

PHRD 499 Integrated Lab Sequence IV

Contact Information:

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Course Prerequisites: Completion of Integrated Lab Sequence III

Course Co-requisites:

PHRD 477 Health care Systems
PHRD 479 Self-Care/Patient Assessment I
PHRD 481 Infectious diseases
PHRD 483 Gastrointestinal/nutrition/Hepatic

Course Description: Fourth 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 health-care systems, self-care; patient assessment, infectious diseases, and Gastrointestinal/nutritional/hepatic disorders.

Outcomes:

- 1. Provide Comprehensive Patient Specific Pharmaceutical Care. (1)**
 - A. Evaluate the appropriateness of a given prescription or medication order based on patient and disease-specific factors.(1.A)
 - i. Analyze the prescription regarding the medication, dose, delivery form, and duration of use as being appropriate for the patient and disease state. (1.A.i)
 - a. Collect patient-specific data regarding demographics, medical history, diagnosis, physical assessment, and medication history. (1.A.i.a)
 - 1) Conduct a patient/caregiver interview (1.A.i.a.1)
 - a) Establish a relationship with the patient/caregiver. (1.A.i.a.1.a)
 - b) Determine the most appropriate method of communication. (1.A.i.a.1.b)
 - c) Complete a structured medical history. (1.A.i.a.1.a)
 - 2) Identify and collect pertinent information from the medical chart, database, and/or the patient/caregiver interview. (1.A.i.a.2)
 - a) Describe the organization of the patient chart in different practice settings. (1.A.i.a.2.a)

- b) Discuss rules and regulations concerning the use of medical charts in various practice settings (i.e., HIPAA). (1.A.i.a.2.b)
 - c) Recognize appropriate patient- and drug-specific factors that will impact the drug regimen. (1.A.i.a.2.c)
 - 3) Perform selected aspects of physical assessment in order to identify ongoing or potential medication-related problems and the root cause of the problems. (1.A.i.a.3)
 - 4) Collaborate with other healthcare providers. (1.A.i.a.4)
 - b. Analyze and interpret information gathered to identify any drug-related problem. (1.A.i.b)
 - 1) Assess the prescription for interaction potential, including interactions with other medications (both prescription and non-prescription), disease states, foods, and herbals. (1.A.i.b.1)
 - 2) Determine availability and appropriateness of medications and dosage form. (pharmaceutics) (1.A.i.b.2)
 - 3) Identify appropriate duration of therapy for that disease state. (1.A.i.b.3)
- B. Evaluate each patient for self-treatment or referral. (B)
 - i. Identify patient signs and symptoms amenable to self-treatment and identify contraindications to self-treatment. (1.B.i)
 - ii. Identify the nature of the problem via a medical interview, medication history, and limited physical exam. (1.B.ii)
 - iii. Determine the appropriate action needed for the specific patient and their signs and symptoms. (1.B.iii)
 - a. Refer the patient to the appropriate medical provider or facility given the specific patient and problem presentation. (1.B.iii.a)
 - 1) Appropriately match the severity of the problem with appropriate resources within the healthcare system. (1.B.iii.a.2)
 - 2) Identify community resources. ((1.B.iii.a.2)
 - iv. Implement proper follow-up after the initial evaluation. (1.B.iv)
- C. Develop and implement an evidence-based care plan. (1.C)
 - i. Identify goals of therapy that are individualized to the patient. (1.C.i)
 - ii. Develop a plan of care that includes interventions to resolve drug therapy problems, achieve the goals of therapy, and prevent drug therapy problems. (1.C.ii)
 - 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. (1.c.iii)
 - 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. (1.c.iv)

- 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)
- E. Document all activities involved with the provision of comprehensive patient specific pharmaceutical care. (1.E)

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)

3. Appropriately Manage and Use Resources of the Health Care System. (3)

- A. Plan, organize, direct, and control pharmaceutical care systems and human, material, and financial resources utilizing management theories and practices. (3.A)
 - i. Use and evaluate acquisition, inventory control, and distribution systems with appropriate documentation. (3.A.i)
 - ii. Develop a method to stay abreast of emerging technology. (3.A.ii)
 - iii. Describe drug acquisition process and choose the appropriate process based on system needs. (3.A.iii)
 - iv. Discuss ethical considerations in balancing the needs of the system versus the needs of the patient. (3.A.iv)
 - v. Determine and implement appropriate inventory control methods. (3.A.v)
 - vi. Choose appropriate drug distribution systems based on system needs. (3.A.vi)
 - vii. Describe pharmacy law regarding drug acquisition and distribution. (3.A.vii)
 - viii. Describe humanistic and technological factors involved in the distribution processes. (3.A.viii)
 - ix. Discuss methods to identify, evaluate, correct, and prevent errors in the distribution systems. (3.A.ix)
- B. Apply patient and population specific data, quality assurance strategies, and research processes to: (3.B)
 - i. Assure that medication use systems minimize drug misadventures and optimize patient outcomes. (3.B.i)
 - a. Describe methods to evaluate patient outcomes. (3.B.i.a)
 - b. Describe different surveillance systems for drug misadventures. (3.B.i.b)

