



USC

USC Dornsife

Dana and David Dornsife
College of Letters, Arts and Sciences

BISC 450L Principles of Immunology June 17 2024

4 Units

Fall 2024-13450R

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

Location: ZHS 360

Instructor: Raffaella Ghittoni, PhD

Office: ZHS 256

Office Hours: TBD

Contact Info: rghitton@usc.edu

Phone number office: 213-740-8352.

Personal Meeting Zoom room:

<https://usc.zoom.us/j/5162230860?pwd=YnczdFJub0YyS HJkTWVXM1Z0Q0lnZz09>

Meeting ID: 516 223 0860

Passcode: 2u306v

Lab Instructor: Daria Di Blasi

Office: TBD

Office Hours: TBD

Contact Info: ddibiasi@usc.edu

Course Description

Principles of Immunology (BISC 450L) is a 4 units 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 to apply concepts discussed during lectures, and to become familiar with methodologies and techniques currently in use in clinical and research laboratories.

Learning Objectives

By the end of this course:

- 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 Brightspace website. Your USC e-mail username and password will allow you to access the secure site: <https://brightspace.usc.edu/d2l/home> (if you have trouble with Brightspace, please contact <https://www.brightspacehelp.usc.edu/>)

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

Please see separate additionally Laboratory Syllabus and Schedule posted on Brightspace.

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.

Required Readings and Supplementary Materials

Lecture textbook (mandatory): Immunology, Stephen J Juris Oxford University Press
E-text or Paperback or Loose leaf

Laboratory: Lab Manual will be posted on Brightspace

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 must be licensed to practice medicine by the State of California (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 Brightspace. 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.

EXTRA CREDIT

Joint Educational Partnership. There will be an opportunity for the class to participate in a K-12 educational program with the Joint Educational Project (JEP) at USC. This is a semester-long commitment, and you will receive extra credit in the class based on your performance in the program. The maximum amount of extra credit points a student can receive is 16 points which correspond to **4%** of the final 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 Brightspace 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
TOTAL	400	100
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.

Academic Integrity

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct contrasts with the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

7) Any student requesting academic accommodations based on a disability is required to register with OSAS each semester. A letter of verification for approved accommodations can be obtained from OSAS. Please be sure the letter is delivered to the professor as early in the semester as possible. [The Office of Student Accessibility Services \(OSAS\) - \(213\) 740-0776](#)

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

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

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. (Living our Unifying Values: The USC Student Handbook, page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. (Living our Unifying Values: The USC Student Handbook, page 13).

Course Lectures and Exams Schedule- BISC 450L – Fall 2023

Weeks	Date	Topics Covered	Reading assignment
Week 1	27-Aug	Course Introduction Introduction to Immunology and the Immune System (Part I)	Chapter 1
	29-Aug	Introduction to Immunology and the Immune System (Part II)	Chapter 1
Week 2	3-Sep	Innate Immunity (Part I)	Chapter 2
	5-Sep	Innate Immunity (Part II)	Chapter 2
Week 3	10-Sep	The Complement System (Part I)	Chapter 3
	12-Sep	The Complement System (Part II)	Chapter 3
Week 4	17-Sep	The Complement System (Part III)	Chapter 3
	19-Sep	Overview of Adaptive Immunity (Part I)	Chapter 4
Week 5	24-Sep	Midterm 1	Ch. 1-3
	26-Sep	Overview of Adaptive Immunity (Part II)	Chapter 4
Week 6	1-Oct	Overview of Adaptive Immunity (Part III)	Chapter 4
	3-Oct	Development of T Lymphocytes (Part I)	Chapter 5
Week 7	8-Oct	Development of T Lymphocytes (Part II)	Chapter 5
	10-Oct	Fall recess	
Week 8	15-Oct	Development of T Lymphocytes (Part II)	Chapter 5
	17-Oct	Antigen Recognition by T Lymphocytes (Part I)	Chapter 6
Week 9	22-Oct	Antigen Recognition by T Lymphocytes (Part II)	Chapter 6
	24-Oct	Antigen Recognition by T Lymphocytes (Part III)	Chapter 6
Week 10	29-Oct	T-Cell-Mediated Adaptive Immunity (Part I)	Chapter 7
	31-Oct	T-Cell-Mediated Adaptive Immunity (Part II)	Chapter 7
Week 11	5-Nov	T-Cell-Mediated Adaptive Immunity (Part III)	Chapter 7
	7-Nov	Midterm 2	Ch. 4-7
Week 12	12-Nov	Development of B Lymphocytes (Part I)	Chapter 8
	14-Nov	Development of B Lymphocytes (Part II)	Chapter 8
Week 13	19-Nov	Immunoglobulin and B-Cell Diversity (Part I)	Chapter 9
	21-Nov	Immunoglobulin and B-Cell Diversity (Part II)	Chapter 9
Week 14	26-Nov	B-Cell Mediated Adaptive Immunity (Part I)	Chapter 10
	28-Nov	Thanksgiving recess	
Week 15	3-Dec	B-Cell Mediated Adaptive Immunity (Part II)	Chapter 10
	5-Dec	B-Cell Mediated Adaptive Immunity (Part III)	Chapter 10
FINAL	17-Dec Tuesday	Final Examination from 11:00 a.m. to 1:00 pm	Ch. 8-10

Statement on Academic Conduct and Support Systems

Academic Integrity:

The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, compromises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see [the student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. [The Office of Student Accessibility Services](#) (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

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

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services

(though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

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

[Diversity, Equity and Inclusion](#) - (213) 740-2101

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

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) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.