

BIOL 453

IMMUNOLOGY

INSTRUCTOR: Dr. Joseph Nika

OFFICE HOURS: WHA 118 – M/T/W/Th 1:00 PM - 2:00 PM or by Appointment

OFFICE PHONE: 702-895-4631

EMAIL: joseph.nika@unlv.edu

Grades:	Exam I	18%
	Exam II	18%
	Exam III	18%
	Final Exam	36%
	Quizzes	10%

BIOL 653

IMMUNOLOGY

INSTRUCTOR: Dr. Joseph Nika

OFFICE HOURS: WHA 205 – M/T/W/Th 10:00 AM - 11:00 AM or by Appointment

OFFICE PHONE: 702-895-4631

EMAIL: joseph.nika@unlv.edu

Grades:	Exam I	16%
	Exam II	16%
	Exam III	16%
	Final Exam	32%
	Quizzes	10%
	Research Proposal	10%

Learning outcomes:

Following the completion of this course, students will be able to:

- 1) Understand the differences between the innate, cell mediated adaptive, and humoral mediated adaptive branches of the immune system.
- 2) Understand how all three branches of the immune system work together to subvert immunological challenges.
- 3) Understand the maturation process of T lymphocytes.
- 4) Understand the maturation process of B lymphocytes.
- 5) Understand the immune response to infectious disease caused by bacteria, viruses, and parasites.
- 6) Understand how immunoglobulin genes are organized and assembled.
- 7) Understand how immunological diversity is achieved.
- 8) Understand how immunological self-tolerance is achieved.
- 9) Understand how the complement system functions.
- 10) Understand how the immune system functions in the context of the lymphatic and circulatory systems.

Course description and prerequisites: The immune system of vertebrates is essential for their survival in an environment teeming with infectious agents. The immune system in each of us is like a huge colony of interacting cells, dispersed throughout our bodies, that is tailored during development to recognize and repel “foreignness” while doing no damage to “self.” Much is known about how this system develops and how it mobilizes to fight infection. A great deal also known about the ways in which the immune system breaks down, resulting in vulnerability to infection or damage to “self.” This course is an introduction to the vertebrate immune system, and its focus is on the genetic, molecular, and cellular basis of immunity. We will also discuss how our increasing knowledge of the immune system is gradually allowing us to enhance it when it is defective and to control it when it is over zealous. The goal is for the student completing this course to have a broad picture of how the immune system works, and to be able to understand and follow the advances that are rapidly being made in this field. The prerequisites are BIOL 190A, BIOL 191A, CHEM 121A, CHEM 122A, Eng 102 or equivalent, Math 127 or higher.

Course materials:

Required text: *Kuby Immunology 8TH EDITION*
Punt, Stranford, Jones, Owen

Grades:

Research Proposals for BIOL 653 Students: Students enrolled in BIOL 653 must turn in an NIH style grant proposal on a current topic in immunology. Guidelines for grant formatting can be found at <http://grants.nih.gov/grants/funding/424/index.htm>. Budget sections may be omitted. Topics for the research proposal are due following completion of Lecture 6 – Antigen Antibody interactions. All research proposals are due by the time of the administration of the Final Examination. **Once the Final Examination begins, no research proposals will be accepted and no credit will be awarded.**

Lecture: 54% of your grade will come from three exams during the regular semester for BIOL 453. 36% of your grade will come from a cumulative final exam administered at the end of the semester for BIOL 453. 48% of your grade will come from three exams during the regular semester for BIOL 653. 32% of your grade will come from a comprehensive final exam administered at the end of the semester. The remaining 10% of your lecture component will be determined by the average of 10 point quizzes that will be administered randomly throughout the semester for both BIOL 453 and BIOL 653. The Total Points posted at the end of the semester, which combines the exams, random quizzes, and grant proposal (graduate students only) at the indicated percentages determines the final grade: A, 100-93; A-, 92-90; B+, 89-87; B, 86-83; B-, 82-80; C+, 79-77; C, 76-73; C- 72-70; D+, 69-67; D, 63-66; D-, 62-60; and F, 60.

Exams: Exams will cover material in assigned readings and material presented in class. The format will be 60 multiple-choice questions for the three mid-term exams and 100 multiple choice questions for the cumulative Final Exam. Exams will be administered during the scheduled lecture time indicated in the registration schedule. The dates indicated in the syllabus are tentative and subject to be moved forward or backward up to

two lectures depending on the pacing of the material covered. Exams will be administered using the Respondus LockDown Browser and Respondus Monitor. Students should use the following link to download and install the Respondus LockDown Browser to the computer or computers intended to be used to take quizzes and exams:

<https://download.respondus.com/lockdown/download.php?ID=734432924>.

