

COURSE TITLE: Oncology Pharmacy Practice

I. Contact Information

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II. Course Prerequisites/Co-requisites

Enrollment in the course requires third year pharmacy standing

III. Course Description

a. Catalog Description

PHAR 469. Oncology Pharmacy Practice Elective. 2 Cr. Appropriate therapy for hematological and oncologic disease states, supportive care, oncologic emergencies and critical care issues, pathophysiology, and the pharmacologic and physiochemical properties of medications. Preparation, distribution and administration of chemotherapy will also be covered. Prerequisites: Third year pharmacy standing.

b. Course Description and Rationale

This course will allow students to develop a better understanding of hematology and oncology patients. The course will start with a general review and then focus on many cancer types that will not be covered in PHAR 588 or that were not covered in-depth. This course will cover the pharmacology of the different classes of chemotherapeutic agents as well as biological agents used in targeted therapy and supportive care including anemia. Students will learn how to develop a treatment plan from a diagnosis including chemotherapy regimens and supportive care. The student will also gain knowledge in the preparation of chemotherapy and be able to discuss prevention and treatment of chemotherapy extravasations. The course will also cover diseases related to hyper- and hypocoagulation.

IV. Curricular Objectives and Outcomes

- a. This course will directly address the following College of Pharmacy competencies:**

1. Provide Comprehensive Patient Specific Pharmaceutical Care.
 - A. Evaluate the appropriateness of a given prescription or medication order based on patient and disease-specific factors.
 - i. Analyze the prescription regarding the medication, dose, delivery form, and duration of use as being appropriate for the patient and disease state.
 - b. Analyze and interpret information gathered to identify any drug-related problem.
 - 1) Assess the prescription for interaction potential, including interactions with other medications (both prescription and non-prescription), disease states, foods, and herbals.
 - 2) Determine availability and appropriateness of medications and dosage form.
 - 3) Identify appropriate duration of therapy for that disease state.
 - C. Develop and implement an evidence-based care plan. Identify goals of therapy that are individualized to the patient.
 - ii. Develop a plan of care that includes interventions to resolve drug therapy problems, achieve the goals of therapy, and prevent drug therapy problems.
 - iii. Develop a schedule to follow-up and evaluate the effectiveness of outcomes from drug therapies and assess any adverse events experienced by the patient.
 - iv. Evaluate patient outcomes with respect to the achievement of goals of therapy, patient adherence, patient safety, and the development of new drug therapy problems.
 - D. Document all activities involved with the provision of comprehensive patient specific pharmaceutical care.
2. Identify, Interpret, and Evaluate Literature Needed for the Provision of Drug Information and Pharmaceutical Care.
 - A. Draw appropriate conclusions from research results.
 - B. Assess the potential impact and implication of published information on current practices.
3. Think Critically.
 - A. Identify, retrieve, understand, analyze, synthesize, and evaluate information needed to make informed, rational, and ethical decisions.
 - i. Systematically gather, organize, and extract relevant information using a variety of methods and research tools.
 - ii. Analyze information within appropriate scientific, social, and clinical contexts.
 - a. Identify principles of organization and the logic of arguments.
 - b. Identify and test assumptions, biases, and prejudices implicit in arguments.

- c. Employ appropriate mathematical and statistical tools and electronic technology to analyze information.
 - d. Assess accuracy, soundness, fairness, significance, relevance, completeness, and persuasiveness of information, arguments, and sources. (consider difference between information & the information source)
 - iii. Synthesize information in order to draw conclusions, hypothesize, conjecture alternatives, or plan a course of action.
 - iv. Evaluate conclusions and solutions according to appropriate criteria, and revise as necessary.
 - v. Provide support for rationale, solutions, and results.
 - B. Solve complex problems that require an integration of one's ideas and values within a context of scientific, social, cultural, legal, clinical, and ethical issues.
 - i. Interpret problems within appropriate contexts.
 - ii. Prioritize problems based on identifiable criteria and standards.
 - iii. Apply systematic problem-solving strategies.
 - iv. Articulate and implement a defensible solution and apply appropriate criteria to monitor outcomes.
 - v. Implement modifications based on monitoring data.
 - C. Display habits, attitudes, and values associated with mature critical thinking.
 - i. Evaluate personal assumptions, biases, prejudices, and opinions.
 - ii. Display openness to new ideas and a tolerance for ambiguity.
 - iii. Display inquisitiveness and commitment to the pursuit of truth.
 - iv. Adopt multiple perspectives in personal thinking to avoid ethno-centricity and intolerance.
4. Demonstrate Appropriate Interpersonal, Professional, and Ethical Behaviors.
 - A. Maintain professional competence.
 - i. Continually strive to maintain knowledge and maintain professional competence.
 - ii. Continually assess his or her learning needs and develop the ability to respond appropriately.
 - B. Identify, analyze, and resolve ethical problems involved in pharmacy practice.
5. Demonstrate appropriate interpersonal, intergroup, and cross-cultural behaviors that promote respect and trust from peers, patients, and community members.

