I. Contact Information
Gregory W. Smith, Pharm.D. (Course Coordinator)
Office: Bienville 130-A, Drug Information Center
Phone: 318-342-1711
Email (preferred): grsmith@ulm.edu
Office hours: Posted

Scott Baggarly, RPh, MBA, PhD
Office: Bienville 261
Phone: 318-342-3020
Email (preferred): baggarly@ulm.edu
Office hours: Posted

Bryan Donald, Pharm.D.
Office: Bienville 125
Phone: 318-342-1903
Email (preferred): donald@ulm.edu
Office hours: Posted

II. Course Prerequisite
Current Pharmacy Enrollment Standing

III. Course Description
This course is designed as an orientation to relevant primary, secondary and tertiary resources used to provide drug information for clinical questions, and associated professional responsibilities. In addition, the course will include information on study designs, biostatistics, and introduction to clinical literature evaluation.

The application of timely and rigorously analyzed healthcare literature is essential to formulating and implementing optimum drug therapy policy and decisions. This course will assist in developing skills needed to retrieve relevant literature, evaluate the merits of findings in the literature, and then applying those found to be scientifically sound to the clinical management of patients. 3 cr.

IV. Curricular Objectives and Outcomes
Upon completion of the course, the student should be able to meet the following School of Pharmacy Educational Outcomes and Competencies (based upon outcomes from the Center for the Advancement of Pharmacy Education (CAPE):

**Foundational Knowledge**
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.

**Essentials for Practice and Care**
2. 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.


**Approach to Practice and Care**
3. Problem solving – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

3.6 Communication – Effectively communicate verbally and nonverbally when interacting with individuals, groups, and organizations.
IV. Personal and Professional Development

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.

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

4.3 Innovation and entrepreneurship – Engage in innovative activities by using creative thinking to envision better ways of accomplishing professional goals.

4.4 Professionalism – 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 and Outcomes

Upon completion of this course, the student will be able to:

• Describe the role and value of the pharmacist as a drug information provider.
• Describe the rationale and approach of using evidence-based medicine.
• Describe and give examples of the three major sources of drug information: references and texts, secondary literature sources and the primary literature.
• Demonstrate the effective use of commonly available print and computer-based drug information resources.
• Perform effective, efficient Internet searching for drug information.
• Develop effective literature search strategies.
• Develop meaningful clinical questions to assist with literature searching.
• Locate and utilize primary literature.
  o Identify the parts of an article: abstract, introduction, methods, results, discussion, and conclusion
  o Identify which journals are considered highly reputable
  o Utilize primary literature to answer drug information questions
• When asked a drug information question:
  o Determine the actual information requested
  o Obtain appropriate background information
  o Determine what resources are appropriate to answer the question
  o Formulate an appropriate response after critically evaluating the available resources
  o Document references in the style consistent with the uniform requirements for manuscripts submitted to biomedical journals
• Explain what constitutes an Adverse Drug Event
• Explain the approval process for investigational drugs
• 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
• Interact productively in team-based activities

VI. Course Topics

History of drug information centers, role of the drug information specialist, poison control centers, tertiary resources (texts, Internet information resources, mobile resources), modified systematic approach to drug information, secondary databases (PubMed-Medline, OVID, IPA, EBSCO and other library databases, etc), search strategies for secondary databases, drug information question formulation and response process, adverse drug events, investigational drug approval process, types of variables, types of data, descriptive vs. inferential statistics, measures of central tendency, measures of variability, data distributions, confidence intervals, data presentation, hypothesis testing, power, Type I and Type II Errors, one- and two-tailed hypotheses, p-values, clinical vs. statistical significance, parametric vs. non-parametric statistics, and the Chi-square test, z-test, t-tests (one-sample, two-sample, and paired), ANOVA, F-test, and post-hoc comparisons.

VII. Instructional Methods and Activities

Instructional methods may include: traditional lectures, distance learning, in-class discussion of journal articles, small group discussion, problem-based learning, group projects/presentations, individual projects/presentations, lectures/presentations via Moodle, independent study and assignments/exercises completed in or out of the classroom. Active participation is required during classroom and group activities, and will be moderated by the instructor.
VIII. Evaluation and Grade Assignment

- There will be three examinations, including a final.
- Exams I and II will be administered in an OSDIE format, which is an acronym for Objective Structured Drug Information Examination. This written, practical-style exam is administered as a series of drug information requests and will be performed in the presence of an instructor. Each OSDIE will test the student’s ability to locate answers to typical drug information questions using tertiary, secondary and primary literature sources. Exam I: OSDIE will cover tertiary electronic resources and Exam II: OSDIE will cover answering clinical questions using tertiary, secondary and primary electronic sources. Students will demonstrate their ability to perform pertinent focused searches for drug information answers to clinical questions. Each clinical situation is selected from a variety of common problems that are typically seen in a variety of clinical pharmacy settings.

