

LOYOLA UNIVERSITY CHICAGO
DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

**CHEM 396/465 – Special Topic in Biochemistry: Molecular Immunology
SYLLABUS, FALL 2022**

Instructor: Dr. Joerg Zimmermann e-mail: jzimmermann@luc.edu
Office Hours: Wed 12 PM to 1 PM or by appointment phone (cell): (858) 405 7026
Flanner Hall 418 and zoom Web Page: sakai.luc.edu

COURSE DESCRIPTION

The course will survey basic principles of molecular immunology, including structure of B and T cell receptors, generation of antibody diversity, affinity maturation of B cell receptors, effector functions of the immune system, its role in health and disease, and biomedical and bioanalytical applications of antibodies.

PREREQUISITES/COREQUISITES

Prerequisite: Satisfactory progress toward completion of the core chemistry courses, and Junior or Senior status. Restricted to BIOCHEM and CHEM majors.

COURSE FORMAT

Lectures (TuTh 6:00 PM – 7:15 PM, Information Commons 230).

PREFERRED NAME AND GENDER PRONOUN

This course affirms people of all gender expressions and gender identities. If you prefer to be called a different name than what is indicated on the class roster, please let me know. Please correct me on your preferred name and gender pronouns. If you have any questions or concerns, please do not hesitate to contact me.

OFFICE HOURS

Office hours are for those with questions, who seek advice, want to share and/or provide feedback. You can “walk in” or make an appointment ahead of time. Discussion can be about this class and beyond – office hours are for EVERYONE. We can talk about college life in general, class work, class issues, questions you might have, your academic plans, schedules, grades, a letter of recommendation you may need, or general questions or concerns. If you are unable to attend the regular office hours, I am happy to meet at a time that works for you, just ask me (either in person or via email).

As family matters, assignments, essays, and tests in all of your courses demand your attention, there could be moments when you need assistance. If you are experiencing difficulties inside or outside the classroom that may affect your performance in this course, I WANT TO HEAR ABOUT IT. I will do my best to accommodate your specific needs to help you succeed.

COMMUNICATION OUTSIDE OF CLASS TIME AND OFFICE HOURS

Course-related communications between you and me should be conducted using the Loyola email system. Check your email often, AT LEAST ONCE A DAY. Avoid using personal email accounts, I may not receive those emails due to spam filters. You can also call or text me at my cell-phone number: (858) 405 7026.

CLASS BEHAVIORAL EXPECTATIONS

We strive for a learning environment of equity, respect, and inclusiveness. Therefore, all of us are expected to follow these basic principles:

- Demonstrate respect for oneself and for others.
- Treat others with dignity and behave in a way which promotes a physically and psychologically safe, secure, and supportive climate.
- Allow all community members to engage as full and active participants where the free flow of ideas is encouraged and affirmed.

CAMPUS RESOURCES

Loyola University is dedicated to helping students succeed in their education endeavors. There are many resources to assist you with your online courses. You can find brief descriptions of the various types of support with links to the respective pages, as well as quick links to each, at <https://www.luc.edu/online/resources/index.html>.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Loyola University provides reasonable accommodations for students with disabilities. Any student requesting accommodations related to a disability or other condition is required to register with Student Accessibility Center (SAC), located in Sullivan Center, Suite 117. Professors receive the accommodation notification from SAC via Accommodate. Students are encouraged to meet with their professor individually in order to discuss their accommodations. All information will remain confidential. Please note that in this class, software may be used to record class lectures in order to provide equal access to students with disabilities. Students approved for this accommodation use recordings for their personal study only and recordings may not be shared with other people or used in any way against the faculty member, other lecturers, or students whose classroom comments are recorded as part of the class activity. Recordings are deleted at the end of the semester. For more information about registering with SAC or questions about accommodations, please contact SAC at 773-508-3700 or SAC@luc.edu.