- c. Compare various quality assurance strategies and choose the most appropriate for evaluating the system. (3.B.i.c)
- d. Distinguish between patient and population specific data. (3.B.i.d)
- e. Collect, analyze, and interpret patient and population specific data. (3.B.i.e)
- f. Make appropriate recommendations based on data interpretation. (3.B.i.f)
- ii. Develop drug use and health policy to manage pharmacy benefits. (3.B.ii)
 - a. Describe the health care system and its relationship to delivery of pharmaceutical care. (3.B.ii.a)
 - b. Identify the role or potential role of the pharmacist in health care policy development. (3.B.ii.b)
 - c. Describe the role of the pharmacy and therapeutics committee. (3.B.ii.c)
 - d. Describe the process of formulary development and management. (3.B.ii.d)
 - e. Apply pharmacoeconomic principles/theory to drug selection/formulary inclusion. (3.B.ii.e)
 - f. Define the role of third-party payers in the health care system. (3.B.ii.f)
 - g. Compare and contrast different third-party systems (e.g., public vs. private). (3.B.ii.g)
 - h. Evaluate third party plans for pharmacy acceptance. (3.B.ii.h)
 - i. Develop disease-specific treatment algorithms/pathways for a health care system. (3.B.ii.i)
- C. Develop workflow models to enhance resource utilization. (3.C.viii)
- 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)
- 5. Promote Health Improvement and Self-Care. (5)**
 - A. Promote/participate in effective health and disease prevention services as part of patient or population specific care. (5.A)
 - i. Identify health and disease prevention services needed. (5.A.i)

- ii. Identify available health care resources (e.g., personal, education, financial, equipment) necessary to provide services. (5.A.ii)
 - iii. Identify a mechanism to promote the availability and benefits of service (e.g., marketing). (5.A.iii)
 - iv. Develop patient/population specific services. (e.g., ASHP service development pub) (5.A.iv)
 - v. Collect data on effectiveness (e.g., reception by patients, outcomes, and cost-effectiveness). (5.A.v)
 - vi. Evaluate the effectiveness of health improvement and disease prevention services. (5.A.vi)
- B. Collaborate with policy makers, health care providers, members of the community and administrative and support personnel to identify and resolve health problems and evaluate health policy. (5.B)
- i. Discuss the process of health care policy development. (5.B.i)
 - ii. Define the role of government and community charitable organizations in defining health care policy. (5.B.ii)
 - iii. Define the importance of health care research in the development of health care policy. (e.g., clinical trials, health care economics, epidemiology, outcomes) (5.B.iii)
 - iv. Demonstrate an awareness of public health problems at local, state, national, and international levels. (5.B.iv)
 - v. Discuss strategies to impact and/or influence health care policy. (5.B.v)
 - vi. Describe the impact of health care policy on research initiatives. (5.B.vi)

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:

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 neurology and endocrine related drugs as well as 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 except for a TI 35-II calculator.

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.	
Drug Quizzes	20%
Midterm	15%
Final	15%
Reflective writing	10%
Laboratory Exercises	<u>40%</u>
Total	100%

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:** Top 200, Intravenous and Nonprescription Drug Cards (most recent updated editions). 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:

Service Learning

Enhancement of compounding skills

Exercises and practical applications to augment didactic lectures and skills in Communications, Patient Counseling, Patient Assessment and Triage, over the counter drug selection, Drug Information/Research Methods, pharmacology, medicinal chemistry and pharmacokinetics of agents used in the treatment of infectious , gastrointestinal and hepatic disease as well as the treatment of infectious, gastrointestinal, hepatic, and nutritional disorders

Tentative Course Schedule:

Week	Topic	Reading	Assessment
1	Introduction to the lab, Introduction to Service Learning		
2	Clinical Compounding Case – Pain and Pain Management (ketorolac topical gel, fentanyl sucker)		Infectious DZ Drug QZ1 Compounds
3	Combined Microbiology/Infectious Disease Case studies		Infectious DZ Drug QZ2 Case write-up
4	Pharmaceutical compounding Redux		Infectious DZ Drug QZ3 Compounds
5	Infectious disease case studies		Infectious DZ Drug QZ4
6	Health Care Systems Lab/case studies		GI Drug QZ1 Case Study Write Up
7	Infectious Disease Case Study/Clinical Pharmacokinetic cases		GI Drug QZ2 Hospital orders, pharmacokinetic cases
8	Mid-term		Mid-term
9	Health Care System Lab/case Study		Hepatic Drug QZ1
10	Evaluating the Complex Patient – Community Pharmacy Exercises		Hepatic Drug QZ2 Service Learning Reflective writing PHARM/Soap note
11	Infectious disease hepatic disease		OTC/herbal Drug

	combined case study		QZ1 Case write-up
12	Parenterals/enteral Nutrition lab exercises		OTC/Herbal Drug QZ2 Prescriptions/case write-ups/Nutrition Soap Note
13	Health Care Policy Debates		OTC Herbal Drug QZ3
14			