OSDIE Grades - Each student will be evaluated on the basis of their written response to the questions and their technique in finding the correct answer. The student must obtain at least 70% on each OSDIE in order to pass this course. In the event that a student does not obtain at least 70% on the OSDIE, he/she will have one additional attempt to obtain a passing score. These two scores will be averaged and that average will be their grade for the OSDIE. Only one exam date will be offered, which will be at the course coordinator’s discretion.

Each OSDIE is worth a total of 100 points and the point breakdown is as follows:

Exam I - OSDIE:
There will be sets of short-answer questions similar to class exercises. (95 possible points)
Answers will be considered correct or incorrect. Incorrect answers will receive zero points.
There will be 5 total points assigned for professionalism, including:
- Appropriate dress, including personal lab coat and appropriate identification
- Arriving on time properly prepared
- Following test instructions
- Other professional behavior

Exam II - OSDIE:
There will be short sets of questions and long scenario questions worth 95 points assigned based on search strategy & correct answers; 5 points assigned for professionalism based on the above criterion.

- The final exam will be include comprehensive material and administered by ExamSoft®.
- A written assignment, which is a response to a Drug Information Question, will be worth 100 points.
- Quizzes or assignments may be given, announced or unannounced, as deemed necessary by each faculty member. Any points assigned to quizzes or assignments will be added to the total points available for the course. Quizzes may be administered by ExamSoft®, Moodle or in written format.
- Students wishing to review their exams must do so within 2 weeks of date the test scores are posted. During a review session, students may not make copies or transcribe any information from the exams.
- 30 course points are assigned based on participation/attendance/professionalism. See the “Student Professionalism” section in this syllabus for expectations.

Semester Points:

<table>
<thead>
<tr>
<th>Graded Items</th>
<th>Point Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam (OSDIE) I</td>
<td>100</td>
</tr>
<tr>
<td>Exam (OSDIE) II</td>
<td>100</td>
</tr>
<tr>
<td>Final Exam (Comprehensive)</td>
<td>150</td>
</tr>
<tr>
<td>Professionalism (see below)</td>
<td>20</td>
</tr>
<tr>
<td>DI Question</td>
<td>100</td>
</tr>
<tr>
<td>Quizzes/exercises</td>
<td>variable</td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td>variable</td>
</tr>
</tbody>
</table>

**GRADING SCALE:** A = 89.5-100%; B = 79.5-89.4%; C = 69.5-79.4%; D = 59.5-69.4%; F = Less than 59.5%
Professionalism:
Components of the professionalism grade include attendance (unexcused absences, tardiness), group peer evaluation, compliance with policies, late or incomplete assignments, and class participation (discussion, behavior, inappropriate computer or cell phone use, and responses to clicker questions). The instructor may include additional items as appropriate and/or necessary.

The instructor reserves the right to administer unannounced “pop” quizzes throughout the semester. Points from the quizzes will be included as a component of the professionalism grade.

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.


### 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/](http://www.ulm.edu/studentpolicy/)). Additional class policies include:

**A Textbook(s), Materials and Hardware:**

Textbooks:


Required Hardware:
Laptops will be used extensively during this course, particularly for quizzes, in-class exercises and exams. Students’ laptops must meet the minimum requirement policy posted on the pharmacy web page here, [http://www.ulm.edu/pharmacy/laptop.html](http://www.ulm.edu/pharmacy/laptop.html) in order to participate at the highest level of performance in this course. See the Computer Ordering Guidelines for assistance. The technical support area of the School of Pharmacy will be available for connectivity issues relating to our wireless network. However, they will NOT be providing in-depth technical support for the computers. Any questions should be directed to Greg Andrews at 318-342-3418 or gandrews@ulm.edu.

