

**BISC 450L Principles of Immunology (July 17)**

**4 Units**

**Fall 2021-13450R**

**Tuesday and Thursday— from 12:30pm to 1:50pm PDT**

**Location:** CPA 258

**Instructor:** Raffaella Ghittoni, PhD

**Office:** ZHS 256

**Office Hours:** Tuesday from 3pm to 4pm and Wednesday 10am to 11am PDT

**Contact Info:** [rghitton@usc.edu](mailto:rghitton@usc.edu)

**Phone number office:** 213-740-8352.

**Teaching Assistant:** TBD

**Office:**

**Office Hours:**

**Contact Info:**

**Course Description**

**Principles of Immunology (BISC 450L)** is a 4 unit course consisting of 3 hours of lecture and 3 hours of laboratory per week.

The objective of this course is to cover basic concepts on the human immune system.

The main topics covered in this course are the following:

- Properties and overview of the human immune system
- Cells, tissues, organs, and microenvironments of the human immune system
- Leukocyte circulation and migration into tissues
- Innate Immunity
- Antibodies and Antigens
- The Major Histocompatibility Complex and Antigen Presentation
- The Organization and Expression of Lymphocyte Receptor Genes
- Lymphocytes (T and B cells) Development
- T-Cell Activation, Differentiation and Memory
- B-Cell Activation, and antibody production
- Effector Responses: Cell- and Antibody-Mediated Immunity

Description of selected immune system pathologies and dysfunctions as well as novel therapeutic approaches will be presented during lectures and laboratory to better understand basic immunological mechanisms.

During the lab sessions practical experiments will be conducted in order to apply concepts discussed during lectures, and to become familiar with methodologies and techniques currently in use in clinical and research laboratories.

## Learning Objectives

- Students will acquire knowledge of the components of the human immune system.
- Students will understand basic concepts of the human immune system functioning.
- Students will become familiar with most common immune system dysfunctions and pathologies.
- Students will be able to acquire basic knowledge of novel therapeutic approaches related to innate or acquired immune system dysfunctions.
- Students will conduct experiments using laboratory techniques and methods to apply concepts presented in lectures.
- Students will develop the ability to analyze, present and critically discuss results of their experiments both in individual and teamwork activities

**Prerequisite(s):** Prerequisite for this course is **BISC 220** or **BISC 221**.

## Course Notes

### Online Course Materials:

Supplemental course materials and announcements will be posted on the Blackboard website. Your USC e-mail username and password will allow you to access the secure site: <https://blackboard.usc.edu> (if you have trouble with Blackboard, please contact [blackboard@usc.edu](mailto:blackboard@usc.edu))

Students are responsible for checking additional postings and announcements on Blackboard website on a weekly basis.

**Please see separate additionally Laboratory Syllabus and Schedule posted on Blackboard.**

Syllabi may slightly change during the semester.

### Email Communication:

To ensure privacy, only student's USC email accounts may be used for email communications. Students are responsible for understanding the content of email messages that the instructor sends to their USC accounts. Therefore, each student must check their USC email regularly and make sure their account is not over quota, so new messages can be received.

### Understanding and Avoiding Plagiarism Modules

All students must complete the Understanding and Avoiding Plagiarism Modules 1 & 2 which can be found in the following links (<https://libraries.usc.edu/tutorial/understanding-and-avoiding-plagiarismmodule-1-what-plagiarism-what-citation>; <https://libraries.usc.edu/tutorial/understanding-and-avoidingplagiarism-module-2-citing-avoid-plagiarism>). This assignment will be posted under the COURSE Blackboard site. Complete both tutorials to earn your certificates which can be printed as pdf files and uploaded as completion of your assignment. You must have this assignment turned in before **9 am on Friday, Oct 29, 2021**. This assignment is not worth any points but a penalty of ½ pt per day will be applied for certificates received after the due date. This can add up to a 10 pt deduction by the end of the semester.

## Required Readings and Supplementary Materials

**Lecture textbook (mandatory):** Cellular and Molecular Immunology, 10<sup>th</sup> edition. Abbas A.K., Lichtman A.H., Pillai S. Elsevier.

