

# MCB 400 - Fall 2019

## Cancer Cell Biology

### Syllabus

#### **Time and Place:**

**Lecture:** 12:30-1:50 p.m., Tuesday and Thursday, 1024 Chem Annex

**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  
C422 CLSL  
[supriyap@illinois.edu](mailto:supriyap@illinois.edu)

#### **Office Hours:**

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

#### **Teaching Assistant:**

Neha Venkata Chivukula  
B512 CLSL  
[nehac6@illinois.edu](mailto:nehac6@illinois.edu)

Friday, 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, 2<sup>nd</sup> 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, 6<sup>th</sup> 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. 24 (1EVRT, room 2310, 1306, 1302), Oct. 17 (1MSEB, 100) and Nov. 7 (1MSEB, 100) from 7-9 pm.** Final Exam will be held on Dec. 16 from 1:30-4:30 pm. 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
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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 27	Lecture 1: Introduction
2	R, Aug 29	Lecture 2: Nature of Cancer
3	T, Sep 3	Lecture 3: Tumor Viruses
4	R, Sep 5	No class
5	T, Sep 10	Lecture 4 & 5: Oncogenes & Growth receptors
6	R, Sep 12	Lecture 6: Cytoplasmic signaling
7	T, Sept 17	Lecture 7: Tumor Suppressor Genes
8	R, Sep 19	Review
9	T, Sep 24	Exam, 1EVRT, 2310, 1306, 1302, 7-9pm
10	R, Sep 26	Lecture 8: Model systems in cell cycle and cancer Lecture 9: Cell Cycle regulation
11	T, Oct 1	Lecture 10: Retinoblastoma, Rb-Gaurdian of the restriction point
12	R, Oct 3	Lecture 11: p53-Gaurdian of our genome
13	T, Oct 8	Lecture 12: DNA replication
14	R, Oct 10	Lecture 13: Mitotic regulation
15	T, Oct 15	Review
16	R, Oct 17	Exam, 1MSEB, 100, 7-9pm
17	T, Oct 22	Lecture 14: Checkpoints
18	R, Oct 24	Lecture 15: Cellular immortalization-telomeres and senescence
19	T, Oct 29	Lecture 16: Multistep Tumorigenesis
20	R, Oct 31	Lecture 17: Cancer stem cells and genomic integrity
21	T, Nov 5	Review

22	R, Nov 7	Exam, 1MSEB 100, 7-9pm
23	T, Nov 12	Lecture 18: Heterotypic Interactions
24	R, Nov 14	Lecture 19: Angiogenesis
25	T, Nov 19	Lecture 20: Epithelial-mesenchymal transition
25	R, Nov 21	Lecture 21: Metastasis and invasion
		Thanksgiving break
26	T, Dec 3	Lecture 22: Tumor immunology-I and II
27	R, Dec 5	Lecture 23: Rationale of therapy
28	T, Dec 10	Guest Lecture: Dr. Kalika Sarma Radiation Oncology Carle
	December 16	Final Exam 1:30-4:30 pm for Lecture 19-26