

## **BIOLOGY OF HUMAN CANCER -- MCB 132**

Three hours of lecture and one hour of discussion per week [4 units]

Prerequisites: Biology 1A, 1AL, 1B, MCB102 (or 100A or CHEM135).

May be taken concurrently: MCB104 or MCB110. These are not pre-requisites for the course, but will be very helpful.

### **Lectures (in person):**

Time and location: Tu, Thu 2:10 - 3:30 PM **100 GPBB**

### **Discussion sections (in person):** (Note: no discussion sections first week)

101:	Mon 1-2 PM	229 Dwinelle
102:	Mon 2-3 PM	254 Dwinelle
103:	Thur 9-10 AM	2030 Valley Life Sciences
104:	Thur 10-11 AM	106 Moffitt Library
105:	Wed 9-10 AM	2066 Valley Life Sciences
106:	Wed 10-11 AM	240 Mulford

### **Website:**

<http://bCourses.berkeley.edu>.

### **Text:**

The Biology of Cancer, R.A. Weinberg, 2nd edition (Garland Science, 2014)

### **Instructors:**

### **GSIs:**

**MCB 132 – SCHEDULE**

Wk	Date	Lec	Lecturer	Topic	Textbook Chapter
1	Thu Aug 26	1	MD	Introduction to cancer	1, 2
2	Tue Aug 31	2	MD	Experimental approaches to cancer	2
	Thu Sept 2	3	MD	Tumor viruses	3
3	Tue Sep 7	4	MD	Oncogenes I	4
	Thu Sep 9	5	MD	Oncogenes II	4
4	Tue Sep 14	6	MD	Growth factors and their receptors	5
	Thu Sep 16	7	MD	Ras and Growth factor receptor signaling	5, 6
5	Tue Sep 21	8	MD	Cancer and DNA tumor viruses	3
	Thu Sep 23			MIDTERM 1	
6	Tue Sep 28	9	KL	Tumor suppressors I	7
	Thu Sep 30	10	KL	Tumor suppressors II	7
7	Tue Oct 5	11	KL	Cell cycle regulation; Rb; the restriction point	8
	Thu Oct 7	12	KL	p53 I	9
8	Tue Oct 12	13	KL	p53 II	9
	Thu Oct 14	14	KL	Telomeres and telomerase	10
9	Tue Oct 19	15	KL	Genomic instability I	12
	Thu Oct 21	16	KL	Genomic instability II	12
10	Tue Oct 26		KL	MIDTERM 2	
	Thu Oct 28	17	LH	Tumor progression I	11
11	Tue Nov 2	18	LH	Tumor progression II	11
	Thu Nov 4	19	LH	Cancer Stem Cells	11
12	Tue Nov 9	20	LH	Tumor invasion and metastasis I	14
	Thu Nov 11	21	LH	Holiday	14
13	Tue Nov 16	22	LH	Tumor invasion and metastasis II	13
	Thu Nov 18	23	LH	Cancer therapy I	16
14	Tue Nov 23	24	LH	Cancer therapy II	16
	Thu Nov 25			THANKSGIVING	
15	Tue Nov 30	25	LH	Cancer therapy III	16
	Thu Dec 2	26	MD	Cancer immunotherapy	15
16	Dec 6 – 10			REVIEW WEEK	
	Tue Dec 14			FINAL EXAM (9:00 -10:30 AM)	

## MCB 132 - GRADING AND COURSE POLICIES

### EXAMS AND GRADING

All midterms and final will be in person, unless the University requires all exams to be remote via an online format due to unexpected circumstances.

**1. Total grade points will be 350 points.** This includes 300 points for 2 midterms and final, and 50 points for attendance and oral presentations in discussion sections.

#### 2. Midterms and Final

**Midterm 1** will have questions based on material covered in Lectures 1 - 8. It will be worth **100 points**.

**Midterm 2** will have questions based on material covered in lectures 9 - 16. It will be worth **100 points**.

The **final examination** is **NOT** accumulative and will be worth **100 points** (materials covered in lectures 17-26).

The final will be held on **Tuesday December 14**. **We cannot reschedule the final for students who have other exams on the same day: please check the final exam calendar.**

### ADVICE FROM INSTRUCTORS

A biochemistry/molecular course, either MCB 102, MCB100A or Chem135 is required and must be completed before enrolling in MCB132 this semester. MCB104 or MCB 110 may be taken concurrently.

