

PHARMACOECONOMICS & OUTCOMES
PHRD 5025
CRN# 44667

I. Contact Information

Course Coordinator and Instructor:

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Preferred Method of Communication: Email

Course Instructor:

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Course Instructor:

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Preferred Method of Communication: Email

II. Course Pre-requisites/Co-requisites

Pre-requisites – PHRD 4052 (Research Methods and Literature Evaluation)
Co-requisites – none

III. Course Description

Pharmacoeconomics & Outcomes. 2 cr. Introduction to the principles and tools of pharmacoeconomics and outcomes assessment that are commonly used to study the impact of pharmaceutical care services on the health and health care of a patient or community.

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*.

CAPE Domain 2 – Essentials for Practice and Care

2.2. Medication use systems management (Manager) - 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 (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.

CAPE 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.

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

CAPE 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.

4.2. Leadership (Leader) - Demonstrate responsibility for creating and achieving shared goals, regardless of position.

4.3. Innovation and Entrepreneurship (Innovator) - Engage in innovative activities by using creative thinking to envision better ways of accomplishing professional goals.

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 I Topic Area:

Pharmacoeconomics: Application of economic principles and theories to the provision of cost-effective pharmacy products and services that optimize patient-care outcomes, particularly in situations where healthcare resources are limited.

V. Course Specific Objectives and Outcomes

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

- Interact productively in team-based activities
- Describe the rationale of pharmacoeconomic analyses
- Identify and determine relevant costs and consequences associated with pharmacy products and services
- Define the differences among cost-benefit analysis (CBA), cost-effectiveness analysis (CEA), cost-minimization analysis (CMA), and cost-utility analysis (CUA)
- Outline the steps for conducting a pharmacoeconomic analysis
- Apply decision analysis methodology
- Identify strengths and issues associated with current pharmacoeconomic methods
- Critique current pharmacoeconomic literature
- Identify potential applications of pharmacoeconomics in various pharmacy settings

VI. Course Topics

- Basic concepts in pharmacoeconomics (determination of costs, consequences, perspectives, and terminology)
- Cost of illness
- Pharmacoeconomic analyses (cost-minimization analysis (CMA), cost-benefit analysis (CBA), cost-effectiveness analysis (CEA), and cost-utility analysis (CUA))
- Analysis techniques (discounting, sensitivity analysis, decision analysis, incremental cost analysis)
- Applied pharmacoeconomics (formulary management, drug use policies, efficient use of available technologies)
- General and disease-specific quality of life

VII. Instructional Methods and Activities

The course may include, but is not limited to, lecture material using PowerPoint slides, class discussions moderated by the instructor, homework and reading assignments, small group discussion, group and/or individual assignments, problem-based learning, group projects/presentations, and independent study.

Active participation in class and group activities is required. Students are expected to be competent in the use of Microsoft Word (or another word processing program), Microsoft Excel, Microsoft PowerPoint, and the ULM Moodle and email systems. Lack of these competencies may place the student at a disadvantage and could adversely impact the scores on required course activities.

VIII. Evaluation and Grade Assignment

There will be two exams and a final exam. The final exam will not be comprehensive. The total grade in the class will consist of the following components and percentages:

Exam 1: 25%

Exam 2: 25%

Final Exam: 25%

Group analysis and presentation of a pharmacoeconomic study: 15%

Assignments (Group or individual) and Quizzes: 10%*

Total points for the course: To be determined

**Quizzes/assignments will be given as deemed necessary by each faculty member, and will be administered in ExamSoft, Moodle, or in another appropriate format as determined by the instructor. The points available from these quizzes and assignments will be added into the denominator for the total number of points available from the Assignment category, and the course grade determined accordingly. Barring unforeseen circumstances, assignments will generally be graded within one week of the due date.*

