

Spring 2023
BISC 414
“Biology of Cancer”

Instructors:

Susan L. Forsburg Ph.D.	John Tower, PhD
Office: RRI 104C	Office RRI 219C
Office Hours: TBD	Office hours: TBD
Office Phone: 213.740.7342	Office phone 213.740.5384
E-mail: forsburg@usc.edu	E-mail: jtower@usc.edu

Meeting times:

Thurs 11-1:50
Building/room **RRI 221**

Overview and Course Content:

This is a literature-based seminar course, designed to introduce graduate students and advanced undergraduates to topics in cancer cell biology by combining lectures with a close reading of primary literature. Students gain an in-depth appreciation of the field of cancer biology by reading and evaluating current research papers, and honing their critical skills by discussion. The class will meet once a week in an extended session. The first half of class will consist of a lecture by the instructor discussing the week’s topic, followed by student-lead discussion of 1-2 relevant primary research papers. At the first class session, students will sign up for presentation dates. Additionally, all students are expected to participate vigorously in discussion.

Presentations: The course will be taught in part as a literature seminar. Each student will be responsible for reading and presenting at least one paper to the class relevant to that week’s topic. (Non-presenting students must also read the paper for participation and critical evaluation points). Presenters will choose a paper from the current literature and obtain faculty approval for their choice at least 5 days in advance. Presenters are required to meet with faculty prior to class meeting to go over their presentation and will submit their powerpoint to the faculty. The presentation will include several components:

- A description of the state of the field relevant to the paper,
- The question(s) addressed by the paper and Experimental methodology, data, and conclusions,
- A critique: what are the strengths and weaknesses of the paper, what questions remain?.

Prerequisites: Biology/Biochemistry majors, or graduate students enrolled in biological sciences

Permission of instructor. Registration is limited to 20

BISC 320 molecular biology is required; BISC325 (genetics) and BISC330 (Biochemistry) may be helpful

Web Site: Course materials and communication will be provided on Blackboard

Text: **The Biology of Cancer** by Robert Weinberg, Garland Science

Course Credit: Graded

Presentation	30%
Discussion	10%
Critical Evaluation	10%
Midterm	25%
Final (non-cumulative)	25%

Course Policies: Any questions or concerns regarding these policies should be addressed to faculty.

Presentation dates are firm. There are no makeup exams or presentations in the course, so choose your dates wisely!

Discussion is essential. You are expected to be an active participant to get full credit, meaning you must read all assigned papers and join in the conversation with questions or comments as appropriate. Therefore, you must attend all classes. Points lost from missing participation may be replaced by an appropriate written assignment if an excuse considered valid by faculty is presented in a timely fashion. **All absences require acceptable written excuse or documentation.** No additional assignments for extra credit are permitted.

Critical Evaluation During discussions/presentations, individual students will be called upon by the faculty and required to explain experimental methods or data in one of the figures being discussed, even if they are not the official presenter.

The final will not be returned but will be retained for one semester by the faculty.

It will be necessary to make adjustments to the syllabus during the semester. Check the course blackboard site or class announcements for updates.

<u>Week</u> faculty	Topic reading	Paper presenter
<u>1</u> SLF 12 Jan	Introduction to class, structure, reading Sign up for presentations Cancer overview, two step model	SLF
<u>2</u> SLF 19 Jan	Tumor viruses and oncogenes	
<u>3</u> SLF 26 Jan	Growth factors and receptors	
<u>4</u> SLF 2 Feb	Tumor suppressors, LOH	
<u>5</u> SLF 9 Feb	Cell Cycle control, I: CDKs	
<u>6</u> SLF 16 Feb	Cell Cycle control, II: Checkpoints	
<u>7</u> IC 23 Feb	Mutagenesis and repair (Dr. Irene Chiolo guest lecture)	
<u>8</u> SLF 2 Mar	Midterm	
<u>9</u> JT 9 Mar	Genome stability	
<u>10</u> 16 Mar	* SPRING RECESS*	
<u>11</u> RG	Cancer Immunology (Dr. Raffaella Ghittoni guest lecture)	

23 Mar		
12 JT 30 Mar	p53 apoptosis	
13 JT 6 Apr	Cancer stem cells	
14 JT 13 Apr	Telomeres & senescence	
15 JT 20 Apr	Warburg effect & cancer cell metabolism	
16 JT 27 Apr	Remission & Recurrence	
JT	FINAL	Tues May 9 11-1

Disability: Students requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP when adequate documentation is filed. Please be sure the letter is delivered to the faculty as early in the semester as possible. DSP is open Mon-Fri, 8:30-5:00. The office is in Student Union 301 and their phone number is 740-0776.

Academic integrity: Academic integrity policies of the university will be strictly followed. Infractions will be reported to SJACS and can result in severe penalties. The Trojan Integrity Guide can be found at <http://www.usc.edu/student-affairs/SJACS/forms/tio.pdf>. The Undergraduate Guide for Avoiding Plagiarism can be found at <http://www.usc.edu/student-affairs/SJACS/forms/tig.pdf>. A Guide for Graduate Students can be found at <http://www.usc.edu/studentaffairs/SJACS/forms/GradIntegrity.pdf>.

Support Systems:

Student Health Counseling Services - (213) 740-7711 – 24/7 on call

engemannshc.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call

engemannshc.usc.edu/rsvp

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086

equity.usc.edu, titleix.usc.edu

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421

studentaffairs.usc.edu/bias-assessment-response-support

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710

studentaffairs.usc.edu/ssa

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.