

Therapeutics II
PHRD 4072
CRN# 44492

I. Contact Information**Course Coordinators:**

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* Denotes preferred method of communication for each instructor

II. Course Pre-requisites/Co-requisites

Pre-requisites - PHRD 4027 and PHRD 4035

III. Course Description

3 cr. Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics, and pharmacotherapy (including both prescription and non-prescription medications where applicable) as they apply to drug therapy management of disease.

IV. Curricular Objectives and Outcomes

CAPE:

Domain 1 – Foundational Knowledge

1.1. Learner (Learner) - Develop, integrate, and apply knowledge from the foundational sciences (i.e., pharmaceutical, social/behavioral/administrative, and clinical sciences) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and patient-centered care.

Domain 2 – Essentials for Practice and Care

2.1. Patient-centered care (Caregiver) - Provide patient-centered care as the medication expert (collect and interpret evidence, prioritize, formulate assessments and recommendations, implement, monitor and adjust plans, and document activities).

2.3. Health and wellness (Promoter) - Design prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness.

2.4. Population-based care (Provider) - Describe how population-based care influences patient-centered care and influences the development of practice guidelines and evidence-based best practices.

Domain 3 - Approach to Practice and Care

3.1. Problem Solving (Problem Solver) – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

3.2. Educator (Educator) – Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding.

3.3. Patient Advocacy (Advocate) - Assure that patients' best interests are represented.

3.5. Cultural sensitivity (Includer) - Recognize social determinants of health to diminish disparities and inequities in access to quality care.

3.6. Communication (Communicator) – Effectively communicate verbally and nonverbally when interacting with an individual, group, or organization.

Domain 4 – Personal and Professional Development

4.1. Self-awareness (Self-aware) – Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth.

4.4. Professionalism (Professional) - Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society.

ACPE APPENDIX 1

Biochemistry: Structure, properties, biological functions, applicable kinetics, and metabolic fate of macromolecules essential to life (proteins, lipids, carbohydrates, and nucleic acids). Application of these concepts to identify endogenous targets for drug therapy and rational drug design strategies.

Human Physiology: Homeostatic function and normal response reactions across the lifespan of non-diseased human cells, organs, and systems.

Pathology/Pathophysiology: Basic principles, mechanisms, functional changes and metabolic sequelae of human disease impacting cells, organs, and systems.

Clinical Chemistry: Application of clinical laboratory data to disease state management, including screening, diagnosis, progression, and treatment evaluation.

Medicinal Chemistry: Chemical basis of drug action and behavior in vivo and in vitro, with an emphasis on pharmacophore recognition and the application of physicochemical properties, structure-activity relationships, intermolecular drug-receptor interactions and metabolism to therapeutic decision-making.

Pharmacology: Pharmacodynamics, mechanisms of therapeutic and adverse drug actions and interactions, lifespan-dependent variations in physiology or biochemistry that impact drug action and effectiveness, and application of these principles to therapeutic decision-making.

Pharmacoepidemiology: Cause-and-effect patterns of health and disease in large populations that advance safe and effective drug use and positive care outcomes within those populations.

Clinical Pharmacokinetics: Application of basic pharmacokinetic principles and mathematical models to calculate safe and effective doses of drugs for individual patients and adjust therapy as appropriate through the monitoring of drug concentration in biological fluids.

Patient Assessment: Evaluation of patient function and dysfunction through the performance of tests and assessments leading to objective (e.g., physical assessment, health screening, and lab data interpretation) and subjective (patient interview) data important to the provision of care.

Pharmacotherapy: Evidence-based clinical decision making, therapeutic treatment planning, and medication therapy management strategy development for patients with specific diseases and conditions that complicate care and/or put patients at high risk for adverse events. Emphasis on patient safety, clinical efficacy, pharmacogenomic and pharmacoeconomic considerations, and treatment of patients across the lifespan.

V. Course Specific Objectives and Outcomes

At the conclusion of this course, students should be able to:

- Demonstrate knowledge of medicinal chemistry, pharmacological mechanism of action, and related pharmaceutical topics of selected medications and medication classes used to treat endocrine disorders.
- Identify appropriate non-pharmacologic therapy, based upon patient- and disease-specific information.
- Develop appropriate pharmacotherapeutic regimens based upon patient- and disease-specific information.
- Develop a plan for monitoring the pharmacotherapeutic regimen for efficacy, toxicity, and adverse effects.
- Develop a plan for educating the patient regarding drug therapy.
- Review a patient-specific drug therapy regimen and make adjustments as necessary.