This is a challenging course. The single most important element in doing well with this material is keeping up to date. Reviewing your notes before the next lecture and looking at the assigned reading the same day as the lecture has proven to make an enormous difference in the final result. Do not hesitate to ask the instructors questions. Reviewing the material only before exams is a very poor strategy, since each lecture in turn uses the material in previous lectures. Since we assume you have mastered the previous material, it is easy to get left behind.

PLEASE ASK QUESTIONS IN SECTIONs AND OFFICE HOURS. We will be happy to answer them. The best time to ask them is after reviewing your notes just after each lecture. Email should only be used for administrative purposes.

**Piazza:** We have created a site on Piazza that allows students to interact with and help each other with the course materials. However, Piazza will NOT be monitored or managed by the instructors and GSIs. In particular, we will not answer questions that have been posted on Piazza and will not guarantee that the answers on Piazza will be correct. Please bring the questions to the office hours and GSI discussion sections.

### COURSE MECHANICS

**1. Mask requirement:** Per the University guideline, **face coverings are required in lectures and discussion sections at all times, regardless of vaccination status.** Special accommodation for not wearing a mask in class can only be provided if you obtain an official approval from the University and submit a formal accommodation letter from DSP or other university authorities to us.

**2. Missed midterms:** The two Midterms and the Final are on announced firm dates. Grades will be posted as soon as possible in announced locations. **There are no make-ups for any of the midterms or final. Students will not be penalized for missing midterms if BOTH of the following conditions are met:**

a. The student makes the request in writing, no later than 2 days after the date of the midterm, and provides acceptable reasons for missing the exam. The request should be supported by appropriate documentation, eg a doctor's note. Examples of acceptable excuses for a missed examination are serious illness or accident or a serious illness or death in the immediate family. **You should NOT schedule professional or medical school interviews on midterm dates. Attending a sport event, family activities or a wedding is not an acceptable excuse.**

b. The midterm that was missed is completed satisfactorily as a take-home problem set, which can be completed with the aid of notes and texts. This will be due in the hands of the relevant GSIs no later than 5 p.m. of the third day after the midterm was given. To be completed satisfactorily, the student's score on the take-home test must be at or above the class median for the examination. If the exam is completed satisfactorily and the excuse was acceptable, the missed exam will not count against the student's final grade, i.e. the student's final grade in the course will be based on his/her performance on the other midterm and the final examination. If the missed exam is not completed satisfactorily as a problem set, or if the excuse was not acceptable, a score of zero will be assigned, and this zero score will be averaged with the student's scores on the other examinations when the final grade is determined.

An incomplete will be granted if the final is missed for an acceptable and documented reason and if the student is performing at the passing level or better.

**A student is only permitted to miss one midterm at most. The final exam cannot be missed (no take-home option available).**

**3. Grading system:** We will use a hybrid between standards-referenced grading (absolute grading) and norm-referenced grading (grading on a curve), and a letter grade is assigned based on the total scores. Historically, approximately 28% of the students received As, 30-35% Bs, 30-35% Cs, and 10% D-F.

**4. Regrading:** The Midterms will be handed back and may be subject to regrading if substantial errors are found. Contact your GSI, and only during his/her office hours, with your request for regrading of questions. All requests must be submitted in writing with a detailed explanation of the specific questions and items you are contesting. You should be aware that other questions may be regraded and that your score could therefore decrease. The final exam cannot be regraded.

**5. Incompletes:** See Professor He as soon as possible if you wish to request an incomplete. These requests are rarely granted and only for exceptional cases of prolonged illness or truly exceptional family emergencies that extend over long periods of time. An incomplete will also be given if a student is unable to attend the final exam because of an incapacitating illness or accident or a serious illness or death in the immediate family. Documentation will be required for all such requests. An incomplete can only be assigned if the work that has been completed is of passing quality. If an incomplete has been granted you can obtain an "I" Grade Report Form.

**6. Student Honor Code:** The student community at UC Berkeley has adopted the following Honor Code that you are expected to adhere to:

**"As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others."**

Cheating: Anyone caught cheating on an exam in this course will receive a failing grade in the course and will also be reported to the University Center for Student Conduct for further disciplinary action, possibly including suspension or expulsion. In order to guarantee that you are not suspected of cheating, please keep your eyes on your own materials and do not

converse with others during exams. Do not discuss the exam with anyone else in the class until everyone has taken the exam.

**Plagiarism:** To copy text or ideas from another source without appropriate reference is plagiarism and will result in a failing grade for your assignment and usually further disciplinary action. For additional information on plagiarism and how to avoid it, see, for example: <http://gsi.berkeley.edu/teachingguide/misconduct/prevent-plag.html>.