**B Attendance Policy:** The ULM School of Pharmacy follows the University Attendance Policy. [http://catalog.ulm.edu/content.php?catoid=23&navoid=2875&hl=attendance&returnto=search](http://catalog.ulm.edu/content.php?catoid=23&navoid=2875&hl=attendance&returnto=search)

A student is expected to notify the Course Coordinator on the day the absence occurs. Notification, if at all possible, should occur prior to the absence. A voice message or email is an acceptable method of notification. The Course Coordinator will confirm notification received. If the Course Coordinator does not confirm receipt of notification, the student should notify them again. Upon return to classes, the student should bring a valid written excuse to the Office of Student and Professional Affairs (OSPA). OSPA will verify the validity of the excuse and will sign and date the excuse. The student should retrieve the validated excuse on the SAME day it is dropped off in the OSPA and, outside of class, approach the Course Coordinator with their documentation unless otherwise stated in the course syllabus. This should also occur on the SAME day the excuse is validated. The Course Coordinator is the only person who can grant an “Excused Absence”.

**C Make-up Policy:** Each student is expected to submit assigned coursework by the due date and to attend each examination at the date and time specified. Coursework or examinations missed due to excused absences will be
rescheduled at the discretion of the instructor. If a student cannot attend an exam, advance notice must be given directly to the instructor via email or phone call. If the student has a University-approved excuse for missing the exam, one opportunity will be given for a make-up exam. Failure to attend a scheduled make-up will result in a grade of zero (0) for that exam. Make-up exams will be prepared at a similar level of difficulty and may be given as a written exam (not necessarily the same format as the original). Students who miss the comprehensive final exam during the scheduled time will receive an “I” for the course in accordance with University and School of Pharmacy policies and procedures.


D Academic Integrity: Faculty and students must observe the ULM published policy on Academic Dishonesty (see the ULM Student Policy Manual – http://www.ulm.edu/studentpolicy/). All students must observe the ULM School of Pharmacy Code of Ethical and Professional Conduct - http://www.ulm.edu/pharmacy/documents/ospa/codeofconduct040617.pdf. Students are expected to work independently on examinations and assignments unless it is specifically described by the instructor as a group activity. Academic misconduct includes, but is not limited to:

- Any use of resources other than your own recollection and reasoning ability on an examination unless access to the resource is authorized by the instructor in advance.
- The inappropriate use of electronic or wireless technology (including but not limited to cell phones, PDA’s, or pagers) during an examination.
- Possessing or using any examination question previously used in this course.
- The attempt to reconstruct an examination after it is taken with the intent to share with other students.
- Sharing information about an examination with students who have not taken the exam.

Written reports must adequately reference the work of others; plagiarism is considered academic misconduct. Any student suspected of dishonesty will receive a zero (no credit) for that assignment or examination, and will be reported to the School of Pharmacy Dean’s Office with subsequent actions as per University regulations and policy.

E Course Evaluation Policy: At a minimum, students are expected to complete the on-line course evaluation to provide anonymous, constructive, specific comments regarding the course at the end of the semester. Additional assessment opportunities may also be offered. No faculty will be given access to the results until after final grades are due.

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 School’s technical standards and policies concerning students with special needs (http://catalog.ulm.edu/index.php?catoid=21). 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 sites: http://www.ulm.edu/shs and http://ulm.edu/studentaffairs/. Students with special needs requiring accommodations MUST follow the process described at 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 of these 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

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 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.

H Discipline/Course Specific Policies: Students are to exhibit professional behavior at all times. This includes being prepared for class, being seated and quiet when class is to begin, participating actively and reliably in-group activities, and communicating respectfully and articulately with others. Student integrity is an important part of professionalism. As such, a grade of zero will be assigned to any examination or assignment on which a student is found to have cheated (this includes plagiarism). Failure to adhere to University, School of Pharmacy, and class policies or Academic Integrity will result in disciplinary action in accordance with University policy.

I Electronic Device Policy: All cell phones must be turned off and put away during class. Students must not use class time to check email, social media or to text message. Computers may be used during class to view the slides and take notes; however, use of the Internet will not be allowed with the exception of specific web-based resources required for class activities.

The use of cell phones is not allowed in the classroom during examinations or quizzes. 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 found to be in possession of a cell phone or such devices during an examination or quiz will be considered to have committed an act of academic dishonesty and will be charged and brought before the committee on ethical and professional conduct. If a student has a need to be notified during an emergency situation during class, he/she should leave the telephone number of the Office of Student and Professional Affairs, 318-342-3800, with the person who may need to contact them.

