Research Methods & Literature Evaluation
PHRD 4052
Updated: 2023-07-05

I. Contact Information
Course Instructors
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II. Course Pre-requisites/Co-requisites
Pre-requisites: PHRD 4033 (Drug Information Retrieval)
Co-requisites: None

III. Course Description
(3 SCH) 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 & Outcomes
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).

2.4 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.

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

<u>Domain 4 – Personal and Professional Development</u>
4.1 Self-awareness (self-aware) – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

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

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.

V. Course-Specific Objectives & Outcomes
A. Develop a system for reading and evaluating primary medical literature (learner, self-aware).
B. Communicate key points from medical literature to health care professionals (communicator, educator).
C. When reading primary medical literature, discern the answers to three critical questions (caregiver, problem-solver, self-aware):
  1. Is this a true finding?
  2. Can I apply this finding to my patients?
  3. Will this finding change my practice?
D. Identify standard study designs (learner).
E. Defend or criticize the ethics of deviations from standard study designs (self-aware, professional).
F. Determine patent-, population-, and institution-specific factors influencing the application of findings from primary medical literature (caregiver, provider, self-aware, professional).
G. Select an appropriate statistical test for a given comparison (learner, problem-solver).
H. Discern between statistical and clinical significance (problem-solver, self-aware):
  1. Discuss the utility of results that do and do not meet statistical significance (learner, problem-solver); and
  2. Defend or criticize changes to health care practice based on clinical significance (caregiver, provider, communicator, leader).
I. Work in a team to evaluate medical literature and apply findings from primary medical literature to patients, populations, and institutions (caregiver, provider, leader, professional).

VI. Course Topics
Topics include but may not be limited to research methods, evaluation of medical literature, biostatistics, and other components of the research process. A detailed schedule of topics is included in the course schedule below.

VII. Instructional Methods & Activities
Students will participate in class mainly through active group discussion, problem-based learning, <u>team-based learning</u>, and both individual and group presentations. Slideshows and lectures will be used only minimally, and students should not rely on the content of slideshows or course notes as sufficient for success in this course.

Most learning in this course will occur through guided exploration and guided self-discovery of concepts. Students should expect pre-class work, usually in the form of reading primary medical literature articles (or excerpts from articles) to prepare them for active participation in class. Students are expected to come to class having completed the pre-class assignment and prepared to participate in the day's activities. *Assigned pre-class work **will** be assessed as part of students' grades.*

For midterm and final exams, students should expect to pre-read an article from primary medical literature, and exam questions will be based on that article. Students will be given a copy of the article to use during the exam.

Students must have basic computer proficiency to be successful in this class.

VIII. Evaluation & Grade Assignment

iRAT/tRAT quizzes	100
Midterm Exam	100
Final Exam	100
Journal Club Presentation (includes written portion)	50
Faculty & Peer evaluations of participation & professionalism	25

Letter grades are determined as follows:

> 90% - 100% = A
> 80% - 89% = B
> 70% - 79% = C
> 60% - 69% = D
> 0% - 59% = F
> Grade percentages will be rounded to the nearest whole number.

This course may include additional group and/or individual graded assignments or quizzes which may be announced or <u>unannounced</u>.

Exam dates are scheduled in the course syllabus and will only be changed in the event of a University closure or other emergency.

Late submission of any assignment will result in a penalty as specified in the activity description. Late submission of any quiz will result in zero (0) points for the quiz.

iRAT/tRAT quiz scores will consist of both individual and team quiz scores. Students who do not turn in an iRAT quizz or score a zero for an iRAT quiz will receive a zero for the corresponding tRAT, also.

Midterm grades will be posted online for students to view via Banner. Midterm grades indicate a student's status at mid-semester only and do not indicate the final performance outcome of a student.

Exam questions may be multiple-choice, fill-in-the-blank, short-answer, case- or case-based discussion, essay, or any other format deemed appropriate by course instructors. Exams may cover material not covered during class (outside readings and assignments, skills from prior courses). Exams will be individual work only.

Exams will be issued using ExamSoft unless otherwise announced by course instructors. All students are required to download exams prior to the date of the scheduled exam. Under no circumstances may a student open an ExamSoft exam except during the scheduled exam time and at the scheduled exam location. Scratch paper and any required materials will be issued on the day of the exam and all students are required to sign and return scratch paper and other materials to the exam proctor prior to leaving the room. Students must verify successful upload of their exam or final exam closeout with the exam proctor prior to leaving the room. Students may not have phones, watches, or any materials not explicitly permitted by the course instructor on their person while taking exams.

Barring unexpected events, exam results should be available by the day following the exam date. All other evaluations and scores will be given to students within 1 week of the assessment or assignment due date. Exams may be returned to the student at the discretion of the course coordinator. The course coordinator is available to review exams with students during office hours or by appointment. Students who wish to challenge questions must do so within 1 week of scores being returned and should do so in writing. The result of challenges will be decided at the sole discretion of the course instructors.

Student Success Policy:
https://www.ulm.edu/pharmacy/documents/ospa/earlyintervention.pdf

Remediation Policy:
https://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 & Materials

No textbook is required for this course. Students must use a variety of literature sources including but not limited to: primary literature found through ULM School of Pharmacy Library Resources and clinical guidelines found from the originating organizations. Required texts not available to the student through the ULM library will be provided via Moodle. Course instructors may but are not required to post other required readings to Moodle.