Additional subject-area-associated objectives may be posted separately.

VI. Course Topics

Thyroid hormones and disorders; adrenal hormones and disorders; reproductive hormones and disorders; glucose homeostasis; diabetes mellitus (pharmacology, medicinal and pharmaceutical chemistry, and therapeutics)

VII. Instructional Methods and Activities

Instructional methods may include: traditional lectures, internet-based distance lectures, in-class discussion of patient cases, small group discussions, problem- and/or case-based learning, and individual projects or assignments. Technical resources used may include Polycom, Zoom, Kaltura, Turning Point, ExamSoft, Moodle, Poll Everywhere, etc.

VIII. Evaluations and Grade Assignment

There will be four exams with the last exam given during finals week. The first three exams will be given during regularly scheduled lecture time at various dates during the semester; however, the last exam will be given during final exam week at the time allotted to this course which is not necessarily during normal class time.

Exam 1: 84 points

Exam 2: 96 points

Exam 3: 96 points

Quizzes/Assignments: TBD*

Total points for the course: 276*

*Quizzes/assignments will be given as deemed necessary by each faculty member. The points available from these quizzes and assignments will be added into the denominator for the total number of points available from the course, and course grade determined accordingly. Quizzes/assignments will not exceed 5% of the final grade for the course.

- Exam dates are scheduled in the course syllabus and will only be changed in the event of University closure.
- Exams may be multiple-choice, fill-in-the-blank, short answer, case- or scenario-based discussion, essay, or any other format deemed necessary by the faculty members and course coordinators.
- Normal laboratory values will be provided for all questions, unless otherwise specified during class. Lab values that are specific to a disease state will generally not be provided.
- Information acquired from previous lectures in the course, and from other courses in the professional pharmacy curriculum, may likely be needed in preparing for these examinations.
- Exams may cover material (readings, outside assignments) not covered in class.
- **Acceptable exam behavior**
 - Only a writing instrument should be at your desk. All book bags and other bags should be left at the front of the room.
 - Cell phones should be turned off and left with your belongings in the front of the room.
 - Students will not be allowed to leave the room to go to the restroom during the exam, unless accompanied by a faculty member of the same sex, provided there is another proctor to remain in the room.
 - For exams given using ExamSoft, computers used for the exam must remain in the classroom until the class period is over.
 - **Students who arrive to an exam after it has started will be sent to the OSPA and will not be given additional time to complete their exam. A warning will be issued and noted after the first offense. A grade of ZERO will be given for subsequent offenses. Arriving late disturbs fellow classmates and will not be tolerated.**
- The use of programmable calculators and electronic devices capable of storing, receiving, or transmitting data (including an Apple Watch, FitBit, or similar device) are prohibited during an exam or quiz unless expressly authorized by the course instructor. Such devices must be turned off and left with your belongings in the front of the room.
- In the event that a question is eliminated from an exam after it has been finalized in ExamSoft, the exam will be graded based on the remaining number of questions and the exam points contribution to the final course grade adjusted according to the revised number of points (i.e., the denominator in the final course grade calculation will be reduced).
- Course grades will be based strictly upon the percentages given below. There will be no curving or adjustments of grades.
- Exams will be issued using ExamSoft; all students are required to download the exams prior to the date of the scheduled exam. If a student cannot take the exam on the scheduled date the student must

reverse download the exam to ExamSoft. Under no circumstances should a student open an examination, except during the scheduled time and at the scheduled location. Scratch paper will be issued on the day of the exam and all students are required to sign the scratch paper and return it to the exam proctor prior to leaving the room. No other paper items will be allowed during the exam unless supplied by the faculty administering the exam. All exams must be uploaded before leaving the classroom. In the event of a power outage or loss of Wi-Fi connection, all students are required to upload the exam at the earliest possible reconnection time; however, proof of exam closeout will be required prior to leaving the classroom.

Reviewing Exams

- Exams will NOT be returned to the student. Faculty members will review the exam scores and question statistics and will discuss amongst themselves any discrepancies. Students will have **2 weeks after exam scores are posted** (or within 1 week of the time that the score is posted for the final exam) to set up a time to review their exams with any faculty member in the course.