V. Course Specific Objectives and Outcomes

- a. Review the clinical pharmacology of anti-cancer agents
- b. Discuss the preparation and distribution of chemotherapy in the health care system

- c. Discuss the incidence, risk factors, survival, pathology, signs and symptoms, prevention, diagnosis, staging and prognosis, treatment and monitoring parameters of cancers less frequent cancer types
- d. Discuss supportive care issues related to care of the cancer patient
- e. Discuss oncologic emergencies related to care of the cancer patient

VI. Course Topics

Introduction to Antineoplastics and chemoprotectants

- Alkylating agents
- Antimetabolites/Nucleoside analogs
- Antitumor Antibiotics
- Antimitotic/Natural products
- Hormonal therapy
- Targeted therapy

Preparation, distribution and administration of chemotherapy

- Chemotherapy admixture
- Introduction to catheters

Specific Cancer Types:

- Myelodysplastic syndrome
- CNS tumors
- Multiple Myeloma
- Sarcomas
- Head and Neck
- Pancreatic
- Renal Cell
- Hepatocellular

Supportive Care:

- Nausea/Emesis
- Bone Marrow Suppression
- Anemia
- Chronic Pain Management
- Psychosocial/Palliative Care

Neutropenic Fevers and Infectious Complications

Oncologic Emergencies

- Tumor lysis syndrome (TLS)
- Superior Vena Cava Syndrome (SVC)
- Cord compression
- Extravasations
- Hypercalcemia

Critical Care in the Oncology Patient

- Veno-occlusive Disease (VOD)
- Disseminated intravascular coagulation (DIC)
- Diffuse alveolar hemorrhage (DAH)

Coagulation defects

VII. Instructional Methods and Activities

Lectures and case discussions with assigned outside reading.

VIII. Evaluation and Grade Assignment

There will be two examinations for the course, a midpoint and final exam. The student will also be graded on class assignments (Case presentations, etc.) and on active participation and quizzes.

Semester points	
Exam one	100 points
Exam two (final)	100 points
Patient Cases/Projects/Quizzes	100 points
Total Points	300 points

Exam Dates

Exam one: Week 6

Exam two (final): Week 14

Grading Scale	Letter Grade
90.0-100%	A
80.0-89.9%	B
70.0-79.9%	C
60.0-69.9%	D
<60.0%	F

Undergraduate mid-term grades will be posted on-line for students to view via Arrow. 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/>). Additional class policies include:

A. Textbook(s) and Materials:

1. DiPiro JT, Talbert RL, Yee G, et al. Pharmacotherapy: A Pathophysiological Approach. 6th edition, New York, Elsevier Science Publishing Co. Inc., 2005
2. Current primary literature relevant to course topics

B. Attendance Policy:

Class attendance is required. 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: (1) may prevent access to the classroom during regularly scheduled times; (2) may jeopardize a student's scholastic standing; and (3) may lead to suspension from the college or University. Students shall submit excuses for all class absences to professor within three class days after returning to classes. Professors shall accept an official University excuse. With the following exceptions instructors of record 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 this information to the Office of Student and Professional Affairs. 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:

Excused examination and quiz make-ups will be within one week of the student's return to class at the convenience of the instructor. Excused absences will be determined using the guidelines stated in the University Catalog.

D. Academic Integrity:

Faculty and students must observe the ULM published policy on Academic Dishonesty (see Page 4, *ULM Student Policy Manual* <http://www.ulm.edu/studentpolicy/>).

