

HEMATOLOGY ONCOLOGY MODULE: PHRD 5035, CRN 62145**I. Contact Information**

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II. Course Pre-requisites/Co-requisites

Pre-requisites - PHRD 4027, PHRD 4035, PHRD 4056, PHRD 4074, PHRD 4081, and PHRD 4083

Co-requisites - None

III. Course Description

PHRD 5035. Hematology/Oncology Integrated Module. 3 Credit Hours. Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics, and pharmacotherapy (including both prescription and non-prescription medications) as they apply to hematology and oncology drug therapy management.

IV. Curricular Objectives and 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).

2.3. 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.

V. Course Specific Objectives and Outcomes

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

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
- 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. Bone Marrow Transplant including calcineurin inhibitor and methotrexate pharmacokinetics
- C. Anemia: iron deficiency, B12 deficiency, folic acid deficiency, and sickle cell

VII. Instructional Methods and Activities

- A. May include including technology platforms:
1. Traditional lectures (PowerPoint, Kaltura, Kahoot!)
 2. Distance learning (PowerPoint, Kaltura, Kahoot!)
 3. Practice exam questions (PowerPoint, Kahoot!)
 3. Small group discussions
 4. In-class discussion of patient cases (PowerPoint)
 5. Pre-recorded lectures (PowerPoint, Kaltura)
 6. Reading assignments

VIII. Evaluation and Grade Assignments

There will be three exams and a final exam. **The final exam will be comprehensive.** Please refer to the class syllabus for point distribution per class on each exam.

Exam 1: 100 points

Exam 2: 100 points

Exam 3: 100 points

Final exam: 100 points

Total points for the course: 410

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

- During the exam, proctors will **NOT** answer any questions. If you would like to challenge a question, please go through the appropriate channels as listed below.
- **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 to challenge a question. Students will be allowed to review their exams after this period but will not be allowed to challenge a question.**
- Problems or issues with a question should be first directed, via e-mail, to the person who wrote it. The course coordinators 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 coordinators. Discussion of a dispute will occur only after the written query is submitted. Challenges of test questions for the first 3 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.

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 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 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.**

X. Tentative Course Schedule: Subject to change at the discretion of the course coordinators

Monday and Wednesday 10:00-11:15

Bienville Room 170

Date	Topic	Instructor	Exam Pts/Lecture
Jan 14	Introduction to Hematology and Oncology	Comeau	20
Jan 16	Alkylating agents, Anthracyclines –highlighting cyclophosphamide, melphalan, doxorubicin, etoposide	Jois	20
Jan 21	Martin Luther King Day		
Jan 23	Antimetabolites, Hypomethylating Agents, Platinums-highlighting 5-FU, cytarabine, methotrexate, carboplatin, cisplatin.	Jois	20
Jan 28	Taxols, Topoisomerase inhibitors, Hormonal agents-highlighting paclitaxel, docetaxel, irinotecan, etoposide, vincristine, tamoxifen, aromatase Inhibitors, LHRH Agonists. Additional reading material will be provided	Jois	20
Jan 30	Targeted therapy, Immune therapy, Other- highlighting Tyrosine Kinase Inhibitors, VEGF Inhibitor, Monoclonal Antibodies. Additional reading material will be provided	Jois	20
Feb 4	Exam I (100 pts)		
Feb 6	Alkylating Compounds/Platinum Compounds	Shah	14
Feb 11	Antimetabolites	Shah	14
Feb 13	Microtubule targeting Drugs/Natural Products/Hormonal products	Shah	14
Feb 18	Antitumor Antibiotics	Shah	14
Feb 20	Angiogenesis Inhibitors/Cancer Vaccines/ Immunotherapy/Biological Response Modifiers	Shah	16
Feb 25	Targeted Therapies	Shah	14
Feb 27	Targeted Therapies	Shah	14
Mar 4	Mardi Gras		
Mar 6	Mardi Gras		
Mar 11	Exam II(100 pts)		
Mar 13	Supportive Care	Comeau	18
Mar 18	Breast Cancer	Comeau	16
Mar 20	Lung Cancer	Comeau	16
Mar 25	Prostate Cancer/ Oncologic Emergencies	Cockerham	18
Mar 27	Melanoma/Cervical Cancer Screening	Comeau	16
Apr 1	Colorectal Cancer/Exam Review	Comeau	16
Apr 3	Exam III (100 pts)		
Apr 8	Leukemia	Comeau	10
Apr 10	Lymphoma	Comeau	10
Apr 15	Multiple Myeloma Brand Name Quiz (10 pts)	Comeau	10 for Myeloma lecture
Apr 17	Hematopoietic Stem Cell Transplant (HSCT)	Comeau	10
Apr 22	Spring Break		
Apr 24	Spring Break		
Apr 29	Anemia	Cockerham	10
May 1	Palliative Care	Comeau	10
May 7	Final Exam (100 pts)*		

* Final Exam: 60 points new material, 40 points old material.

New material: refer to syllabus above

Old material points: Jois 8, Shah 18, Cockerham 4, and Comeau 10