COURSE MATERIALS

1. **Enrollment in our course on PollEverywhere.com** (instructions on course website).
2. **A laptop or tablet computer with a mouse and web browsing capability** for in-class activities.
3. **Access to Chimera, UCSF's molecular visualization software** (instructions on course website).
4. **Access to your LUC email and the course web page** (Sakai). Check here [often](#) for general information, announcements, discussion forums, and grades. YOU ARE RESPONSIBLE TO BE AWARE, WITHIN 24 HOURS, OF ALL EMAILS SENT TO YOUR LUC ACCOUNT, ANNOUNCEMENTS MADE ON THE WEBSITE AND FOR ALL MATERIALS PLACED THERE FOR THIS COURSE.

RECOMMENDED TEXTBOOKS

While there is no set course textbook, I recommend the following books as a resource for deeper understanding of the course content and additional readings:

- Coico and Sunshine: *Immunology, A Short Course* (7th edition available as ebook from the library)
- Abbas *et al.*: *Cellular and Molecular Immunology* (any recent edition)

ACADEMIC CALENDAR

You are responsible for understanding all processes and timelines associated with dropping or withdrawing from this course, file for a PASS/FAIL conversion etc. The Loyola University Chicago academic calendar that lists important dates and deadlines for the semester can be found at <https://www.luc.edu/academics/schedules>.

PASS/FAIL CONVERSION DEADLINES AND AUDIT POLICY

A student may request to convert a course into or out of the "Pass/No-Pass" or "Audit" status only within the first two weeks of the semester. For the Fall 2022 semester, students are able to convert a class to "Pass/No-Pass" or "Audit" through Monday, September 12th. Students must submit a request for Pass/No-Pass or Audit to their Academic Advisor.

LATE/MISSED WORK

Assignment deadlines are firm. Assume that technology will fail sometimes. Do not assume that everything will go smoothly when it comes to computers. Plan ahead. Do not leave completion/submission of assignments to the last possible moment. If you miss an assignment, contact the instructor as soon as possible, but not later than 48 hours after the assignment's deadline and state the reason for the missed deadline. Accommodations will be provided at the discretion of the instructor on a case-by-case basis in cases of emergency circumstances (e.g. serious illness, accidents, caring for a child or other family member).

ACADEMIC INTEGRITY

Before beginning, let me state EMPHATICALLY that I firmly believe that 99.9% of my students (if not 100%) are basically honest people. I also know that the pressures of school, grades, family, etc. can be overwhelming at times and can lead to choices one would not normally make. That said, I view violations of Academic Integrity as a very serious offense against your fellow students and against the integrity of the university, as well as a personal affront to me. There will be zero tolerance for infractions. If you believe there has been an infraction by someone in the class, please bring it to my attention. If caught, I will pursue disciplinary action against all parties TO THE FULLEST EXTENT POSSIBLE; this may include lowering of grades, failure, suspension or expulsion.

Academic dishonesty can take several forms, including, but not limited to cheating, plagiarism, copying another student's work, and submitting false documents. All students in this course are expected to have read and to abide by the demanding standard of personal honesty, drafted by the College of Arts & Sciences, which can be viewed here: <http://www.luc.edu/cas/advising/academicintegritystatement>. A basic mission of a university is to search for and to communicate the truth, as it is honestly perceived. A genuine learning community cannot exist unless this demanding standard is a fundamental tenet of the intellectual life of the community. Students of Loyola University Chicago are expected to know, to respect, and to practice this standard of personal honesty.

Any instance of dishonesty (including those detailed on the website provided above or in this syllabus) will be reported to the Chair of The Department of Chemistry & Biochemistry who will decide what the next steps may be. Dishonest behavior such as any form of cheating may cause to fail (grade = 0 or "F") an assignment, examination, or the course, depending the severity of the case. That grade assigned because of cheating cannot be "dropped".

