BISC 429, Cancer Immunology
Units: 4 units
Spring 2022—Wed and Fri —Time: 2:00pm – 3:20 pm

Location: ZHS 360

Instructor: Raffaella Ghittoni, Ph.D.
Office: ZHS-256
Office Hours: TBD
Contact Info: rghitton@usc.edu,
Personal Meeting Zoom room: https://usc.zoom.us/j/5162230860?pwd=YnczdFJub0YySHJkTWVXM1Z0InZz09
Meeting ID: 516 223 0860
Passcode: 2u306v

Course Description
Cancer immunology is a branch of immunology that studies interactions between the immune system and cancer cells (also called tumors or malignancies). This course has a single-discipline perspective approach to provide students with the necessary background and scientific tools to understand the role of the immune system in oncogenesis. The course serves as an ideal primer for students who seek an entry point to the domain of cellular transformation, carcinogenesis and immune surveillance. Cancer immunology is a growing field of research that aims to discover innovative cancer immunotherapies to treat and retard progression of the disease. Currently adopted immune-based therapies and new possible approaches in cancer treatment are extensively discussed all along the course. Guest lectures from selected invited speakers have been hosted in class to give students the possibility to meet, talk and interact with professional experts of this field.

Learning Objectives
In this course students will have the possibility to acquire knowledge on the main current topics related to the human immune system and cellular transformation and carcinogenesis.

After an introductory section on terminology and general aspects on cellular transformation, the course will mainly focus on key aspects in the interplay between the immune response and the establishment of malignancies as risk factors in carcinogenesis with an in depth on pathogen related factors, the impact of tumor affecting directly the immune system, the fundamental role of immune cells surveillance, cytokines and inflammation in carcinogenesis.

Seminars: One (or two) class meeting will consist of a research seminar presentation by an invited member who is conducting fundamental or clinical cancer research. This will be followed by a discussion. This will give students the possibility to meet, talk and interact with professionals of this field. Seminars will be scheduled depending on our guest’s availability and research area to coordinate with appropriate class topics.

Students group presentation: During the semester students will have to organize in groups of two and select a research paper related to the topics discussed in class. Each group will be evaluated for critically presenting the paper in the discussion session and for participating as discussant during other group presentations.

The course readings are based on suggested textbooks and current scientific literature (experimental and reviews publications)


Prerequisites: none
Recommended Preparation: Biology/Biochemistry majors, or graduate students enrolled in biological sciences. Registration is limited to 20 students. Familiarity with Molecular Biology, Genetics, Principles of Immunology is assumed.

Course Notes
Course grading distribution:

<table>
<thead>
<tr>
<th>Midterm I</th>
<th>25%</th>
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<tbody>
<tr>
<td>Midterm II</td>
<td>25%</td>
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<tr>
<td>Presentation</td>
<td>25%</td>
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<tr>
<td>Final exam</td>
<td>25%</td>
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Description and Assessment of Assignments
Tests and final exams are marked on a numerical basis and then converted to letter grades. All scores are posted in your GRADEBOOK unless noted. If you notice a mistake or missing score(s) in the gradebook, it is student’s responsibility to notify the course instructor as soon as possible.

Course Policies:
1) Exam dates are firm. There are no makeup exams in the course. Performance on the final may be prorated to substitute for a missing midterm exam, if an excuse considered valid by faculty is presented in a timely fashion. An acceptable written excuse or documentation must be provided to the faculty. The final exam will be administered only on the date and time set by the University.

2) Midterm exams will be returned to students by the professor during lectures. The final examination will not be returned but will be retained for one semester by the faculty.

3) Regrades: If you think an answer you have provided was graded incorrectly or if there is an arithmetic error, you may seek a regrade. You must provide a written explanation of why you think your answer was graded incorrectly. Regrade requests are to be submitted to your instructor. If a regrade is agreed upon, then the ENTIRE EXAMINATION may be subject to a regrade. Your grade may therefore go up, go down, or remain the same. Regrade requests must be received within one week of when the exam key is posted for midterms, or by the second week of classes the following semester for the final exam.

4) No special assignments for extra credit are permitted.