Cheating, plagiarism, or other inappropriate conduct will not be tolerated. Academic cheating includes but is not limited to the accomplishment or attempted accomplishment of the following:

1. Copying or obtaining information from another student's test paper.*
2. Using, during a test, materials not authorized by the person giving the test. **
3. Collaborating, conspiring, or cooperating during an in-class or take-home test with any other person by giving or receiving information without authority.
4. Stealing, buying, or otherwise obtaining all or part of an unadministered test.

5. Selling or giving away all or part of an unadministered test or any information concerning specific questions and items on an unadministered test.
6. Requesting, bribing, blackmailing, or in any other way causing any other person to obtain an unadministered test or information about an unadministered test or a test in the process of being administered.
7. Substituting for another student, or permitting any other person to substitute for oneself to take a test.
8. Submitting as one's own, in fulfillment of academic requirements, any work prepared totally or in part by another person.
9. Any selling, giving, or otherwise supplying to another student for use in fulfilling academic requirement any work.
10. Submitting artificially produced data or information in the place of descriptive, experimental, or survey results.
11. Any other devious means of securing an unearned grade in a non-credit course or in a course offered for credit.
12. Using, during a test, any electronic storage device, wireless and/or internet-based technology, or any other means that provides information not authorized for use during the testing period.

*A student looking on another student's paper is considered cheating.

**The presence on one's person (or in close proximity thereto) of a condensation of test information which could be regarded as a "cheat sheet" will be considered adequate evidence to establish cheating.

Plagiarism is the use of any other person's work (such work need not be copyrighted) and the unacknowledged incorporation of that work in one's own work offered for credit.

Censures (Penalties)

Academic dishonesty will result in a referral to Committee on Ethical and Professional Standards with a recommendation for a grade of "F" for the course and expulsion from the College. 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 on-line 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 College's technical standards and policies concerning students with special needs. ULM offers a variety of student services which are available through individual websites:

Student Success Center: <https://ulm.edu/cass>

Counseling Center: <https://ulm.edu/counselingcenter/>

Special Needs: <http://ulm.edu/counselingcenter/special.htm>

Student Health Services: <http://ulm.edu/studentaffairs>

G. Emergency Procedures: (Include appropriate emergency information)

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: Not Applicable

Course Schedule

Pharmacy 498 - Oncology Pharmacy Practice			
Day	Date	M-W 2:30-3:20	Room 170
		Topic	Instructor
T	13-Jan	Init Assessment/P'col	Cockerham/Cox
TH	15-Jan	Pharmacology	Cox
M	19-Jan	MLK Birthday	
T	20-Jan	Admixture	Cockerham
TH	22-Jan	Catheters	Cockerham
T	27-Jan	MDS	Cox
TH	29-Jan	Multiple Myeloma	Cox
T	3-Feb	CNS Cancers	Cockerham
TH	5-Feb	Pancreatic Cancers	Cockerham
T	10-Feb	Case Studies	Cockerham/Cox
TH	12-Feb	Sarcomas	Cockerham
T	17-Feb	Head & Neck Cancers	Cox
TH	19-Feb	Renal Cell Carcinoma	Cox
TH	26-Feb	Hepatocellular Carcinoma	Cox
T	3-Mar	Case Studies	Cockerham/Cox
TH	5-Mar	MIDTERM EXAM	
T	10-Mar	Nausea & Vomiting	Cox
TH	12-Mar	Bone Marrow Suppression	Cox
T	17-Mar	Pain Management	Cockerham
TH	19-Mar	Case Studies	Cockerham/Cox
T	24-Mar	Psychosocial/Palliative Issues	Cockerham
TH	26-Mar	Tumor Lysis Syndrome	Cockerham
T	31-Mar	Extravasation/Hypercalcemia	Cockerham
TH	2-Apr	Case Studies	Cockerham/Cox
T	7-Apr	Cord Compression/SVC	Cox
TH	9-Apr	VOD/DAH/DIC	Cox
T	21-Apr	Febrile Neutropenia	Cox
TH	23-Apr	Coagulopathies	Cockerham
T	28-Apr	Case Studies	Cockerham/Cox
TH	30-Apr	FINAL EXAM	

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