Students should view the tutorials available in the following link to familiarize themselves with the use of the Respondus LockDown Browser and Monitor:

<https://web.respondus.com/he/lockdownbrowser/>.

The Respondus Monitor requires a webcam and students must bring either an iPad or laptop that has a webcam to class in order to login to the Respondus Browser to take examinations. **STUDENTS MUST LOG INTO THE RESPONDUS LOCKDOWN BROWSER ON TIME TO TAKE EXAMINATION EXAMINATIONS.** As a courtesy, exams will be available starting 10 minutes before the start of the scheduled lecture time to allow for any complications for logging into the Respondus LockDown Browser. **Attendance at exams in class during the assigned lecture time is required** and an absence will result in a zero unless you (1) provide the instructor with reasonable justification of your absence before the exam (including religious holidays and official UNLV extracurricular activities) or (2) provide written documentation of the reason for your absence on official letterhead of a physician or legal authority within one week after the exam date. Eligible students will take a make-up exam. A make-up exam will not be similar to the original and it must be completed within 1 week of the original exam. Make up examinations will be in fill in the blank and essay format. A student who does not take a make-up exam within 1 week of the original exam will receive a zero for the test. **It is your responsibility to schedule a make-up exam with me!**

Random Quizzes: Random quizzes as the name indicates are random and unannounced. They will be administered during the first three minutes of lecture on the random days that they will be given. They will be administered using the Respondus LockDown Browser with Monitor and will be available starting 10 minutes before the lecture is scheduled to begin as a courtesy to accommodate potential issues with logging into the Respondus Lockdown Browser. Students will need to bring either an iPad or laptop computer that is equipped with a webcam to every lecture in order to be prepared to take random quizzes.

The following are cursory summaries of University Policies. Links to the comprehensive University Policies are indicated after the cursory summaries.

Grade posting: Exam grades and cumulative grades will be posted as soon as possible after each exam and quiz on Canvas.

Public Health Directives

[Face coverings are mandatory for all faculty and students in the classroom.](#) Students must follow all active UNLV public health directives while enrolled in this class. UNLV public health directives are found at [Health Requirements for Returning to Campus](https://www.unlv.edu/coronavirus/health-requirements), <https://www.unlv.edu/coronavirus/health-requirements>. Students who do not comply with

these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the [UNLV Student Conduct Code](https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf), https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf, including being administratively withdrawn from the course.

Academic Misconduct

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). Students found culpable for academic misconduct will receive failing grade for the course and initiating of disciplinary review as described in the university's rules and disciplinary procedures for members of the university community. There will also be a permanent notation on the final transcripts indicating that the student has been found culpable of academic dishonesty. See the [Student Conduct Code](https://www.unlv.edu/studentconduct/student-conduct), <https://www.unlv.edu/studentconduct/student-conduct>.

Auditing a Course

Auditing a course allows a student to continue attending the lectures and/or laboratories and discussion sessions associated with the course, but the student will not earn a grade for any component of the course. Students who audit a course receive the same educational experience as students taking the course for a grade, but will be excused from exams, assessments, and other evaluative measures that serve the primary purpose of assigning a grade.

Classroom Conduct

Students have a responsibility to conduct themselves in class and in the libraries in ways that do not interfere with the rights of other students to learn, or of instructors to teach. Use of devices such as cellular phones and pagers, or other potentially disruptive activities are only permitted with the prior explicit consent of the instructor. Students are specifically prohibited to record classes without instructor authorization, including online/remote classes (either audio only, or video and audio). The instructor may rescind permission at any time during the class. If a student does not comply with established requirements or obstructs the functioning of the class, the instructor may initiate an administrative withdrawal of the student from the course.

Since the COVID-19 pandemic forced some instruction to be delivered remotely starting in Spring 2020, numerous students have asked instructors to record their synchronous classes, so that they can access them at their convenience. Instructors who agree to record their classes (audio only, or video and audio) should inform students in advance. Recorded lectures may not be broadly released to anyone, but made available exclusively to those students enrolled in the class during the particular academic term. Recorded lectures must be stored securely, and are subject to the Nevada System of Higher Education's Records Retention Policy, meaning that the recordings can only be deleted 120 days after the end of class (i.e., after grades are posted). Once this requirement is met, the recordings should be deleted. Class recordings are protected

from disclosure, as they are deemed part of an educational record under the Family Educational Rights and Privacy Act (FERPA).