Challenging Exam Questions

- Problems or issues with a question should be first directed, via e-mail, to its author. The course coordinators should be copied on this email, but it is the responsibility of the question's author to address the concerns. If the student is unsure which faculty member wrote a specific question, then he or she may ask the course coordinator. The email shall include references or rationale challenging any questions. The challenge will be reviewed by the faculty member, and his or her decision will be shared with the course coordinators. Discussion of a dispute will occur only after the written query is submitted. Challenges of test questions for the first 2 exams will only be considered within 2 weeks of when the test scores are posted. For the final examination, challenges of test questions will only be considered within 1 week of the time that the scores are posted.
- In the event that there is an issue with a particular test question, adjustments to scores will be made based on discussions between the test question writer and the course coordinator.
- Mid-term grades will be posted on-line for students to view via Banner. Mid-term grades indicate a student's status at mid-semester only and do not indicate the final performance outcome of a student.
- Students who submit assignments/quizzes late will receive a zero, non-passing, score for these items unless they have received written approval from the faculty member affiliated with the activity BEFORE the event occurs AND presents a verified excused absence within the time frame stated in this syllabus.

Grading Scale:

89.5 – 100%	A
79.5 – 89.49%	B
69.5 – 79.49%	C
59.5 – 69.49%	D
≤59.49%	F

Early Intervention Policy:

- Students scoring <70% on any exam and an overall exam average < 70% (excludes quizzes, assignments, bonus, etc.) will be required to submit to the coordinator written, narrative responses to select lecture objectives that will be provided within 24 hours of the posting of their exam grade to Moodle. These objectives will be in the form of a Moodle assignment and represent unit- or lecture-level objectives to be tested upon in the next scheduled course exam.
- Written responses must be submitted no later than one calendar week before the next scheduled exam. Responses must be written in complete sentences and may not be copied or pasted from any source, including class notes, treatment guidelines, textbooks, or any internet site. Submissions found to contain responses that have not been written in a student's own words will be considered a failure to submit.

- In addition, students will be required to review each failed exam's ExamSoft-generated missed item report with the course coordinator or instructor responsible for each section of material. The discussion should include the student's reasoning for the incorrect answer as well as the reason for the correct answer.
- Failure to submit this required assignment will result in ineligibility to remediate.

Remediation Policy:

- Remediation is a privilege that must be earned through demonstrated attendance and active participation throughout the semester that the non-progressing grade was earned. To be eligible for remediation, the student must have demonstrated regular attendance, completed all assigned work in the course, and utilized other academic resources such as tutoring and meetings with the instructor.
- Remediation will be offered to any student earning a course average of $\geq 65\%$ regardless of the total number of students failing. If $\geq 7\%$ of the enrolled students fail to earn a grade of "C" or better in a required course, then remediation will be allowed for any student earning a final non-progressing grade of "D" or "F" for the course. Those who choose remediation will be given an incomplete ("I") until the time that remediation is finished.
- Students choosing remediation must make a score of $\geq 70\%$ on the targeted remediation exam to pass and receive a final grade of "C" in the course. No grade higher than a "C" can be made in the course with remediation. If the student makes a grade of $< 70\%$ on the targeted final, their original grade will take the place of the "I" grade. The student can then re-enroll in the course at the next offering if eligible based on College progression policies. If this is the student's second "F" grade in the curriculum, the student will be dismissed from the program.
- Students will be allowed to remediate with a targeted remediation exam no more than three (3) times total in their P1-P3 years. Students may not remediate a class more than once. There will be no make-up exams in the remediation.
- Students with a grade of "C" or better are not eligible to use remediation in an attempt to improve their grade in that course.
- Students receiving a non-progressing grade as a result of a disciplinary action are not eligible to remediate that course in that semester.

IX. Class Policies and Procedures

At a minimum, all policies stated in the current [ULM Student Policy Manual & Organizational Handbook](#) should be followed. Additional class policies include:

Textbooks (required):

1. Chisholm-Burns M, Schwinghammer TL, Wells BG, Malone PM, Kolesar JM, DiPiro JT, eds. *Pharmacotherapy: Principles and Practice*. 6th ed, New York, McGraw-Hill, Inc., 2022. (available via AccessPharmacy)
2. Brunton LL, Lazo JS, Parker KL, eds. *Goodman and Gilman's, The Pharmacological Basis of Therapeutics*, 14th ed, McGraw-Hill, 2023. (available via AccessPharmacy)
3. Lemke, Williams, Roche, Zito, eds. *Foyes Principles of Medicinal Chemistry* 8th ed., Walters Kluwer/Lippincott Williams & Wilkins, 2020. (available via our LW&W Health Library collection.)
4. Additional REQUIRED reading materials will be posted on Moodle by course faculty.