- *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, discussion, essay, or any other format deemed necessary by the faculty members and Course Coordinator. Barring unforeseen circumstances, exam grades will be available within 2 business days of the examination date.*
- *Information acquired from previous portions of the course and from other courses in the professional pharmacy curriculum may be needed in preparing for these examinations.*
- *Exams may cover material (readings, outside assignments) not covered in class.*
- *Exams will NOT be returned to the student. The course coordinator will have copies of the exam and students' results, and students may view their exam results (inc. right/wrong) ~~in the coordinator's office~~ **via ZOOM meeting** at times convenient for all involved. At this time, they may also discuss exam questions with the instructors who wrote them; however, any official "challenges" of questions must be done in writing. (See below)*
- *Exams will be issued using Exam Soft; 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 Exam Soft. 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.*
- *Students wishing to review their exams with the course coordinator or with a specific faculty member must do so within 2 weeks of when the exam scores are posted, or within 1 week of the time that the*

score for the final exam is posted. **Due to the current COVID precautions, meetings with the course coordinator will be via Zoom at a time convenient to student and coordinator.**

- Problems or issues with a question should be first directed, via e-mail, to the person who wrote it. The course coordinator(s) should be copied on this email, but it is the responsibility of the question's author to address the concern(s). If the student is unsure which faculty member wrote a specific question, then he or she may ask the course coordinator. In the written challenge, the student is expected to include references or rationale to support their challenge of the question. The challenge will be reviewed by the faculty member, and his or her decision will be shared with the course coordinator(s). 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.
- Exam Behavior: Privacy screens must be used at all times during exams. Only a writing instrument and a non-programmable calculator should be at your desk. All book bags and other bags should be left at the front of the room. Scratch paper will be provided. 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. Students are not allowed to leave the classroom during an exam without permission.
- 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.
- Late assignments may be accepted for partial credit at the discretion of the instructors.

Grading Scale: For partial points, 0.5 points and above will be rounded up and 0.4 points and below will be rounded down.

89.5 – 100%	A
79.5 – 89.44%	B
69.5 – 79.44%	C
59.5 – 69.44%	D
≤59.49%	F

Student Success Policy: <http://www.ulm.edu/pharmacy/documents/ospa/earlyintervention.pdf>

Remediation Policy: <http://www.ulm.edu/pharmacy/documents/ospa/remediationpolicy.pdf>

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. Textbooks (required):

1. Rascati KL. *Essentials of Pharmacoeconomics*, 2nd ed. Philadelphia: Wolters Kluwer-Lippincott Williams & Wilkins, 2013. (This textbook is available in electronic format from the LWW Health Library in the COP Resources Toolbox in Moodle.)

Textbook link: <http://pharmacy.lwwhealthlibrary.com/books.aspx?subject=Pharmacoeconomics>

2. Additional REQUIRED reading materials may be posted on Moodle by course faculty.

- b. **Attendance Policy:** 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 may: (1) prevent access to the classroom during regularly scheduled times; (2) jeopardize a student's scholastic standing; and (3) lead to suspension from the School or University. Students must submit excuses for class absences to course coordinators 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 providing documentation to the faculty, which will be verified. 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 valid University excuse, he/she must speak directly with the course coordinator, as soon as possible. The course coordinator must be notified **prior** to an examination if a student misses an exam. The ULM SOP Excused Absence Policy must be followed. Please refer to the official document for details. In case of emergency, the course coordinator must be notified within 48 hours of the emergency. 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 coordinator.*
<http://www.ulm.edu/pharmacy/documents/ospa/excusedabsence.pdf>
- d. **Academic Integrity:** Faculty and students must observe the ULM published policy on Academic Dishonesty (see Page 4 of the ULM *Student Policy Manual* - <http://www.ulm.edu/studentpolicy/>). All professional students will adhere to the standards set forth in the School of Pharmacy's Code of Conduct (<http://www.ulm.edu/pharmacy/documents/ospa/codeofconductv82011.pdf>).

