

ULM College of Pharmacy

Fall 2023

PHRD 5014: Therapeutics V

Contact Information

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I. Course Prerequisites

Third year standing

II. Course Description

THERAPEUTICS V: (5 Cr): Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to neurology/psychiatric drug therapy management.

This course is a major requirement for the Pharm.D. degree in pharmacy. Completion of degree requirements leads to eligibility for professional licensure and/or certification in Louisiana upon graduation. Federal Regulations require universities to provide information to students about the alignment between Louisiana's requirements and those of other states. ULM has created a web page with discipline-specific information containing hyperlinks to Licensure Boards in the United States <https://www.ulm.edu/professional-licensure-disclosures/index.html>. Program Directors and/or faculty will discuss this information with you during advising or other program meetings but is also available to answer questions and address any concerns you might have. It is also important to note that licensure or certification requirements are subject to change. Although ULM Program Directors annually review and update licensure information for every state, the faculty recommends that before enrolling in a program and throughout enrollment, students communicate with the applicable state board to confirm understanding and whether upon completion of ULM's program, they will meet requirements.

III. Curricular Outcomes (based on CAPE outcomes)

- 1.1. Develop, integrate, and apply knowledge from the foundational sciences (i.e., biomedical, 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.
- 2.1. Patient-centered care – 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).
- 2.2. Medication use systems management – Manage patient healthcare needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication use systems.
- 2.3. Health and wellness – Design prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness.
- 3.1. Problem solving – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.
- 3.3. Patient advocacy – Assure that patients' best interests are represented.
- 3.4. Interprofessional collaboration – Actively participate and engage as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs.
- 3.5. Cultural sensitivity – Recognize social determinants of health to diminish disparities and inequities in access to quality care.
- 3.6. Communication – Effectively communicate verbally and nonverbally when interacting with individuals, groups, and organizations.
- 4.1. Self-awareness – 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 – Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society.

ACPE Appendix 1 outcomes

Biomedical Sciences: Biochemistry, Pathology/Pathophysiology

Pharmaceutical Sciences: Clinical Chemistry, Medicinal Chemistry, Pharmaceutical Calculations, Pharmacokinetics, Pharmacology

Clinical Sciences: Clinical Pharmacokinetics, Health Information Retrieval and Evaluation, Patient Assessment, Pharmacotherapy

IV. Course Topics

Neurophysiology and neuropharmacology, pain management, mood disorders, anxiety disorders, schizophrenia, Parkinson's disease, epilepsy, drug addiction and abuse, seizure disorders, headache disorders, ADHD and Alzheimer's disease.

V. Instructional Methods and Activities

Instructional methods may include: traditional lectures, distance learning, in-class discussion of patient cases, small group discussions, problem-based learning, case-based learning, and individual projects or assignments.

VI. Evaluation and Grade Assignment

- a. There will be 5 exams for a total of 500 points. However, at the discretion of the lecturer, their allotment of points can include in-class graded activities or graded activities to earn extra points in addition to the 500 total. The final exam will not be comprehensive.
- b. Exam dates are scheduled in the course syllabus and will only be changed as per College of Pharmacy policy or in the event of University closure.
- c. 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 lecturers and course coordinator.
- d. Normal laboratory values will be provided for all questions, unless otherwise specified during class.
- e. Lab values that are specific to a particular disease state will not be provided.
- f. Information acquired from previous lectures in the course and from other courses in the professional pharmacy curriculum may be needed in preparing for these examinations.
- g. Exams will cover material (readings, outside assignments) not covered in class.
- h. Exams will NOT be returned to the student. Review sessions may be scheduled for students to review the exam with the test question writer. Also, the test question writer may post an exam key and/or explanation of correct answers to Moodle. Format for review of test questions are to be determined by the test question writer and completed within 2 weeks of the exam date.
- i. Use of programmable calculators will not be allowed during quizzes or exams.
- j. Students wishing to review their exams with the course coordinator or with a specific lecturer must do so *within 2 weeks* of when the test scores are posted.
- k. Students wishing to challenge a question on the test must provide the course coordinator with a written statement that identifies which question(s) being challenged, why the student feels his or her answer(s) is/are correct and references from recent (published within the last 1-2 years) primary or tertiary literature to support the claim. Problems or issues with question(s) should be first directed, via e-mail, to the faculty member who presented the material. The course coordinator should be copied on this communication. In the event that the faculty member and the student cannot arrive at an acceptable conclusion, the course coordinator should be contacted regarding the issue. Discussion of a dispute will occur only after a written query is submitted. Challenges of test questions will only be considered *within 2 weeks* of when the test scores are posted.
- l. In the event that a determination is made that there is a legitimate issue with a particular test question, adjustments to scores will be made based on discussions between the test question writer and the course coordinator.
- m. Professional student 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.
- n. "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.

