

**RESEARCH METHODS & LITERATURE EVALUATION**  
**PHRD 4052**  
**CRN# 41563**

**I. Contact Information**

**Course Coordinator:**

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**Course Instructor:**

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**Course Instructor:**

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**Course Instructor:**

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**II. Course Pre-requisites/Co-requisites**

Pre-requisites - PHRD 4033 (Drug Information Retrieval)  
Co-requisites - None

**III. Course Description**

Research Methods and Literature Evaluation. 3cr. Introduction and application of basic concepts of research methodology and design needed for efficient evaluation, utilization, and clinical application of medication information available in medical literature.

This course is activity-based and covers the research process, common methods used in practice-based research, and principles of scientific literature evaluation. Student activities and projects reinforce these concepts.

**IV. Curricular Objectives and Outcomes**

Upon completion of the course, the student should be able to meet the following College of Pharmacy Educational Outcomes and Competencies based upon outcomes from the Center for the Advancement of Pharmacy Education (CAPE) as well as the ACPE Appendix I Topic Areas listed below:

**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**

**2.1. 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).

**2.4. 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 Areas:**

**Social/Administrative/Behavioral Sciences 1SAS11: Research Design** - Evaluation of research methods and protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions, and to appropriately evaluate the validity and reliability of the conclusions of published research studies.

**Social/Administrative/Behavioral Sciences 1SAS06: 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.

**Biomedical Sciences 1BS02: Biostatistics** - Appropriate use of commonly employed statistical tests, management of data sets, and the evaluation of the validity of conclusions generated based on the application of those tests to the data sets.

**Clinical Sciences 1CS03: Health information retrieval and evaluation** - Critical analysis and application of relevant health sciences literature and other information resources to answer specific patient-care and/or drug-related questions and provide evidence-based therapeutic recommendations to healthcare providers or, when appropriate, the public.

## **V. Course Specific Objectives and Outcomes**

Students who successfully complete the course requirements should achieve the following course objectives and outcomes:

- Interact productively in team-based activities
- Demonstrate proficiency in Microsoft Word (or another word processing program), Excel, and PowerPoint or another presentation software such as Google Slides
- Perform basic literature reviews
- Design a practice-based research project
- Select appropriate statistical methods for hypothesis testing
- Analyze relevant scientific literature and clinical drug trials with respect to research methods, research designs, and statistical analyses
- Prepare properly formatted written research reports according to assigned criteria
- Present timed presentations according to assigned criteria using presentation software

## VI. Course Topics

Topics include the research process, research concepts, types of measurement, data management and manipulation, literature reviews, statistical methods, common research designs, data collection methods, and evaluation and analysis of scientific literature. A detailed schedule of topics is included in the course schedule below.

## VII. Instructional Methods and Activities

The course will include, but may not be limited to, lecture material using PowerPoint slides, class discussions moderated by the instructor, homework and reading assignments, group assignments, a group research design project including a written report, and a PowerPoint presentation of a clinical trial analysis.

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

*The final grade in the class is expected to consist of the following components:*

<u>Individual Activities</u>	<u>Expected Points</u>
Exam One:	100
Exam Two:	70
Excel Dataset Assignment:	20
Presentation Quiz:	20
Final Exam:	100
<u>Group Activities</u>	
Research Project Proposal:	50
Clinical Trial Presentation:	50
Group assignments:	20
Expected Total:	430*

### ***Total points for the course: To be determined\****

*\*This course may include additional group and/or individual graded assignments or quizzes which may be announced or unannounced. Additional points available from these assignments or quizzes will be added to the total points available for the group assignment category and averaged as part of the final grade.*

- *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 Coordinator.*
- *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 be issued using Exam Soft unless otherwise announced by the instructors; 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.

- Barring unexpected events, exam results should be available by the day following the exam unless manual grading is required for problems or essay questions. Students wishing to review their exams with the course coordinators 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.
- Exams will NOT be returned to the student. All instructors will have copies of the exam and students' results, and students may view their exam results (inc. right/wrong) in instructors' offices, 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)
- 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.
- 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.
- 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:**

89.5 – 100%	A
79.5 – 89.49%	B
69.5 – 79.49%	C
59.5 – 69.49%	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:**

No textbook is required for the course; however, 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 College 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 College 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 College 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 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 (<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](http://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 College 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/bwggkogad.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 (subject to change at the discretion of the Course Coordinator)**  
**Class will meet in Bienville 202/210 (?) Tuesdays and Thursdays at 8:00-9:15 a.m.**

	<b>Day</b>	<b>Date</b>	<b>Lecture</b>
1	Tue	Aug 17	Introduction to Research; Concepts, Variables, and Operational Definitions Dr. Baggarly
2	Thur	Aug 19	Types of Measurement, Literature Review, Defining Research Problems Dr. Baggarly
3	Tue	Aug 24	Sampling and Assignment Dr. Baggarly
4	Thur	Aug 26	Reliability, Validity, and Threats to Internal Validity Dr. Garza
			----- END OF TEST 1 MATERIAL -----
5	Tue	Aug 31	Statistics I – Dr. Baggarly
6	<b>Thur</b>	<b>Sept 2</b>	<b>EXAM I</b>
7	Tue	Sept 7	Statistics II – Dr. Baggarly
8	Thur	Sept 9	Statistics III – Dr. Baggarly
9	Tue	Sept 14	Statistics IV – Dr. Baggarly
10	Thur	Sept 16	Research Designs I – Dr. Baggarly
11	Tue	Sept 21	Research Designs II – Dr. Baggarly
12	Thur	Sept 23	Research Designs III – Dr. Baggarly
			----- END OF TEST 2 MATERIAL -----
13	<b>Tue</b>	<b>Sept 28</b>	<b>EXAM II</b>
14	Thur	Sept 30	Epidemiological Research I – Dr. Garza
15	Tue	Oct 5	Epidemiological Research II – Dr. Garza
16	Thur	Oct 7	Epidemiological Research III – Dr. Garza
17	Tue	Oct 12	Ethics in Research; Survival Analysis – Dr. Garza
18	Thur	Oct 14	Survey Research I – Dr. Garza
19	Tue	Oct 19	Survey Research II; Equivalence/Non-Inferiority/Superiority Trials – Dr. Garza
20	Thur	Oct 21	No Class – Fall Break
21	Tue	Oct 26	Scientific Literature Evaluation I (Dr. Anderson)
22	Thur	Oct 28	Scientific Literature Evaluation II (Dr. Anderson)
23	Tue	Nov 2	Scientific Literature Evaluation III (Dr. Anderson)
24	Thur	Nov 4	Meta-Analysis (Dr. Greg Smith)
25	Tue	Nov 9	Scientific Literature Presentations I
26	Thur	Nov 11	Scientific Literature Presentations II
27	Tue	Nov 16	Scientific Literature Presentations III
28	Thur	Nov 18	Scientific Literature Presentations IV
29	Tue	Nov 23	Review
30	Thur	Nov 25	No Class – Thanksgiving Holiday
31	Tue	Nov 30	Review (prn)
32	<b>Fri</b>	<b>Dec 3</b>	<b>FINAL EXAM 9:00 a.m. (Comprehensive)</b>