B. Attendance Policy

This course relies heavily upon active participation in class, for which prompt and consistent attendance is imperative. Students should be in class on time and prepared to complete quizzes and participate in active discussion. If for whatever reason, a student anticipates missing or being late to class, that student should inform the course instructor as soon as possible *before* being absent from or late to class. Repeated tardiness and absence <u>may affect a student's professionalism grade</u>.

This course follows the ULM College of Pharmacy Excused Absence Policy (see http://www.ulm.edu/pharmacy/documents/ospa/excusedabsence.pdf). Note that the course coordinator is the only person who can grant an excused absence.

C. Make-Up Policy

Any student missing a graded exercise (exam, quiz, in-class activity, presentation, etc.) *must* contact the course instructor prior to the graded exercise. If a student cannot contact the course instructor prior to the graded exercise, the student must contact the coordinator within 24 hours of the graded exercise. Provided that this policy is followed, *and* an excused absence is granted, the graded exercise may be made up.

Make-up graded assignments may be at a different difficulty than the original assignment. Failure to attend a scheduled make-up will result in a zero (0) point grade for the exercise.

D. Academic Integrity

Students must observe ULM published policies on Academic Dishonesty (see the ULM *Student Policy Manual* – http://ulm.edu/studentpolicy) and the College of Pharmacy published policy on *Professional and Ethical Conduct*. Students who violate academic integrity will be given a zero for the associated graded activities.

E. Course Evaluation Policy

At a minimum, students are expected to complete online course evaluations as well as any evaluation administered in class by the College of Pharmacy.

Changes to this class rely on student feedback. Therefore, individual feedback is encouraged throughout the course.

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.

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 orderly to the appropriate stairwell and exit the building. The meeting place for this class will be at the ULM College of Pharmacy sign on the lawn in front of the Bienville building. Under no circumstances is the elevator to be used for emergency evacuation. Any student needing assistance should notify the professor immediately.

Students are encouraged to sign up for ULM automatic emergency alerts.

H. Course-Specific Policies

Students are responsible for all information on Moodle and instructor websites. Students are expected to check these sources regularly to access class materials, required readings, assignments, and other information necessary for this course. Course announcements may be made in class or by email; students are responsible for course announcements made by either of these methods.

I. Physical Location/Address

Federal regulations require determination and verification of every student's physical location while enrolled in classes (where they are physically located while taking classes), regardless of 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-proc.ec.ulm.edu/PROD/bwgkogad.P_SelectAtypUpdate). Students should do this by the end of the first week of classes.

J. Requirements for Registered Pharmacist (R.Ph.) License

This course is a requirement for the Doctor of Pharmacy 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 are 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. Course Schedule
Course Meeting: TR 0800-0915
Course Location: P2 classroom (202), Active Learning Classroom (201)

Week	Day	Topic/Pre-Reading	Location
1	T 8/22	**Introduction to Research** Pre-Class: *None*	201
	R 8/24	**Background, Rationale, & Objectives** Pre-Class: MERIT-HF, AMPLIFY, CARAVAGGIO	201
2	T 8/29	**Randomized Controlled Trials** Pre-Class: AIM-HIGH, NN1436-4383	201
	R 8/31	**Validity & Bias** Pre-Class: PARADIGM-HF	201
3	T 9/5	**Outcome Measures** Pre-Class: ILLUMINATE, TESLA, FOURIER	201
	R 9/7	**Inclusion & Exclusion** Pre-Class: SOLVD, CONSENSUS, PROactive	201
4	T 9/12	**Describing Data** Pre-Class: PLATO	201
	R 9/14	**Comparing Data** Pre-Class: NICE-SUGAR	201
5	T 9/19	**Comparing Data 2** Pre-Class: CANVAS	201
	R 9/21	**Visualizing Data** Pre-Class: PLATO, CANVAS, NICE-SUGAR	201
6	T 9/26	**Calculations Practice** Pre-Class: *None*	201
	R 9/28	**Review/Midterm Exam Practice** *Pre-Class: None* *Midterm Article Announced*	201
7	T 10/3	*****Midterm Exam***** *Midterm grade cutoff*	202
	R 10/5	**Clinical Significance** Pre-Class: *None*	201
8	T 10/10	**Choosing Statistical Tests** Pre-Class: *None*	201
	R 10/12	*Fall Break*	
9	T 10/17	**Alternative Methods & Comparisons** Pre-Class: *None*	201
	R	**Observational Studies**	201

	10/19	Pre-Class: *None*	
		Midterm grades due 10/19	
10	T 10/24	**Discussing & Critiquing Studies** Pre-Class: None	201
		Last day to drop with a "W"	
	R 10/26	**Discussing & Critiquing Studies** Pre-Class: *None*	201
11	T 10/31	**Meta-Analyses, Systematic Reviews, & Clinical Guidelines** Pre-Class: *None*	201
	R 11/2	**Journal Clubs** Guest Journal Club Presentation Pre-Class: *None*	201
12	T 11/7	**Guided Analysis & Critique** Pre-Class: *None*	201
	R 11/9		
13	T 11/14	**Journal Club Presentations** Pre-Class: *None*	202
	R 11/16		
14	T 11/21	**Journal Club Presentations-Overflow** **Final Exam Q&A** *Team Final article announced*	201
	R 11/23	*Thanksgiving Day*	
15	T 11/28	**Team Final Exam** *Individual Final article announced*	201
		Individual Final Exam (TBA)	