MCB 400 - Fall 2023

Cancer Cell Biology

Syllabus

Time and Place:

Lecture: 12:30-1:50 p.m., Tuesday and Thursday, 1002 Lincoln Hall

Prerequisites: MCB 250, 251, 252, 253, and credit or concurrent enrollment in MCB 354 or 450, or consent of instructor.

Course Philosophy and Objectives: The course objective is to provide students with an introduction to primary scientific literature, to develop their scientific reasoning through the use of specific experimental examples, and to expand their understanding of a number of basic concepts pertaining to cancer cell biology.

Instructors:

Dr. Supriya Prasanth
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Office Hours:

Tuesday, 9:00-10:00 am or by appointment

Teaching Assistant:

Humayra Oishi

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Thursday, 9:00-10:00 am

Readings: Scientific reviews and manuscripts will be provided ahead of time as hardcopies and made available for downloading as PDF files on the course web site. These papers should be read **before** lecture. **If you are not familiar with the assigned readings it may be difficult, if not impossible, to follow the lectures, or to answer questions which may be addressed to you, directly, during lecture**. In addition, reading of selected chapters from the Weinberg textbook will be required. The Lodish text and The Cell Cycle, may help provide you with background material for the lectures.

Required Texts: Weinberg et al, The Biology of Cancer, 3rd edition

The Weinberg textbooks can be found on reserve at the MCB Learning Center in 101 Burrill Hall.

Additional reference: Lodish et al., Molecular Cell Biology, 9th edition
David, O Morgan, The Cell Cycle, Principle of Control

Lectures: Lectures are designed to introduce basic biological concepts and the experimental evidence from which they are derived. They will also include discussions on contemporary research and unsolved problems. It is essential that you attend all lectures, as material will be presented that may not be in the assigned readings.

Exams:

Exams will be held on Sept. 19 (Lincoln Hall 1002- Last names starting A-K and Greg Hall 319Last names starting L-Z), Oct. 12 (Lincoln Hall 1002- Last names starting A-K and Greg Hall 319Last names starting L-Z) and Nov. 2 (Lincoln Hall 1002- Last names starting A-K and Greg Hall 319Last names starting L-Z) from 7-9 pm. Final Exam will be held on Dec 12 from 8 am-11 am. They will include material covered in the readings and lectures. They will include multiple choice, short answer, and experimental type questions. **Books, notes, "cheat sheets", and electronic devices are prohibited.** Failure to comply will result in the confiscation of the exam and a score of zero.

Conflict exams: Conflict exams will be given for qualifying excused absences. Documentation will be required. Use the MCB 400 Conflict Exam Request Form on the MCB 400 web site to facilitate these arrangements. You must request these arrangements for each exam for which you have a conflict. Requests need to be submitted online at least three business days prior to the exam.

Grades:

The course is based on 1000 points total.

Exams (250 pts each) X 4: 1000 pts total (100%)
- Exam 1: (Lectures 1-7)
- Exam 2: (Lectures 9-13)
- Exam 3: (Lectures 14-18)
- Exam 4: (Lectures 19-25)

Re-grading: Issues regarding the re-grading of exams should first be raised through written requests to your TA. Re-grade requests will only be considered if submitted within one week from the day the exams were handed back to the class.

Letter Grade	Point Ranges	Grade Point Value
A+	1000–920	4.000
A	919–883	4.000
A-	882–850	3.667
B+	849–817	3.333
B	816–783	3.000
B-	782–750	2.667

C+	749–717	2.333
C	716–683	2.000
C-	682–650	1.667
D+	649–617	1.333
D	616–583	1.000
D-	582–550	0.667
F	549–0	0.000

The faculty will analyze the course grade distribution and may lower the scale, thereby decreasing the number of points needed to obtain a particular grade, to accommodate poor class performance .

Course Web Site: Lecture presentation, reading assignments, exam answers, and announcements will be placed on a web site. Address: http://www.life.illinois.edu/mcb/400/

Note: Access to the course web site is possible through use of your AD login and password.

1	T, Aug 22	Lecture 1: Introduction
2	R, Aug 24	Lecture 2: Nature of Cancer
3	T, Aug 29	Lecture 3: Cancer as an infectious disease
4	R, Aug 31	Lecture 4: Oncogenes
5	T, Sep 5	Lecture 5: Growth receptors
6	R, Sep 7	Guest lecture: Prof. Erik Nelson, Cholesterol, nuclear receptors and cancer
7	T, Sept 12	Lecture 6: Cytoplasmic signaling
8	R, Sep 14	Review
9	T, Sep 19	Exam, Lincoln Hall 1002- Last names starting A-K and Greg Hall 319 Last names starting L-Z, 7-9pm
10	R, Sep 21	Lecture 7: Tumor Suppressor Genes
11	T, Sep 26	Lecture 8: Model systems in cell cycle and cancer Lecture 9: Cell Cycle regulation
12	R, Sep 28	Lecture 10: Retinoblastoma, Rb-Guardian of the restriction

		point Lecture 11: p53-Gaurdian of our genome
13	T, Oct 3	Lecture 12-13: DNA replication, mitosis
14	R, Oct 5	Guest Lecture: Prof. Zeynep Madak-Erdogan
15	T, Oct 10	Review
16	R, Oct 12	Exam, Lincoln Hall 1002- Last names starting A-K and Greg Hall 319 Last names starting L-Z, 7-9pm
17	T, Oct 17	Lecture 14: Cellular immortalization-telomeres and senescence
18	R, Oct 19	Lecture 15: Multistep Tumorigenesis and cancer stem cells
19	T, Oct 24	Lecture 16: Shaping the cancer genome
20	R, Oct 26	Lecture 17: Heterotypic interactions
21	T, Oct 31	Review
22	R, Nov 2	Exam, Lincoln Hall 1002- Last names starting A-K and Greg Hall 319 Last names starting L-Z, 7-9pm
23	T, Nov 7	Lecture 18: Angiogenesis
24	R, Nov 9	Lecture 19: Epithelial-mesenchymal transition
25	T, Nov 14	Lecture 20: Metastasis and invasion
25	R, Nov 17	Lecture 21: Tumor immunology
	Nov 20-24	Thanksgiving break
26	T, Nov 28	Lecture 22: Cancer Immunotherapy
27	R, Nov 30	Lecture 23: Rationale of therapy
28	T, Dec 5	Guest Lecture: Dr. Kalika Sarma Radiation Oncology Carle
	December 12	Final Exam 8 am-11 am