Attendance Policy and COP Excused Absence Procedures

Exam Make-up Policy: Each student is expected to attend each exam at the date and time specified. If a student cannot attend an exam due to valid University excuse (see above), he/she must speak directly with Dr. Terrell as soon as possible. Dr. Terrell must be notified **prior** to an examination if a student misses an exam. The ULM [COP Excused Absence Policy](#) must be followed. Failure to do so will result in a zero (0) grade for that exam. Make-up exams will be prepared at the same or higher level than the original exam. The format of the make-up exam may be written or oral. Failure to attend a scheduled make-up exam will result in a zero (0) grade for that exam. Students missing an exam due to a University-approved excuse will take the make-up exam during the week of finals, or as determined by the course coordinators, in conjunction with the faculty providing test content for the affected exam.

Academic Integrity: Faculty and students must observe the ULM published policy on academic dishonesty,

[cheating, and plagiarism](#). All professional students will adhere to the standards set forth in the College of Pharmacy's [Code of Conduct](#).

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:

- Copying or obtaining information from another student's test paper or computer.*
- Using, before or during a test, materials not authorized by the person giving the test.**
- Collaborating, conspiring, or cooperating during an in-class or take-home test with any other person by giving or receiving information without authorization.
- Stealing, buying, or otherwise obtaining all or part of an unadministered test.
- Selling or giving away all or part of an unadministered test or any information concerning specific questions and items on an unadministered test.
- 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.
- Substituting for another student or permitting any other person to substitute for oneself to take a test.
- Submitting as one's own, in fulfillment of academic requirements, any type of work prepared totally or in part by another person.
- Any selling, giving, or otherwise supplying to another student any work for use in fulfilling an academic requirement.
- Submitting artificially produced data or information in the place of descriptive, experimental, or survey results.
- Any other devious means of securing an unearned grade.
- 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.
- Unless expressly allowed by the instructor, the use of artificial intelligence (AI) tools and applications (including ChatGPT, DALL-E, and others) to produce content for course assignments and assessments is a violation of the ULM College of Pharmacy's Code of Conduct and is prohibited.

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

**The presence on one's person (or in close proximity thereto) of a condensation of test information (i.e., any information which could reasonably 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.

Academic dishonesty (as detailed above) will result in a referral to the Academic Standards and Ethics Committee. If the student is found guilty of Ethical and Professional misconduct by the committee, they will receive a zero for the assigned points (graded assignment or test) and up to an "F" in the course from the course coordinator in addition to any disciplinary action recommended by the Academic Standards and Ethics Committee. 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 answers.

Course Evaluation Policy: At a minimum, students are expected to complete the online course evaluation.

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 University's technical standards and policies concerning students with special needs. ULM student services, such as the Student Success Center, Counseling Center and Student Health Services, is available at this Student Services web site. Students with special needs requiring accommodations MUST follow this process.

Mental Wellness on the ULM Campus

If you are having problems with emotional, social, and/or behavioral issues please call any of the mental health clinics on the ULM campus to make an appointment. All services are free to ULM students, staff, and faculty, and are strictly confidential.

- COP Office of Student and Professional Affairs: 342-3800
- ULM Counseling Center: 342-5220
- Marriage and Family Therapy Clinic: 342-5678
- Community Counseling Center: 342-1263
- ULM HELPS (Helping Educators and Learners Prevent Suicide) Project Office: 342-1335

The University of Louisiana at Monroe strives to serve students with special needs through compliance with Sections 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. These laws mandate that postsecondary institutions provide equal access to programs and services for students with disabilities without creating changes to the essential elements of the curriculum. While students with special needs are expected to meet our institution's academic standards, they are given the opportunity to fulfill learner outcomes in alternative ways. Examples of accommodations may include, but are not limited to, testing accommodations (oral testing, extended time for exams), interpreters, relocation of inaccessible classrooms, permission to audiotape lectures, note-taking assistance, and course substitutions.