**Academic Integrity and Ethics:** Cheating on exams and plagiarism are two common examples of dishonest, unethical behavior. Honesty and integrity are of great importance in all facets of life. There is no tolerance for dishonesty in the academic world, for it undermines what we are dedicated to doing – furthering knowledge for the benefit of humanity.

**7. Letters of recommendation:** Any of the three instructors may be approached for a letter of recommendation and are willing to provide a written evaluation for this purpose. So that we may prepare effective evaluations we ask that you follow the procedure outlined here. Be sure to attend at least 2 of the instructor's office hours. In addition, ask your GSI to write a draft letter and email it to the instructor. Please send a copy of your complete transcript, your CV (resume), your statement of purpose, the signed career center confidentiality waiver form, and any recommendation forms that need to be completed to the GSI. You must waive the right of access to the letter.

**8. DSP accommodations:** Students who need academic accommodations should request them from the Disabled Students' Program, 260 César Chávez Center, 642-0518 (voice or TTY), <https://dsp.berkeley.edu>. Students with disabilities who wish to request testing accommodations should make their request to the DSP as early as possible in the semester, so that we can make appropriate arrangements. Please discuss your accommodations with an instructor or a GSI during the first weeks of the semester. It may not be possible to honor requests made at the last minute.

## 9. Diversity statement

The University of California considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. Our community is enriched and enhanced by diversity along a number of dimensions, including race, ethnicity, national origins, gender, sexuality, class and religion. We welcome all our students in our class and hope that you always feel included. If there are aspects of the instruction within this course that result in barriers to your inclusion, please let us know. Your suggestions are encouraged and appreciated.

## 10. Mental Health

If you are experiencing stress, anxiety, or other forms of distress during the semester, we hope to be a resource for you. Please reach out to the GSI or one of the Professors if you need support. There are also many resources available to you. All registered Berkeley students are eligible to use Counseling Psychological Services. You do not have to purchase the Student Health Insurance Plan to use these services. The first five counseling sessions are free for registered Berkeley students. Counselors can provide support in academic success, life management, career and life planning, and personal growth and development.

UC Berkeley, Counseling Psychological Services:

- Please call (510) 642-9494 or stop by the office on the 3rd floor of the Tang Center to make an appointment with a counselor.
- Drop-in counseling for emergencies: Monday - Friday, 10:00AM - 4:30PM
- After hours counseling: In the case of emergencies at night or on weekends, call (855) 817-5667 for free assistance and referrals. Request to speak with a counselor.
- For emergency support: Call UCPD 911 or (510) 642-3333 24 Hour Crisis Hotlines:
- Alameda County Crisis Line: (offers confidentiality, TDD services for deaf and hearing impaired callers and translation in 140 languages) Call 1-800-309-2131
- National Crisis Help Line: Call 1-800-273-TALK

- National HopeLine Network: Call 1-800-SUICIDE

We also ask that you look out for your fellow peers. If you see any of the signs below that may indicate your classmate may need assistance, please use the resources above or reach out to the GSI or Professors.

- Withdrawing from other people
- Changes in weight or eating patterns
- Changes in sleeping patterns
- Fatigue or lack of energy
- Increased anxiety or irritability
- Feeling worthless or hopelessness

### **11. Safe, Supportive, and Inclusive Environment**

Whenever a faculty member, staff member, post-doc, or GSI is responsible for the supervision of a student, a personal relationship between them of a romantic or sexual nature, even if consensual, is against university policy. Any such relationship jeopardizes the integrity of the educational process.

Although faculty and staff can act as excellent resources for students, you should be aware that they are required to report any violations of this campus policy. If you wish to have a confidential discussion on matters related to this policy, you may contact the Confidential Care Advocates on campus for support related to counseling or sensitive issues. Appointments can be made by calling [\(510\) 642-1988](tel:5106421988).

The classroom, lab, and work place should be safe and inclusive environments for everyone. The Office for the Prevention of Harassment and Discrimination (OPHD) is responsible for ensuring the University provides an environment for faculty, staff and students that is free from discrimination and harassment on the basis of categories including race, color, national origin, age, sex, gender, gender identity, and sexual orientation. Questions or concerns? Call [\(510\) 643-7985](tel:5106437985), email [ask\\_ophd@berkeley.edu](mailto:ask_ophd@berkeley.edu), or go to <http://survivorsupport.berkeley.edu/>.