GRADING STANDARDS AND POLICIES:

Students enrolled in CHEM 396 will be evaluated based on the following:

1. in-class participation	100 pts	(20%)
2. course projects	400 pts	(80%)
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TOTAL ACHIEVABLE POINTS	500 pts	(100%)

Students enrolled in CHEM 465 will be evaluated based on the following:

1. in-class participation	100 pts	(17%)
2. course projects	400 pts	(66%)
3. presentation	100 pts	(17%)
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TOTAL ACHIEVABLE POINTS	600 pts	(100%)

The following grading standards will be used (based on TOTAL points achieved):

A 92.0 % and up	B + 84.0 % – 87.9 %	C + 72.0 % – 75.9 %	D 55.0 % – 63.9 %
A – 88.0 % – 91.9 %	B 80.0 % – 83.9 %	C 68.0 % – 71.9 %	F 54.9 % and below
	B – 76.0 % – 79.9 %	C – 64.0 % – 67.9 %	

IN-CLASS PARTICIPATION

We will use PollEverywhere for in-class instant polling. Every poll has points awarded for participation (regardless whether or not you gave the correct answer), and for giving the correct answer. There will be ample opportunity to earn polling points and they max out at 100 pts, so missing a few polls will not affect your score. Therefore, you will not be able to make up for missed polls even if your absence is excused (e.g. illness, sporting events etc.).

COURSE PROJECTS

There will be four course projects during the semester, each worth 100 pts. We will discuss them in class and then every student will complete them independently at home and submit their work on Sakai. The course project score maxes out at 400 points. If we have time for a fifth project as shown in the tentative schedule, the lowest project score will be dropped.

PRESENTATIONS

Students enrolled in CHEM 465 will form groups and present on a topic assigned by the instructor during one of the last four class meetings. Each group will receive a joint score of up to 100 points for their presentation that will be applied to each member of the group.

COPYRIGHT OWNERSHIP IN COURSE MATERIALS

My lectures and course materials, including presentations, tests, exams, outlines, and similar materials, are protected by copyright. I am the exclusive owner of copyright in those materials I create. I encourage you to take notes and make copies of course materials for your own educational use. However, you may not, nor may you knowingly allow others to reproduce or distribute lecture notes and course materials publicly without my expressed written consent. This includes providing materials to commercial course material suppliers such as CourseHero and other similar services.

ACADEMIC GRIEVANCES AND ACADEMIC APPEALS POLICIES

Students have the right to protection against arbitrary and capricious academic evaluations. Arbitrary and capricious means that there is no relation between the grade given and the student's performance in the class and that a reasonable person could not find that the grade was deserved. Mere disagreement or dissatisfaction with a grade does not constitute a basis for grievance. The procedure to resolve disputes can be found at: https://www.luc.edu/academics/catalog/undergrad/reg_academicgrievance.shtml.

Students also have the opportunity to request a review of circumstances that impact their academic standing or progress at the University. For example, you can appeal for a change in academic record, a finding of academic misconduct, a decision related to transfer credit, or a dismissal for poor scholarship. The procedure to request reviews can be found at <https://www.luc.edu/academics/catalog/undergrad/academicappeals>.

PHOTOGRAPHS, AUDIO OR VIDEO RECORDINGS

Any photographs taken or audio or video recordings of this course or materials of this course made by you are for the students' personal academic use only and may not be distributed in any manner (to any other individual or to the public) without written consent of the instructor (me).

In this class software may be used to record live class discussions. As a student in this class, your participation in live class discussions will be recorded. These recordings will be made available only to students enrolled in the class, to assist those who cannot attend the live session or to serve as a resource for those who would like to review content that was presented. All recordings will become unavailable to students in the class when the Sakai course is unpublished (i.e. shortly after the course ends, per the Sakai administrative schedule). Students who prefer to participate via audio only will be allowed to disable their video camera so only audio will be captured. Please discuss this option with your instructor.

The use of all video recordings will be in keeping with the University Privacy Statement shown below:

Privacy Statement

Assuring privacy among faculty and students engaged in online and face-to-face instructional activities helps promote open and robust conversations and mitigates concerns that comments made within the context of the class will be shared beyond the classroom. As such, recordings of instructional activities occurring in online or face-to-face classes may be used solely for internal class purposes by the faculty member and students registered for the course, and only during the period in which the course is offered. Students will be informed of such recordings by a statement in the syllabus for the course in which they will be recorded. Instructors who wish to make subsequent use of recordings that include student activity may do so only with informed written consent of the students involved or if all student activity is removed from the recording. Recordings including student activity that have been initiated by the instructor may be retained by the instructor only for individual use.