Copyright

The University requires all members of the University Community to familiarize themselves with, and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect nor defend you, nor assume any responsibility for student or employee violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional [copyright policy information](https://www.unlv.edu/provost/copyright) is available at <https://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC)

The [UNLV Disability Resource Center](https://www.unlv.edu/drc) (Student Services Complex, SSC-A, Room 143, <https://www.unlv.edu/drc>, telephone 702-895-0866) provides resources for students with disabilities. Students who believe that they may need academic accommodations due to a permanent disability, temporary or permanent medical need, or academic support due to pregnancy are encouraged to contact the DRC as early as possible in the academic term. A Disabilities Specialist will discuss what options may be available to you. Students who are already registered with the DRC should request their accommodations online each semester, and make an appointment to discuss their accommodations with their instructors.

Final Examinations

The University requires that final exams given at the end of a course occur on the date and at the time specified in the Final Exam schedule. The Final Exam schedule is typically available at the start of the semester, and the classroom locations are available approximately one month before the end of the semester. See the [Final Exam Schedule](https://www.unlv.edu/registrar/calendars), <https://www.unlv.edu/registrar/calendars>.

Identity Verification in Online Courses

All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas.

UNLV students enrolled in online or hybrid courses are expected to read and adhere to the [Student Academic Misconduct Policy](https://www.unlv.edu/studentconduct/misconduct/policy), <https://www.unlv.edu/studentconduct/misconduct/policy>, which states that “acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment” is a form of academic misconduct. Intentionally sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student Academic Misconduct Policy.

UNLV students enrolled in online courses are also expected to read and adhere to the [Acceptable Use of Computing and Information Technology Resources Policy](https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy), <https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy>, which prohibits sharing university accounts with other persons without authorization.

To the greatest extent possible, all graded assignments and assessments in UNLV online courses should be hosted in WebCampus-Canvas or another UNLV-managed platform that requires ACE login credentials for access.

Incomplete Grades

The grade of “I” (Incomplete) may be granted when a student has satisfactorily completed three-fourths of course work for that semester/session, but cannot complete the last part of the course for reason(s) beyond the student’s control and acceptable to the instructor, and the instructor believes that the student can finish the course without repeating it. For undergraduate courses, the incomplete work must be made up before the end of the following regular semester. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the period indicated, a grade of “F” will be recorded, and the student’s GPA will be adjusted accordingly. Students who are fulfilling an Incomplete grade do not register for the course, but make individual arrangements with the instructor who assigned the “I” grade.

Library Resources

Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the [Libraries’ Research Consultation](https://guides.library.unlv.edu/appointments/librarian) website, <https://guides.library.unlv.edu/appointments/librarian>. You can also [ask the library staff](https://ask.library.unlv.edu/) questions via chat and text message at <https://ask.library.unlv.edu/>.

Missed Classwork

Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses (except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit the Missed Classwork policy, under Registration Policies, on the [Academic Policies](https://catalog.unlv.edu/content.php?catoid=32&navoid=8271&hl=) webpage, <https://catalog.unlv.edu/content.php?catoid=32&navoid=8271&hl=>.

In accordance with the policy approved by the Faculty Senate regarding missed class time and assignments, students who represent UNLV in any official extracurricular activity will also have the opportunity to make up assignments, provided that the student submits official written notification to the instructor no less than one week prior to the missed class(es).

The spirit and intent of the policy for missed classwork is to offer fair and equitable assessment opportunities to all students, including those representing the University in extracurricular activities. Instructors should consider, for example, that in courses which offer a “Drop one” option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an excused absence for extracurricular activity is both contrary to the

intent of the Faculty Senate's policy, and an infringement on the student's right to complete all work for the course.

This policy will not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the University that could be reasonably avoided. There should be a good faith effort by both the instructor and the student to agree to a reasonable resolution. When disagreements regarding this policy arise, decisions can be appealed to the Department Chair/School Director, College/School Dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to academic recruitment activities, competitive intercollegiate athletics, fine arts activities, liberal arts competitions, science and engineering competitions, and any other event or activity sanctioned by a College/School Dean, and/or by the Executive Vice President and Provost.