**Recommended textbook (not mandatory):** Robbins Basic Pathology 10<sup>th</sup> edition. Kumar V., Abbas A.K., Aster J.C. Elsevier

**!!!!!!PLEASE NOTE:** Full-text electronic copies of both textbooks are available [free of charge](#) accessing the USC Norris Medical Library website:

- 1) Go to this website <https://libraries.usc.edu/>
- 2) On the top of the page click on "Libraries"
- 3) Select "Norris Medical Library"
- 4) Scroll down and on the "Popular Resources" list click on "ClinicalKey"
- 5) Search for "Books" and enter the title of our Textbook "Cellular and Molecular Immunology" 10<sup>th</sup>
- 6) Click on the book image and you should be able to get the e textbook index

**Laboratory:** Lab Manual will be posted on Blackboard

## Description and Assessment of Assignments

**Exams.** There are two midterm exams during the semester and 1 Final exam. Exams are 60 minutes long and consist of multiple choice, short answer, matching or fill-in-the-blank questions. Exams are NOT open book nor open notes. A student is not allowed to start an exam after the first student has left ANY exam room.

### Grading Timeline

Grades for Midterm Exams will be posted within one calendar week following the exam date.

### Exams Policies

**Missed exams. There are no makeup exams in the course.** If a student misses an exam due to a true emergency, official written documentation (what you feel is appropriate to demonstrate a legitimate reason for missing said exam) should be submitted to the course instructor, Dr. Ghittoni **within two (2) days of the missed exam**. Students will only be excused for ONE exam with a valid excuse. If it is a medical excuse, you must also state in writing (a) the doctor's name and phone number and (b), a signed statement authorizing us to discuss with the doctor whether you were too ill to take the exam. (Note that neither you nor the physician need to tell us the nature of your illness.) Your physician has to be licensed to practice medicine by the State of California ([www.medbd.ca.gov](http://www.medbd.ca.gov)) and that it's considered unethical and unwise for a physician to provide medical care for a family member. We will contact the doctor and decide whether you have a valid excuse. If you do, the instructors may, at their discretion, permit the use of the student's performance on other exams in determining the missed exam grade. If your excuse is judged not to be valid, or you do not provide it within the allotted time, you will receive a score of zero for the missed exam.

**Please note:** the Student Health Center has changed their medical excuse policy. The Student Health Center will no longer provide: 1) class excuse notes for illness, 2) clinical appointments for class excuse, and 3) authentication of outside physician certificates. The Absence of Class - Self Verification Form provided by the Student Health Center is insufficient documentation for our purposes.

**Re-grades of exam questions.** After they have been graded, you will be able to view your corrected exams on Blackboard. If you feel an error was made in the grading of your exam, you must submit a Regrade Request Form in which you have thoroughly explained (typewritten) why you think your answer deserves more credit, as an e-mail attachment to your TA within 1 week of the time the corrected exams were made available to the entire class. The entire answer will be re-graded, not just the part you think deserves more credit. Your score may increase or decrease as a result of a re-grade.

## Grading Breakdown

The course grade will be based upon 400 possible points:

### *Grade determination and final examination details*

Tests and final exams are marked on a numerical basis (max total 400 points) and then converted to letter grades.

All scores (lecture and lab) are posted in your GRADEBOOK unless noted. If you notice a mistake or missing score(s) in the gradebook, it is the student's responsibility to notify the TA or course instructor as soon as possible. Please remember that (1) the course mean given on Blackboard is also NOT authoritative, and (2) that

only the total number of points earned determines your course grade. The course instructor will be glad to discuss your performance, and your possible grades, at any time throughout the course.

Assignment	Points	% of Grade
Midterm I	100	25
Midterm II	100	25
Final Exam	100	25
Laboratory Assignments	100	25
<b>TOTAL</b>	<b>400</b>	<b>100</b>
TOTAL		

## Grading Scale

Course final grades will be determined using the following scale

A	95-100
A-	90-94
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

## Additional Policies

### *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 TA will return lab tests to students during lab section. 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 TA. 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) The use of technology in the classroom is STRICTLY limited to course activities. Penalties will be applied to students for any infraction (smartphone and smartwatches included).

6) 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.

Statement on academic integrity: USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://www.usc.edu/dept/publications/SCAMPUS/gov/>. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.

7) Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to the professor as early in the semester as possible. DSP is located in STU 301 and is open 8:30 AM – 5:00 PM, Monday thru Friday, Phone number: 213-740-0776.

8) 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.**

9) Any questions or concerns regarding these policies should be addressed to the course instructor.

## Course Lectures and Exams Schedule- BISC 450L – Fall 2021

Weeks	Date	Topics Covered	Reading assignment
Week 1	24-Aug	Course Introduction – Properties and Overview of the Immune Responses	Chapter 1
	26-Aug	Cells, Tissues, Organs, and Microenvironments of the Immune System (part I)	Chapter 2
Week 2	31-Aug	Cells, Tissues, Organs, and Microenvironments of the Immune System (part II)	Chapter 2
	2-Sep	Leukocyte circulation and migration into tissues (part I)	Chapter 3
Week 3	7-Sep	Leukocyte circulation and migration into tissues (part II)	Chapter 3
	9-Sep	Innate Immunity (part I)	Chapter 4
Week 4	14-Sep	Innate Immunity (part II)	Chapter 4
	16-Sep	Innate Immunity (part III)	Chapter 4
Week 5	<b>21-Sep</b>	<b>Midterm I</b>	<b>Ch. 1-4</b>
	23-Sep	Antibodies and Antigens (part I)	Chapter 5
Week 6	28-Sep	Antibodies and Antigens (part II)	Chapter 5
	30-Sep	Antigen Presentation to T lymphocytes...	Chapter 6
Week 7	5-Oct	....Functions of Major Histocompatibility Complex Molecules	Chapter 6
	7-Oct	Immune receptor and Signal Transduction (part I)	Chapter 7
Week 8	12-Oct	Immune receptor and Signal Transduction (part II)	Chapter 7
	<b>14-Oct</b>	<b>Fall recess</b>	
Week 9	19-Oct	Immune receptor and Signal Transduction (part III)	Chapter 7
	21-Oct	Lymphocyte Development and Antigen Receptor Gene Rearrangement (part I)	Chapter 8
Week 10	26-Oct	Lymphocyte Development and Antigen Receptor Gene Rearrangement (part II)	Chapter 8
	28-Oct	Lymphocyte Development and Antigen Receptor Gene Rearrangement (part III)	Chapter 8
Week 11	<b>2-Nov</b>	<b>Midterm II</b>	<b>Ch 5-8</b>
	4-Nov	Activation of T Lymphocytes	Chapter 9
Week 12	9-Nov	Differentiation and Function of CD4+ Effector T cells (part I)	Chapter 10
	11-Nov	Differentiation and Function of CD4+ Effector T cells (part II)	Chapter 10
Week 13	16-Nov	Differentiation and Function of CD8+ Effector T cells	Chapter 11
	18-Nov	B Cell Activation and Antibody Production (part I)	Chapter 12
Week 14	23-Nov	B Cell Activation and Antibody Production (part II)	Chapter 12
	<b>25-Nov</b>	<b>Thanksgiving recess</b>	
Week 15	30-Nov	Effector Mechanisms of Humoral Immunity (part I)	Chapter 13
	2-Dec	Effector Mechanisms of Humoral Immunity (part II)	Chapter 13
<b>FINAL</b>	<b>14-Dec Tuesday</b>	<b>Final Examination from 11:00 a.m. to 1:00 pm</b>	<b>Ch. 9-13</b>

## 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” [policy.usc.edu/scampus-part-b](http://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. [engemannshc.usc.edu/counseling](http://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. [www.suicidepreventionlifeline.org](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. [engemannshc.usc.edu/rsvp](http://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: [sarc.usc.edu](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. [equity.usc.edu](http://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. [studentaffairs.usc.edu/bias-assessment-response-support](http://studentaffairs.usc.edu/bias-assessment-response-support)

*The Office of Disability Services and Programs*

Provides certification for students with disabilities and helps arrange relevant accommodations. [dsp.usc.edu](http://dsp.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. [studentaffairs.usc.edu/ssa](http://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. [diversity.usc.edu](http://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. [emergency.usc.edu](http://emergency.usc.edu)

*USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.*

Provides overall safety to USC community. [dps.usc.edu](http://dps.usc.edu)