Censures (Penalties)

Academic dishonesty will result in a referral to the Committee on Ethical and Professional Standards with a recommendation for a grade of "F" for the course and expulsion from the School of Pharmacy. 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:** At a minimum, students are expected to complete the online course evaluation.
- f. **Student Services:** Information concerning student services in the School of Pharmacy can be found in the School of Pharmacy Student Handbook. In particular, students should pay special attention to the University's technical standards and policies concerning students with special needs (<http://www.ulm.edu/studentpolicy/studentpolicy.pdf>). ULM student services, such as the 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/>. Students with special needs requiring accommodations MUST follow the process described at <http://rxweb.ulm.edu/pharmacy/student/specialneeds.pdf>.

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.

- g. 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. **The course coordinators reserve the right to adjust the syllabus or schedule, in accordance with University and School policies and procedures.**
- h.** 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/bwgkogad.P_SelectAtypUpdate. Students should do this by the end of the first week of classes.*
- i.** *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.

X. Tentative Course Schedule

A. Class will meet in Bienville 170 on Mondays and Wednesdays from 1:00 – 1:50 p.m.

B. The instructor reserves the right to adjust the schedule as needed.

Aug 16 Mon Introduction; Syllabus Information; Chapter 1: Introduction to Pharmacoeconomics – Dr. Baggarly
Aug 18 Wed Chapter 2: Measuring and Estimating Costs – Dr. Baggarly
Aug 23 Mon Chapter 2: Measuring and Estimating Costs, con't. – Dr. Baggarly
Aug 25 Wed Chapter 3: Critiquing Pharmacoeconomic Research Articles – Dr. Garza
Aug 30 Mon Chapter 4: Cost-Minimization Analysis – Dr. Baggarly

End of Exam 1 Material

Sep 1 Wed Chapter 5: Cost-Effectiveness Analysis – Dr. Baggarly
Sep 6 Mon NO CLASS -- LABOR DAY HOLIDAY
Sep 8 Wed Chapter 5: Cost-Effectiveness Analysis, con't. – Dr. Baggarly
Sep 13 Mon Chapter 6: Cost-Utility Analysis – Dr. Baggarly
Sep 15 Wed Chapter 6: Cost-Utility Analysis, con't – Dr. Baggarly
Sep 20 Mon EXAM 1 (Chapters 1-4)
Sep 22 Wed Chapter 7: Cost-Benefit Analysis – Dr. Garza
Sep 27 Mon Chapter 7: Cost-Benefit Analysis, con't. – Dr. Garza

End of Exam 2 Material

Sep 29 Wed Chapter 8: Health-Related Quality of Life – Dr. Garza
Oct 4 Mon Chapter 8: Health-Related Quality of Life, con't – Dr. Garza
Oct 6 Wed EXAM 2 (Chapters 5-7)
Oct 11 Mon Chapter 12: Pharmacy Services – Dr. Garza
Oct 13 Wed Chapter 9: Decision Analysis – Dr. Baggarly
Oct 18 Mon Chapter 9: Decision Analysis, con't. – Dr. Baggarly
Oct 20 Wed Chapter 10: Markov Analysis – Dr. Baggarly
Oct 25 Mon Decision Analysis and Markov Analysis Problems – Dr. Baggarly
Oct 27 Wed Pharmacoeconomic Study Presentations
Nov 1 Mon NO CLASS – FALL BREAK
Nov 3 Wed Pharmacoeconomic Study Presentations
Nov 8 Mon Pharmacoeconomic Study Presentations
Nov 10 Wed Pharmacoeconomic Study Presentations
Nov 15 Mon Pharmacoeconomic Study Presentations
Nov 17 Wed Clinical Perspectives in Pharmacoeconomics (Dr. Lance Nickelson)
Nov 22 Mon Clinical Perspectives in Pharmacoeconomics (Dr. Lance Nickelson)
Nov 24 Wed NO CLASS – THANKSGIVING HOLIDAYS
Nov 29 Mon Review

Dec 1 Wed NO CLASS – STUDENT STUDY DAY

Dec 2 Thurs FINAL EXAM 9:00 a.m. (Final only covers Chapters 8, 9, 10, 12 and Dr. Nickelson's lectures.)