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds, including federal loans and grants. Furthermore, Title IX prohibits sex discrimination to include sexual misconduct, sexual violence, sexual harassment and retaliation. If you encounter unlawful sexual harassment or gender-based discrimination, please contact Student Services at 318-342-5230 or to file a complaint, visit www.ulm.edu/titleix.

Emergency Procedures: Please review the emergency escape plan in the classrooms and hallways of the Bienville building. Move quickly and in an orderly manner 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 the Bienville building 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**.

Communication with Coordinators and Course Faculty:

Open and frequent communication via email, phone, or face-to-face is highly encouraged. Your comments and suggestions can and will be used to improve this and future offerings of this course. If you feel that you are having problems in the course, please approach and discuss with the appropriate faculty member(s) as early as possible, to avoid complications later in the course that could impact your understanding of the material or your grade in the course.

Per College of Pharmacy policy, concerns, comments, and suggestions should be discussed/submitted first to the individual faculty member to which they pertain (or to the course coordinators, if the concern is with the course as a whole). If not satisfactorily addressed, then that instructor's School Director should be contacted, followed by the Associate Dean of Academic Affairs. Following this communication "chain" is important to allow for appropriate resolution of issues and continuous quality improvement, and to maintain the desired professional relationship between students and faculty.

This is an integrated course covering a number of topics from different viewpoints. If two (or more) faculty members present what appears to be conflicting information, it is important to question that information and discuss it with the faculty members(s) involved. The appropriate time to do this is prior to the exam covering that material.

The course coordinators reserve the right to adjust the syllabus or schedule, in accordance with University and College policies and procedures.

X. Tentative Course Schedule

Day		Date	PHRD 4072: Therapeutics II (Endocrine) Bienville 202 Tuesday, Thursday 1:00 – 2:15 pm		Pts on Exam/ Due Date	
			Topic	Instructor		
T	1	8/27	Adrenal – Medicinal Chemistry	El Sayed	12 points	
Th	2	8/29	Adrenal – Pharmacology	Liu	12 points	
T	3	9/3	Adrenal – Therapeutics	Terrell	12 points	
Th	4	9/5	Glucose/Anti-hyperglycemic agents – Medicinal Chemistry	El Sayed	12 points	
T	5	9/10	Glucose/Anti-hyperglycemic agents – Pharmacology	Briski	36 points	
Th	6	9/12	Glucose/Anti-hyperglycemic agents – Pharmacology	Briski		
T	7	9/17	Glucose/Anti-hyperglycemic agents – Pharmacology	Briski		
Th	8	9/19	Diabetes Therapeutics	Terrell	72 points	
T	-	9/24	Exam1: 1-7 (84 points)		TQs due 9-17-24	
Th	9	9/26	Diabetes Therapeutics	Terrell		
T	10	10/1	Diabetes Therapeutics	Terrell		
Th	11	10/3	Diabetes Therapeutics	Terrell		
T	12	10/8	Obesity Therapeutics	Terrell		
Th	13	10/10	Chronic Diabetes Complications	Terrell		
T	14	10/15	DKA and HHS	McGee		24 points
Th	-	10/17	FALL BREAK			
T	15	10/22	Inpatient Glucose Control	McGee		
Th	16	10/24	DM/Obesity Cases	Terrell	--	
T	17	10/29	Thyroid- Pharmacology	Shah	12 points	
Th	-	10/31	Exam 2: 8-16 (96 points)		TQs due 10-24-24	
T	18	11/5	Thyroid- Therapeutics	Sampognaro	12 points	
Th	19	11/7	Thyroid- Cases	Sampognaro		
T	20	11/12	Reproductive – Medicinal Chemistry	El Sayed	12 points	
Th	21	11/14	Reproductive – Pharmacology	Liu	12 points	
T	22	11/19	Contraception- Therapeutics	Terrell	48 points	
Th	23	11/21	Contraception- Therapeutics	Terrell		
T	24	11/26	Hormone Replacement Therapy (Female)- Therapeutics	Terrell		
Th	-	11/28	THANKSGIVING BREAK			
T	25	12/3	HRT (Male)- Therapeutics	Terrell		
		TBA	Final Exam: 17-25 (96 points)		TQs due 12-2-24	