

Therapeutics VIII (Hematology/Oncology)

PHRD 5047

CRN# 64549

I. Contact Information

Course Coordinators:

Name: Jill M. Comeau PharmD, BCOP

Associate Professor, School of Clinical Sciences

Gratis Assistant Professor of Internal Medicine, Feist-Weiller Cancer Center,

LSU-Health Shreveport

Phone: 318-342-1814

Email: comeau@ulm.edu

Office Location: Shreveport Campus 104

Office Hours: Tuesday and Thursday 9 am-2 pm (may vary based on clinic schedule)

Preferred Method of Communication: Email

Name: Girish Shah, PhD

Professor, School of Basic Pharm & Tox Sciences

Phone: 318-342-1693

Email: shah@ulm.edu

Office Location: Bienville Room 300

Office Hours: Monday-Thursday 3pm-5:30 pm

Preferred Method of Communication: Email

Course Instructors:

Name: Jameshia Below, PharmD

Assistant Professor, School of Clinical Sciences

Phone: 318-342-1904

Email: below@ulm.edu

Office Location: Bienville Room 109

Office Hours: Tuesday 8am-12pm, Wednesday 10am-12 pm and 1pm-3pm, Friday 8am-10am (may vary based on clinic schedule)

Preferred Method of Communication: Email

Name: Khalid El Sayed, PhD

Professor, School of Basic Pharm & Tox Sciences

Phone: 318-342-1725

Email: elsayed@ulm.edu

Office Location: Bienville 324

Office Hours: Monday-Thursday 10am-1pm

Preferred Method of Communication: Email

Name: Keith Jackson, PhD

Associate Professor, School of Basic Pharm & Tox Sciences

Phone: 318-342-1390

Email: kjackson@ulm.edu

Office Location: Bienville 370

Office Hours: Monday-Thursday 12pm-2pm (by appointment)

Preferred Method of Communication: Email

II. Course Pre-requisites/Co-requisites

Pre-requisites - PHRD 5022

Co-requisites – None

III. Course Description

3 cr. Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications where applicable) as they apply to drug therapy management of disease.

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*.

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).

2.3. 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.

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.

ACPE APPENDIX 1

CLINICAL SCIENCES

1CS01 Clinical Pharmacokinetics

1CS07 Patient Safety

1CS08 Pharmacotherapy

1CS09 Public Health

1CS10 Self-Care Pharmacotherapy

PHARMACEUTICAL SCIENCES

1PS03 Medicinal Chemistry

1PS04 Pharmaceutical Calculations

1PS06 Pharmacogenetics/genetics

1PS08 Pharmacology

V. Course Specific Objectives and Outcomes

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

- A. Demonstrate knowledge of the medical chemistry and pharmacology related to chemotherapy and other medications used to treat cancer
- B. Explain the pharmacogenomics and pharmacogenetics related to medications that treat cancer
- C. Identify the basic epidemiology, etiology, and patient presentation of the various cancers and anemias.
- D. Discuss common modalities used to treat cancer, supportive care, and anemia including but not limited to: surgery, radiation, chemotherapy, medication, and other medical procedures.
- E. Given a patient case, develop a treatment plan for a patient with cancer as well as addressing any supportive care needs.
- F. Interpret the necessary laboratory values and choose an appropriate treatment for a patient diagnosed with anemia.
- G. Identify the signs and symptoms of an oncologic emergency and describe appropriate treatment.
- H. Define bone marrow transplant and the potential risks and benefits associated with this therapy.

VI. Course Topics

- A. Cancer chemotherapy/Introduction to Antineoplastics
 1. Alkylating agents
 2. Antimetabolites/Nucleoside analogs
 3. Antitumor Antibiotics
 4. Antimitotic/Natural products/Hormonal therapy
 5. Angiogenesis inhibitors/Antibody-cancer immunotherapy
 6. Targeted therapy
 7. Immunotherapy
 8. Pharmacogenomics and pharmacogenetics
- B. General Principles of Cancer Treatment
 1. Breast Cancer
 2. Lung Cancer
 3. Colorectal Cancer
 4. Prostate Cancer
 5. Lymphomas
 6. Cervical Cancer Screenings
 7. Acute and Chronic Leukemias
 8. Melanoma
 9. Myeloma
 10. Supportive Care: chemotherapy-induced nausea and vomiting, growth factors, palliative care, bone metastases
 11. Oncologic Emergencies: spinal cord compression, superior vena cava syndrome, tumor lysis syndrome,
 12. Hematopoietic Stem Cell Transplant (HSCT)
- C. Anemia: iron deficiency, B12 deficiency, folic acid deficiency, and sickle cell disease

VII. Instructional Methods and Activities

- A. May include technology platforms:

1. Traditional lectures (PowerPoint, Zoom, Poll Everywhere)
2. Distance learning (PowerPoint, Zoom, Poll Everywhere)
3. Practice exam questions (PowerPoint, Zoom, Poll Everywhere)
3. Small group discussions
4. In-class discussion of patient cases (PowerPoint, Zoom, Poll Everywhere)
5. Pre-recorded lectures (PowerPoint, Zoom)
6. Reading assignments

VIII. Evaluation and Grade Assignment

There will be three exams and a final exam. **The final exam will be comprehensive.** Each exam will be worth 100 points. There will be one in-class activity worth 20 points. **The total number of points for this class is 420.**

