phone Policy:** All cell phones should be turned off during class. If a student has a need to be notified during a an emergency situation during class, he should leave the telephone number of the Office of Student and Professional Affairs, 318-342-3800, with the person who may need to contact them emergently. Cell phones are not allowed in the classroom during examinations or quizzes. Students found to be in possession of a cell phone during an examination or quiz will be considered to have committed an act of academic dishonesty and will be charged and brought before the committee on ethical and professional conduct.
- I. Use of Prior Course Materials:** Prior exams and prior quizzes are NOT permissible to possess and distribute to other students. Students who hand down prohibited course material are in violation of the policy and the Honor Code.
- J. All policies in the ULM COP student handbook will be followed.**

Course Topics:

OTC (Brand name , active ingredients, dosage forms and Injectable Drugs (Brand name, generic name, therapeutic class, and injection routes) - Self Study

Exercises and practical applications to augment didactic lectures in immunology, organ pathophysiology, pharmacy practice ethics and law, drug informatics, pharmaceuticals, principles of drug action/therapeutics and parenteral.

Tentative Course Schedule:**Tentative Schedule**

Week	Topic	Reading	Assessment
1	Introduction to Lab, Intro to service learning, review of Computer program, Introduction to LexiComp and MicroMedex		
2	Pathophysiology project/lab		OTC Drug QZ1
3	Pharmaceutical Compounding Lab (Oral Drug Delivery, Powder charts, , oral solution, oral suspension, capsules)		OTC Drug QZ2
4	Pharmacy ethics Case discussion		OTC Drug QZ3
5	Pharmaceutical Compounding Lab (Topical and Transdermal Delivery, Cold Cream, Zinc Oxide Paste, Carbomer Topical gel)		OTC Drug QZ4
6	Principles of Drug Action/Therapeutics Lab and pathophysiology combined lab/project		OTC Drug QZ5
7	Midterm Exam		Midterm Exam
8	Drug Information question		Injectable Drug QZ1
9	Pharmaceutical compounding (rectal vaginal and urethral delivery, rectal and vaginal suppositories) and Drug information combined lab		Injectable Drug QZ2
10	Applied immunology lab – point of care testing		Injectable Drug QZ3
11	Principles of Drug Action/ Therapeutics and Drug Information		Injectable Drug QZ4

	question combined exercise		
12	Parenterals Lab		Injectable Drug QZ5
13	Parenterals Lab		Injectable Drug QZ6
14	Final Exam		Final Exam