In addition to answering objectives as described above and reviewing missed item reports, first professional year students scoring <70% on any exam and having an overall exam average <70% (excludes quizzes, assignments, bonus, etc.) will meet with the Director of Professional Affairs.

Failure to submit this required assignment will result in ineligibility to remediate."

VII. Grading Scale:

| | |
|--------------|---|
| 89.5 – 100% | A |
| 79.5 – 89.4% | B |
| 69.5 – 79.4% | C |
| 59.5 – 69.4% | D |
| ≤ 59.4% | F |

VIII. Class Policies and Procedures

A. Textbooks (required):

1. Chisholm-Burns M, Schwinghammer TL, Wells BG, Malone PM, Kolesar JM, DiPiro JT, eds. *Pharmacotherapy: Principles and Practice*. 2nd ed, New York, McGraw-Hill, Inc., 2010. ISBN 9780071621809
2. Basic and Clinical Pharmacology, 13th addition, McGraw Hill/Lange, B.G Katzung, S.B. Masters and A.J. Trevor eds. 2014
3. Lemke, Williams, Roche, Zito, eds. *Foyes Principles of Medicinal Chemistry* 7th ed., Walters Kluwer/Lippincott Williams & Wilkins, 2013. ISBN 978-1-60913-345-0.
4. Additional REQUIRED reading materials may be posted on Moodle by course faculty.

B. Attendance Policy: This course will follow the University's attendance policy which can be found at the following link

<http://catalog.ulm.edu/content.php?catoid=23&navoid=2875&hl=attendance&returnto=search#Class Attendance Regulations Excused Absences>

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: Each student is expected to attend each exam at the date and time specified. If a student cannot attend an exam due to a valid University excuse, he/she must speak directly with the course coordinator, as soon as possible. The course coordinator must be notified prior to the examination, if at all possible, if a student anticipates being unable to attend the exam. Failure to attend a scheduled make-up exam 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. *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 coordinator.*

D. Academic Integrity: Students must observe the ULM published policy on academic dishonesty (See page 4 in the ULM *Student Policy Manual*: <http://www.ulm.edu/studentpolicy/>). In addition, students must observe the ULM School of Pharmacy Code of Ethical and Professional Conduct (<http://www.ulm.edu/pharmacy/documents/ospa/codeofconductv82011.pdf>) and the Dress Code (<http://rxweb.ulm.edu/pharmacy/studentinfo/default.html>).

Academic dishonesty 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.

Also note, the use of programmable calculators and electronic devices capable of storing, receiving or transmitting data 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.

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.

E. Course Evaluation Policy: At a 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 School of Pharmacy can be found in the College of Pharmacy Student Handbook. In particular, students should pay special attention to the College's technical standards and policies concerning students with special needs (<http://www.ulm.edu/studentpolicy/studentpolicy.pdf>). 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/>.

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.

- SOP 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

G. Emergency Procedures: Please review the emergency escape plan in the classrooms and hallways of the Bienville building. Move quickly 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 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.

Health and Safety Requirements (for Face-To-Face and Hybrid Courses)

In order to safeguard the health and safety of students, faculty, and staff during the COVID-19 pandemic, the University has had to institute a variety of different protocols in response to State of Louisiana and University of Louisiana System mandates during the different phases of reopening. All students are expected to be in compliance with these required policies and procedures. This means that students will need to wear face masks, practice social distancing, and follow other requirements inside all campus buildings and while attending classes until such time as State and University authorities no longer mandate them. As we continue to pursue learning during this unprecedented health crisis, please remember that you are being required to do these things to protect others and to show concern for their welfare; you should expect the same consideration in return.

Emergency Remote Instruction (for Face-To-Face and Hybrid Courses)

During the semester, campus operations might be disrupted by an emergency, such as a tornado, fire, or pandemic. If in-person instruction becomes impossible for a period of time, the class will enter a phase of emergency remote instruction (ERI). During this phase, instruction will take place via virtual means, either synchronously or

asynchronously. Your instructor will alert you when this happens via e-mail and will include a description of how the course will proceed.

Technical Requirements During ERI (for Face-To-Face Courses)

During a period of emergency remote instruction, the need for the course to continue in a virtual manner means that you will be required to have appropriate equipment, software, and telecommunication access to allow you to participate. This course will require that you have the following, should we have to go into ERI:

[Zoom meetings currently established for the class will be use synchronously]

Technical Requirements (for Hybrid and Online Courses)

The normal delivery method for this course requires instructional materials and interactions remotely. Because of this, all students will be expected to have the appropriate equipment, software, and telecommunication access. For this course, these are you laptop computer and associated software (zoom, examsoft, etc).