Rebelmail

Rebelmail is UNLV's official email system for students and by University policy, instructors and staff should only send emails to students' Rebelmail accounts. Rebelmail is one of the primary ways in which students receive official University communications, information about deadlines, major Campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the University. Sending emails within WebCampus-Canvas is also acceptable.

Tutoring and Coaching

The Academic Success Center (ASC), at the Claude I. Howard Building, provides tutoring, academic success coaching, and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, please visit the [ASC website](https://www.unlv.edu/asc), <https://www.unlv.edu/asc>, or call 702-895-3177. The ASC is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A, Room 254. Drop-in tutoring is located on the second floor of the Lied Library, and on the second floor of the College of Engineering building (TBE A 207).

UNLV Writing Center

One-on-one or small group assistance with writing is available free of charge to UNLV students at the [Writing Center](https://writingcenter.unlv.edu/), <https://writingcenter.unlv.edu/>, located in the Central Desert Complex, Building 3, Room 301 (CDC 3-301). Walk-in consultations are sometimes available, but students with appointments receive priority assistance. Students may make appointments in person or by calling the Center, telephone 702-895-3908. Students are requested to bring to their appointments their Rebel ID Card, a copy of the instructions for their assignment, and two copies of any writing they have completed on their assignment.

Optional statement for inclusion in syllabi.

Diversity Statement

As an institution of higher learning, UNLV represents a rich diversity of human beings among its faculty, staff, and students, and is committed to aspiring to maintain a Campus environment that values that diversity. Accordingly, the University supports understanding and appreciation of all members of its community, regardless of race, sex, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, gender, gender identity, marital status, pregnancy, genetic information, veteran status, or political affiliation. Please see [University Statements and Compliance](https://www.unlv.edu/about/statements-compliance), <https://www.unlv.edu/about/statements-compliance>.

A successful learning experience requires mutual respect and trust between the students and the instructor. Accordingly, the instructor asks that students be willing to listen to one another's points of view, acknowledging that there may be disagreements, keep discussion and comments on topic, and use first person, positive language when expressing their perspectives.

Please see the links for select, useful information for students regarding University Policies that is more comprehensive than the cursory summary information above:

[Academic Policies: https://catalog.unlv.edu/content.php?catoid=29&navoid=7326](https://catalog.unlv.edu/content.php?catoid=29&navoid=7326)

[Student Services & Activities: https://catalog.unlv.edu/content.php?catoid=29&navoid=7331](https://catalog.unlv.edu/content.php?catoid=29&navoid=7331)

[University Policies: https://catalog.unlv.edu/content.php?catoid=29&navoid=7332](https://catalog.unlv.edu/content.php?catoid=29&navoid=7332)

[University Community & Libraries: https://catalog.unlv.edu/content.php?catoid=29&navoid=7322](https://catalog.unlv.edu/content.php?catoid=29&navoid=7322)

Syllabus

Date	Chapters	Topic	
1/18		Overview of Immunology	1
1/20		Overview of Immunology	1
1/25		Cells and Organs of the Immune System	2
1/27		Cells and Organs of the Immune System	2

2/1	Cells and Organs of the Immune System	2
2/3	Recognition and Response	3
2/8	Recognition and Response	3
2/10	Recognition and Response	3
2/15	Exam I	
2/17	Innate Immunity	4
2/22	Innate Immunity	4
2/24	The Complement System	5
3/1	The Complement System	5
3/3	Organization and Expression of Lymphocyte Receptor Genes	6
3/8	Organization and Expression of Lymphocyte Receptor Genes	6
3/10	Organization and Expression of Lymphocyte Receptor Genes	6
3/22	Exam II	
3/24	The Major Histocompatibility Complex and Antigen Presentation	7
3/29	The Major Histocompatibility Complex and Antigen Presentation	7
3/31	The Major Histocompatibility Complex and Antigen Presentation	7
4/5	T Cell Development, Maturation, Activation, and Differentiation	8, 10
4/7	T Cell Development, Maturation, Activation, and Differentiation	8, 10
4/12	T Cell Development, Maturation, Activation, and Differentiation	8, 10
4/14	B Cell Development, Maturation, Activation, and Differentiation	9, 11
4/19	B Cell Development, Maturation, Activation, and Differentiation	9, 11
4/21	B Cell Development, Maturation, Activation, and Differentiation	9, 11
4/26	Exam III	

4/28	Hypersensitivity Responses	15
5/3	Hypersensitivity Responses	15
5/5	Special Lecture - HIV	
5/10	<i>FINAL EXAM – 10:10 AM</i>	