Tentative Course Schedule on the following page:
## Tentative Course Schedule

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

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/22-Tu</td>
<td>Introduction/Syllabus/Drug Information Services</td>
</tr>
<tr>
<td>2</td>
<td>8/24-Th</td>
<td>Evidence-Based Medicine 1* (Review)/ EBM 2 (Systematic Approach)*</td>
</tr>
<tr>
<td>3</td>
<td>8/29-Tu</td>
<td>Drug Information Resources*/ Text-based Tertiary*</td>
</tr>
<tr>
<td>4</td>
<td>8/31-Th</td>
<td>Tertiary – Electronic – (Facts/Lexi-comp)</td>
</tr>
<tr>
<td>5</td>
<td>9/5-Tu</td>
<td>Tertiary – Electronic – (Micromedex)</td>
</tr>
<tr>
<td>6</td>
<td>9/7-Th</td>
<td>Tertiary – Electronic – (Clinical Pharmacology) Dr. Donald</td>
</tr>
<tr>
<td>7</td>
<td>9/12-Tu</td>
<td>Tertiary – Drug Interactions Dr. Donald</td>
</tr>
<tr>
<td>8</td>
<td>9/14-Th</td>
<td>Tertiary – Internet Health Information / Mobile Apps</td>
</tr>
<tr>
<td>9</td>
<td>9/19-Tu</td>
<td>Tertiary – Internet Health Information / Review ---END OF EXAM I MATERIAL</td>
</tr>
<tr>
<td></td>
<td>9/21-Th</td>
<td><em><strong><strong>EXAM I: OSDIE (100pts)</strong></strong></em></td>
</tr>
<tr>
<td>10</td>
<td>9/26-Tu</td>
<td>Internet Resource Evaluation* OFF - OUT-OF-CLASS ASSIGNMENT</td>
</tr>
<tr>
<td>11</td>
<td>9/28-Th</td>
<td>Primary Literature - Study Design*</td>
</tr>
<tr>
<td>12</td>
<td>10/3-Tu</td>
<td>Primary Literature – Basics for Interpretation*/TTD</td>
</tr>
<tr>
<td>13</td>
<td>10/5-Th</td>
<td>Primary Literature – Basics for Interpretation* - presentations</td>
</tr>
<tr>
<td>14</td>
<td>10/10-Tu</td>
<td>Secondary Resources – Pubmed</td>
</tr>
<tr>
<td>15</td>
<td>10/12-Th</td>
<td>Secondary Resources – EBSCO and others</td>
</tr>
<tr>
<td>16</td>
<td>10/17-Tu</td>
<td>Plagiarism/Professional Writing/Citing &amp; Referencing * OFF - OUT-OF-CLASS LECTURE</td>
</tr>
<tr>
<td>17</td>
<td>10/19-Tu</td>
<td>OFF – FALL BREAK</td>
</tr>
<tr>
<td>18</td>
<td>10/24-Tu</td>
<td>Evidence-based Resources – Guidelines/Reviews/EBM –DIQ DRAFT DUE</td>
</tr>
<tr>
<td>19</td>
<td>10/26-Th</td>
<td>Search Strategies –PICO/DIQ Scenarios</td>
</tr>
<tr>
<td>20</td>
<td>11/2-Th</td>
<td><em><strong><strong>EXAM II: OSDIE (100pts)</strong></strong></em></td>
</tr>
<tr>
<td>21</td>
<td>11/9-Th</td>
<td>Monographs* / Investigational Drugs* OFF - OUT-OF-CLASS LECTURE DIQ FINAL PAPER DUE</td>
</tr>
<tr>
<td>22</td>
<td>11/14-Tu</td>
<td>Stats* Dr. Baggarly</td>
</tr>
<tr>
<td>23</td>
<td>11/16-Th</td>
<td>Stats* Dr. Baggarly</td>
</tr>
<tr>
<td>24</td>
<td>11/21-Tu</td>
<td>Stats* Dr. Baggarly</td>
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<tr>
<td>25</td>
<td>11/23-Th</td>
<td>OFF - THANKSGIVING</td>
</tr>
<tr>
<td>26</td>
<td>11/28-Tu</td>
<td>Stats* Dr. Baggarly</td>
</tr>
<tr>
<td>27</td>
<td>11/30-Th</td>
<td><em><strong><strong>FINAL EXAM (150pts)</strong></strong></em> 10am – 12pm</td>
</tr>
</tbody>
</table>

Comprehensive final exam material is indicated by an asterisk (*) next to the lecture topics.