

PHAR 6784: Integrated Oncology

Course Syllabus
PDIII – Spring 2020
2.8 Credits



Course Web Site: <https://canvas.umn.edu/courses/162818>

Meeting Times & Locations

Day	Time	Duluth Room	Twin Cities Room
Mon	9:05 – 11:00	Life Sci 163	MT 1-451
Weds	9:05 – 9:55	Life Sci 163	MT 1-451
Weds 4/22, 4/29, & 5/06	9:05 – 9:55	Lib 410	WDH 7-135

Course Instructional Team

Faculty Office Hours: by appointment

	Duluth	Twin Cities
Course Director(s)	David Stenehjerm	Mark Kirstein
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Detailed Course Schedule

For a detailed course outline and schedule, see the document "Phar 6784 Integrated Oncology Schedule PD3 Spring 2020" on the Canvas site.

Overview of the course

Course content:

Integrated Oncology will focus on the etiology & molecular biology of tumorigenesis, medicinal agents & pharmacology of anticancer agents, treatment of the most common cancers, supportive care of the patient with cancer, and social and ethical considerations of the treatment of the patient with cancer including end of life directives.

Course format:

This will be a lecture-based course with frequent assessment to ensure students understand the course concepts. The majority of the course will be taught by College of Pharmacy faculty. The supportive care topics and chemotherapy orders exercise will be taught by guest lecturers. The assessments include 4 scheduled quizzes, in-class pop quizzes, and 3 exams. Students will apply their knowledge by writing a paper on a cancer not specifically covered in the course (e.g., renal cell carcinoma, melanoma, etc.). Students should expect to spend 10-15 hours a week on this course.

Prerequisites

- PD3 student in good academic standing

Students may find it helpful to review the following topics:

Principles of Biochemistry

Lipids (Structure/Function)

Proteins (Folding/Conformation)

Cellular Physiology, Molecular Biology, Genetics

Cell Biology (signal transduction, DNA replication, transcription, protein translation, cell cycle, apoptosis)

Immunology

Tumorigenesis

Angiogenesis
Genetics principles
Anatomy/Physiology (GI tract, pulmonary, hormone and feedback regulation)

Course Materials

Required

- Evidence based treatment guidelines (provided in class, used as reference)
- Assigned patient cases (provided in class)

Optional (use as reference):

- e-Textbook (optional): Applied Therapeutics: The clinical use of drugs 11th ed., 2018
- Print (optional): Pharmacotherapy: A pathophysiologic approach 10th ed, 2017

Computer/Technology Requirements

- Canvas: This course will use Canvas to distribute resources and host course information. See Canvas setup requirements at <https://it.umn.edu/technology/resources/69116/all?km>.
- Internet-enabled device capable of accessing Canvas (lap-top computer).
- E-Textbooks: Students will access College-provided e-texts through the course Canvas site.
- E-Mail: Although course instructors will primarily communicate through Canvas, they may occasionally also communicate through email about course administrative issues. Students should check their U of M email daily.
- Student-response systems: discussions might use Participoll software.
- Students will utilize paper and pens/pencils for pop quizzes.

Course Goals & Objectives

1. Describe the role of a pharmacist in the screening, prevention, and treatment and improvement of quality of life for the patient with a malignancy and communicate appropriate information to healthcare professionals and patients.
2. Describe the etiology, the 6 hallmarks of cancer including molecular and cellular biology (i.e., signal transduction, DNA replication, transcription, translation, cell cycle, apoptosis) of tumorigenesis and metastasis, and angiogenesis.
3. Identify, describe, classify drugs to treat human malignancies (cytotoxic agents, targeted small molecule inhibitors, antibodies), including structure activity relationships, and mechanisms of action.
4. Describe the pharmacologic basis for drug-induced effects on cell cycle and interference with cell function related to the 6 hallmarks of cancer (i.e., limitless replicative potential, sustained angiogenesis, self-sufficiency in growth signals, etc.).
5. Molecular and pharmacologic basis for drug-induced adverse effects and drug-induced resistance.
6. Describe pharmacologic basis for building treatment regimens with combinations of agents that maximize antitumor effects and minimize adverse events (e.g. non-overlapping toxicities, agents with different MOA, etc.)
7. Describe effective screening methods, symptoms, diagnosis, and treatment for the most commonly occurring diseases presented in the course, and develop an approach for learning about disease states and agents NOT presented in this course
8. Build treatment regimens for supportive care of the patient with cancer (antiemetic, cancer-associated pain management, oral agent adverse effects, etc).
9. SAPH
 - a. Compare and contrast the attitudes towards cancer among patients of different ethnic origins