[Instructor inserts needed equipment, software, and access here]

COVID-19 Symptoms and Testing (for Face-To-Face and Hybrid Courses)

The COVID-19 pandemic has disrupted every aspect of daily life. Returning from the nationwide shutdown in the spring of 2020 continues to involve a phased approach within which various protocols and procedures for handling the virus and its rates of infection are established. One aspect of this is testing and contact tracing for those individuals who develop symptoms of COVID-19. Information on what you are required to do should you develop symptoms or test positive for COVID-19 can be found in the COP COVID-19 playbook or ULM website below:

https://www.ulm.edu/safety/student_positive_test/index.html

In the event that one or more individuals in a course are diagnosed with COVID-19, contact tracing will be done to determine the potential exposure to other individuals in the class. One potential outcome of this tracing might be a recommendation that the members of the class quarantine for a period of time. If this happens, the course will go into emergency remote instruction during that time period. The procedures for this are explained elsewhere in the COP COVID-19 playbook.

Federal Regulations require *determination and verification of every students' physical location while enrolled in classes (where they are physically located while taking classes), regardless of the delivery method (on campus, online). At the beginning of every semester and whenever physical location changes, students must update or verify their current location through banner https://ssb-prod.ec.ulm.edu/PROD/bwqkaqad.P_SelectAtypUpdate. Students should do this by the end of the first week of classes.*

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

IX. Course Schedule PHRD 5014: Therapeutics V

Class will meet in Bienville 170 on the following days and times:

Monday 8:00-9:40pm
Wednesday 8:00-9:40am
Friday 8:00-08:50am

Week 1

Monday 8/21 Introduction to Neuroanatomy/Neurophysiology (Chamcheu)
Wednesday 8/23 Neurotransmitters (Chamcheu)/Adrenergic/Anti-adrenergic drugs (Jackson)
Friday 8/25 Adrenergic/anti-adrenergic continued (Jackson)

Week 2

Monday 8/28 Cholinergic/anticholinergic drugs (Jackson)
Wednesday 08/30 Neuromuscular and ganglionic blockers (Jackson)/Cholinergics (El Sayed)
Friday 09/01 Cholinergics continued (El Sayed)

Week 3

Monday 09/04 Labor day
Wednesday 09/06 Analgesics (El Sayed)
Friday 09/08 Analgesics (Chamcheu)

Week 5

Monday 09/11 Analgesics continued (Chamcheu)/Pain (Craft)
Wednesday 09/13 Pain (Craft)
Friday 09/15 Pain (Craft)

Week 6

Monday 09/18 Exam 1 (thru 9/11 Chamcheu)
Wednesday 09/20 Anticonvulsants (Sylvester)
Friday 09/22 Anticonvulsants (El Sayed)

Week 7

Monday 09/25 Anticonvulsants therapeutics (Hoh)
Wednesday 09/27 Antidepressants (Sylvester)
Friday 09/29 Introduction to Psychiatric Disorders (Nickelson)

Week 8

Monday 10/02 Antidepressants (El Sayed)
Wednesday 10/04 Depression (Nickelson)
Friday 10/06 ADHD (Nickelson)

Week 9

Monday 10/09 Exam 2 (9/11 (Carft) thru 10/4)

Wednesday 10/11 Drugs of abuse (El Sayed)
Friday 10/13 Fall Break

Week 10

Monday 10/16 Drugs of abuse (Sylvester)
Wednesday 10/18 Opioid use disorder (Hill)
Friday 10/20 Management of selected drugs of abuse (Nickelson)

Week 11

Monday 10/23 MS pharmacology (Sylvester)/MS therapeutics ([Brooks](#))
Wednesday 10/25 Antipsychotic pharmacology (Sylvester)/AP med chem (El Sayed)
Friday 10/27 Schizophrenia intro (Nickelson)

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Week 12

Monday 10/30 EXAM 3 (10/06 thru 10/23)
Wednesday 11/01 Schizophrenia continued (Nickelson)
Friday 11/03 Parkinson's/movement disorder med chem (El Sayed)

Week 13

Monday 11/06 Parkinson's/ movement disorder pharmacology (Chamcheu)
Wednesday 11/08 Parkinson's/Alzheimer's (Nickelson)
Friday 11/10 Headache med chem (El Sayed)

Week 14

Monday 11/13 Exam 4 (10/25 thru 11/08)
Wednesday 11/15 Headache therapeutics ([Evans](#))
Friday 11/17 Sedatives/Hypnotics (El Sayed)

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Week 15

Monday 11/20 Sedative/hypnotics pharmacology (Sylvester)/Insomnia (Nickelson)
Wednesday 11/22 Anxiety disorders/Bipolar (Nickelson)
Friday 11/25 **Thanksgiving Break**

Week 16

Monday 11/27 Medicinal Marijuana topics (Evans)/ ICU pain, agitation, delirium (Hoh)
Wednesday 11/29 No class/ study day

Final Exam TBA: **FINAL EXAM (11/10-11/27)**