5) Academic integrity policies of the University will be strictly followed. Infractions can result in severe penalties. There may be assigned seating for exams. No student may be admitted to an exam after the first student has left the exam.

7) It may be necessary to make adjustments to the syllabus during the semester. Check the course website or class announcements on Blackboard for updates. Exam dates will not be changed.

8) Any questions or concerns regarding these policies should be addressed to the faculty.

9) Statement on Academic Conduct and Support Systems

All USC students are responsible for reading and following the Student Conduct Code, which appears in the SCampus and at https://scampus.usc.edu/university-student-conduct-code/. This policy does not apply to discussion or exchange of ideas. On the contrary, such interactions represent an important way to clear programming hurdles.
Course Schedule:

<table>
<thead>
<tr>
<th>Topics Covered</th>
<th>Ch.</th>
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<tbody>
<tr>
<td>Jan 12  Jan 14 Cancer and the human immune system – Course introduction</td>
<td>1.5</td>
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<tr>
<td>Jan 19  Jan 21 The biology and genetics of cells and organisms (part I)</td>
<td>1</td>
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<tr>
<td>Jan 26  Jan 28 The Nature of Cancer - Terminology and common types of cancer (part I)</td>
<td>2</td>
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<td>Feb 2  Feb 4 Oncoviruses (part I)</td>
<td>3</td>
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<tr>
<td>Feb 9  Feb 11 Tumor viruses (part III) Human Papilloma Virus and carcinogenesis</td>
<td>Review</td>
</tr>
<tr>
<td>MIDTERM I</td>
<td></td>
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<tr>
<td>Feb 16  Feb 18 Guest Lecture: TBD</td>
<td>Slides ppt</td>
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<tr>
<td>Feb 23  Feb 25 Human Immune system</td>
<td>Ch. 15</td>
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<tr>
<td>Feb 28  Feb 30 Inflammation and cancer –part I</td>
<td>Ch. 11</td>
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<tr>
<td>Mar 2  Mar 4 Inflammation and cancer part II - Obesity</td>
<td>Ch. 9</td>
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<tr>
<td>Mar 9  Mar 11 Immunosurveillance part I</td>
<td>Ch. 15</td>
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<tr>
<td>Mar 16  Mar 18 Spring recess</td>
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<tr>
<td>Mar 23  Mar 25 Tumor antigens I</td>
<td>Ch. 15</td>
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<tr>
<td>Mar 30  Apr 1 Midterm II</td>
<td>Ch. 15</td>
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<tr>
<td>Apr 6  Apr 8 Immunosurveillance evasion II</td>
<td>Ch. 15</td>
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<tr>
<td>Apr 13  Apr 15 Guest Lecture: TBD</td>
<td>Slides ppt</td>
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<td>Apr 20  Apr 22 Students presentation</td>
<td>Selected article</td>
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<tr>
<td>Apr 27  Apr 29 Students presentation</td>
<td>Selected article</td>
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<tr>
<td>May 9  Final Examination from 2 to 4 pm</td>
<td>ZHS360</td>
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Statement on Academic Conduct and Support Systems

Academic Conduct
Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” https://policy.usc.edu/scampus-part-b/. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Support Systems

Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. https://engemannshc.usc.edu/counseling/

National Suicide Prevention Lifeline - 1-800-273-8255
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. http://www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender-based harm. https://engemannshc.usc.edu/rsvp/

Sexual Assault Resource Center
For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: http://sarc.usc.edu/

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086
Works with faculty, staff, visitors, applicants, and students around issues of protected class. https://equity.usc.edu/

Bias Assessment Response and Support
Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. https://studentaffairs.usc.edu/bias-assessment-response-support/

Office of Student Accessibility Services (OSAS)
Provides certification for students with disabilities and helps arrange relevant accommodations. https://osas.usc.edu/

Student Support and Advocacy – (213) 821-4710
Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. https://studentaffairs.usc.edu/ssa/

Diversity at USC
Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. https://diversity.usc.edu/

USC Emergency Information
Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, http://emergency.usc.edu

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime. Provides overall safety to USC community. http://dps.usc.edu