- b. Describe caregiving stress and burnout symptoms and the effects experienced by older caregivers.
10. SAPH (Ethics)
 - a. Describe the purpose of Advance Directives
 - b. Direct patients to resources for preparing an Advance Directive
 11. SAPH (Pharmacoeconomics/Ethics): Discuss the intersection between pharmacoeconomic considerations of cancer treatment and distributive justice

Assessments and Grading

Graded Assessments

The following graded assessments will count toward your final grade for this course in the following amounts:

#	Due Date	Title Brief description	Learning Objective	Points	% of final grade
1	Various dates throughout course	Quizzes - Online (closed resource), non-comprehensive	LO 1- 11	50	10%
2	Various dates throughout course	Pop quiz(s) – in class, written or clicker (instant feedback; closed resource)	LO 1- 11	20	4%
3	Dates approximately each tertile of semester	Exams (3) written, closed resource, in class. First two are non-comprehensive	LO 1- 11	330	66%
4	April due dates	Team Term paper (3-4 pages, single spaced, with references) Teams – 4 students per team - another team will review before submission.	LO 1-11	100	20%
Total				500	100%

Course Letter Grades

Final course grades will be determined according to the table below. Common rounding rules, to the nearest whole number, will be applied when determining the final grade where values ≥ 0.5 are rounded up.

Grade	A	A-	B+	B	B-	C+	C	C-	D	F
%	100-93	92-90	89-87	86-83	82-80	79-77	76-73	72-70	69-60	59-0

Assignments and Assessments

Quizzes/Active learning exercises

Scheduled quizzes (4) will be given online, taken individually, and closed resource (you will have ~ 8 multiple choice questions and 15 min to take). A fifth quiz (taken individually, and closed resource) for extra credit (6 points) will be given online related to Pediatric Oncology (10 min to take).

In addition, a combination of unannounced pop quizzes or active learning exercises will be given in class (Five total, worth equivalent points each). The pop quizzes will be taken individually, and closed resource. Active learning exercises pertaining to Cancer Pain Management, Chemotherapy-induced nausea and vomiting, and Chemotherapy orders exercises are scheduled on last 3 Wednesdays of semester, and the lowest score of the five will be dropped.

Exams

Three exams will be taken in-class, individually, closed resource. Students will have one-hour period to complete each exam. The first two exams are worth up to 100 points each. The third, 130 points (100 points for the third block of material & 30 points for questions covering content from the entire semester - comprehensive).

Term Paper (Teams of 4)

Students will apply their knowledge by writing a paper on a cancer not specifically covered in the course (e.g., head & neck tumors, glioblastoma, renal cell carcinoma, melanoma, etc). Each team will be assigned one of two topics. Papers should be 3-4 pages long, single spaced, with references. Each team will submit their first draft for review by us and a second team with the opposite topic. This means that each team will also review and complete a rubric form for one other term paper of a different topic. A grading rubric and sample paper will be provided. Students will sign up for a group (n=4). The intention is to help students to develop an approach to learning about topics not covered through traditional class methods, so that they can be better prepared for handling similar encounters while on rotation and beyond (e.g., cancer treatment guidelines). First drafts of the papers are worth up to 50 points, the rubric and class discussions of first drafts are worth up to 25 points, and the final drafts are worth up to 25 points. Papers will be checked with available software such as Turnitin.

Course Policies

Attendance Policy

Students are expected to attend every class for which they are registered. Students are expected to attend classes on the campus where they are enrolled. Instructors may choose to take attendance.

Absence from Exams

Make-Up Exams will not be offered unless absence is consistent with University Make-Up Policy.

Statement on Penalties for Late Work

Late work will not be accepted (except for absences in accordance with University Make-Up Policy)

Statement on Extra Credit

No extra credit will be offered.

Minimum Passing Level

Per University and College Policy, students who receive a grade below D in this course must successfully repeat the course before advancing to courses which require this course as a prerequisite.

See also

[University of Minnesota and College of Pharmacy Policy Reference \(Centralized Syllabus\)](#)

Disability Accommodations

Accommodation requests are welcome and all discussions concerning accommodations will remain confidential. Students with documentation already registered with the Disability Resource Center must contact the Course Director within the first week of class to discuss accommodations.

Accommodations do take advance planning to implement. Students who do not present documentation from Disability Services a minimum of one week before an assessment may need to adhere to an unmodified testing environment for that assessment. Students are responsible for scheduling their exams in the Disability Center as soon as the schedule is posted. Notifying Disability Services less than 2 weeks before an exam can result in being unable to schedule an exam at that location. Course faculty do not have a mechanism to schedule individual rooms at the College.

Please contact Disability Services to quantify and arrange accommodations:

Twin Cities: <https://diversity.umn.edu/disability/student-services> 612-626-1333

Duluth: www.d.umn.edu/access/ 218-726-8217