*Quizzes/assignments will be given as deemed necessary by each faculty member. The points available from these quizzes and assignments will be added to the denominator for the total number of points available from the course, and the course grade determined accordingly

- **Exam grades will be posted within 1 week of the administration of the exam. If there is an issue with a question that takes longer than 1 week to resolve, the posting of grades will be delayed, and the class will be notified via email.**
- 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 Coordinators.
- Normal laboratory values will be provided for all questions unless otherwise specified during class.
- Information acquired from previous portions of the course and 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. 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. **If the faculty member is at a distance campus, the student may review the test when the faculty member is in Monroe or with facilitation through another faculty member teaching in the course.** 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 via email. (See below)
- Exams will be administered using Exam Soft; all students are required to download the exams before the date of the scheduled exam. If a student cannot take the exam on the scheduled date due to a university-approved absence with appropriate documentation, 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 allowed and the notes section will be available in Exam Soft. No 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 before leaving the classroom.
- **Students wishing to review their exams with the course coordinators or with a specific faculty member may do so at any time but challenging questions must follow the timeline documented below.**
- Problems or issues with a question should be first directed, via e-mail, to the person who wrote it. 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 4 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 or the deadline for grade submission to the registrar.

- 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.
- The first 5 students who email Dr. Comeau a picture of their favorite travel destination will receive 2 points added to their lowest exam grade.
- Mid-term grades will be posted online 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 will not be accepted and the student will receive a zero for that grade.**

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/currents.html>

Remediation Policy: <http://www.ulm.edu/pharmacy/currents.html>

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. 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. Brunton LL, Lazo JS, Parker KL, eds. *Goodman and Gilman's, The Pharmacological Basis of Therapeutics*, 11th ed, McGraw-Hill, 2006. ISBN 9780071422802 (available through AccessPharmacy)
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. (This text is available via our LW&W Health Library collection.)
4. 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 **BOTH** 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 a valid** University excuse, he/she must speak directly with the course coordinator, as soon as possible. **BOTH** course coordinators 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 documentation for details. In case of an 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 makeup 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/currents.html>
- 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/currents.html>).

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.

- 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 student's 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 Doctor of Pharmacy degree (Pharm.D.) 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 the requirements.

X. Course Schedule - *subject to change at the discretion of the Course Coordinator

Monday and Wednesday 8:30-9:45 am

Bienville Room 170

Date	Topic	Instructor	Exam Points
Jan 17	Introduction to Hematology and Oncology	Comeau	20

Jan 22	Alkylating agents, Anthracyclines –highlighting cyclophosphamide, melphalan, doxorubicin, etoposide	El Sayed	20
Jan 24	Antimetabolites, Hypomethylating Agents, Platinums-highlighting 5-FU, cytarabine, methotrexate, carboplatin, cisplatin.	El Sayed	20
Jan 29	Taxols, Topoisomerase inhibitors, Hormonal agents-highlighting paclitaxel, docetaxel, irinotecan, etoposide, vincristine, tamoxifen, aromatase Inhibitors, LHRH Agonists. Additional reading material will be provided	El Sayed	20
Jan 31	Targeted therapy, Immune therapy, Other-highlighting Tyrosine Kinase Inhibitors, VEGF Inhibitor, Monoclonal Antibodies. Additional reading material will be provided	El Sayed	20
Feb 5	Exam I (100 pts)		
Feb 7	Alkylating Compounds/Platinum Compounds	Shah	16
Feb 12	Mardi Gras		
Feb 14	Antimetabolites	Shah	14
Feb 19	Microtubule targeting Drugs/Natural Products	Shah	14
Feb 21	Antitumor Antibiotics	Shah	14
Feb 26	Hormonal Products	Shah	14
Feb 28	Angiogenesis Inhibitors/ Immunotherapy	Shah	14
Mar 4	Immunotherapy/Cancer Vaccines/Biological Response Modifiers	Shah	14
Mar 6	Exam II (100 pts)		
Mar 11	Targeted Therapies	Jackson	16
Mar 13	Supportive Care	Comeau	16
Mar 18	Lung Cancer	Comeau	16
Mar 20	Breast Cancer	Comeau	16
Mar 25	Colon Cancer/Melanoma	Comeau	18
Mar 27	Prostate Cancer/Cervical Cancer Screening	Below	18
Apr 1	Spring Break		
Apr 3	Spring Break		
Apr 8	Leukemia ***ON FINAL EXAM ONLY***	Comeau	12
Apr 10	Lymphoma ***ON FINAL EXAM ONLY***	Comeau	12
Apr 15	Exam III (100 pts)		
Apr 17	Multiple Myeloma	Comeau	10
Apr 22	Hematopoietic Stem Cell Transplant (HSCT)	Below	12
Apr 24	Palliative Care	Comeau	12
Apr 29	Anemia	Comeau	12
May 1	Sickle Cell Disease (In Class Activity) 20 points (as part of final grade)	Below/Comeau	
May ?	Final Exam (100 pts)*	Comeau	
<p>* Final Exam: 70 points on “New Material” and 30 points on “Old Material” New Material: Refer to syllabus above Old Material Point Distribution: El Sayed 6, Shah 12, Jackson 2, Comeau 8, and Below 2</p>			