COURSE REPEAT RULE

Effective with the Fall 2017 semester, students are allowed only THREE attempts to pass Chemistry courses with a C- or better grade. The three attempts include withdrawals (W).

After the second attempt, the student must secure approval for a third attempt. Students must come to the Chemistry Department, fill out a permission to register form or print it from the Department of Chemistry & Biochemistry website: <http://www.luc.edu/chemistry/forms/> and personally meet and obtain a signature from either the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form is then taken to your Academic Advisor in Sullivan to secure final permission for the attempt.

LOYOLA UNIVERSITY ABSENCE POLICY FOR STUDENTS IN CO-CURRICULAR ACTIVITIES (INCLUDING ROTC):

Students missing classes while representing Loyola University Chicago in an official capacity (e.g. intercollegiate athletics, debate team, model government organization) shall be allowed by the faculty member of record to make up any assignments and to receive notes or other written information distributed in the missed classes.

Students should discuss with faculty the potential consequences of missing lectures and the ways in which they can be remedied. Students must provide their instructors with proper documentation (develop standard form on web) describing the reason for and date of the absence. This documentation must be signed by an appropriate faculty or staff member, and it must be provided as far in advance of the absence as possible. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to give the student the opportunity to take the examination at another time.

ACCOMMODATIONS FOR RELIGIOUS REASONS

If you have observances of religious holidays that will cause you to miss class or otherwise effect your performance in the class you must alert the instructor within 10 calendar days of the first class meeting of the semester to request special accommodations, which will be handled on a case by case basis.

COURSE FACE MASK POLICY

Unless otherwise stated by the instructor, wearing of a proper face mask covering nose and mouth is required for all students during all class meetings and during office hours, out of respect for the health of students, faculty, and staff, their families and others in regular contact with members of our community and even if the University has less stringent requirement for indoor mask-wearing. Intransigent non-compliance may be reported to the Office of Student Conduct & Conflict Resolution.

TENTATIVE COURSE SCHEDULE

Week	Date	TOPIC
1	8/30	introduction
	9/1	innate and adaptive immunity
2	9/6	cells and tissues of the adaptive immune system
	9/8	B-cell receptors and antibodies: structure
3	9/13	Project 1: antibody-antigen interactions
	9/15	B cell development
4	9/20	V(D)J recombination
	9/22	T-cell receptors
5	9/27	Project 2: V(D)J recombination
	9/29	MHCs
6	10/4	activation of B and T cells
	10/6	affinity maturation of B-cell receptors
7	10/11	MIDSEMESTER BREAK – no class
	10/13	Project 3: somatic hypermutations
8	10/18	tolerance
	10/20	cytokines
9	10/25	effector cells
	10/27	laboratory techniques: affinity assays
10	11/1	Project 4: affinity assays
	11/3	laboratory techniques: antibody expression and purification, hybridoma technology
11	11/8	the immune system in health and disease
	11/10	the immune system in health and disease
12	11/15	Project 5: autoimmunity
	11/17	catch-up and review
13	11/22	presentation prep – no class
	11/24	THANKSGIVING HOLIDAY – no class
14	11/29	presentations
	12/1	presentations
15	12/6	presentations
	12/8	presentations

*PLEASE NOTE THAT THE SCHEDULE IS APPROXIMATE WITH RESPECT TO COVERAGES; WE MAY GET BEHIND OR AHEAD AS THE SEMESTER PROGRESSES. YOU ARE RESPONSIBLE FOR EVERYTHING SAID IN LECTURE, EVEN IF YOU MISS CLASS.

DISCLAIMER

THIS SYLLABUS MAY BE AMENDED AND/OR ALTERED AT ANY TIME DURING THE SEMESTER AT THE DISCRETION OF THE INSTRUCTOR.