Course Syllabus
Chem 153B – Winter 2026
Professor Kalli Kappel

Instructor: Professor Kalli Kappel (she/her)

Email: kallikappel@ucla.edu; please use chem153bkappel@gmail.com for course inquiries (see below).

Instructor office hours: 2051 Young Hall, Mondays 2-3 PM and Thursdays 2-3 PM

TAs:
Izaiah Cole (icole@g.ucla.edu)
Jake Cozy (jcozy@g.ucla.edu)
Marcella Mirabelli (mmirabelli@g.ucla.edu)
Vanessa Wiratmo (vanessawiratmo@g.ucla.edu)

TA office hours: Tuesdays 4-5 PM, 4222A Young Hall (except for January 20th, when office hours will be held in 3064 Young Hall)

Course Meetings: M,W,R,F: 1-1:50 PM in Young Hall CS24

Course Website: BruinLearn, https://bruinlearn.ucla.edu/courses/220811

Course overview and learning objectives:
The purpose of this course is to understand the biochemical reactions related to the central dogma of molecular biology, as defined by the flux of genetic information from DNA → RNA → Proteins. We will study the structure and function of macromolecules involved in this process.

Upon completion of this course, you will understand and be able to describe:
1. The structures of nucleotides and nucleic acids.
2. The structure and function of enzymes that polymerize nucleic acids (known as polymerases).
3. The biochemical reactions that promote DNA replication and DNA repair.
4. The biochemical reactions that lead to the accurate and regulated expression of the genetic information stored in DNA: Transcription, RNA Processing, and Translation.

Technological Proficiency and Software Required: Laptop and/or tablet with internet connection; Adobe Acrobat, Preview, or similar; Pymol for structure visualization; mobile device for iClicker participation.

Course Expectations:

What I expect of you	What you can expect of me
Be informed. Read this syllabus carefully and completely so you understand the course structure, expectations, and exam dates.	**Be enthusiastic**. To be prepared for and to bring my enthusiasm for research and teaching to each meeting.
Be attuned. Arrive to each class meeting prepared to ask questions of the presenters.	**Be responsive**. To respond to BruinLearn inquiries and emails within 24 hours on weekdays, and 48 hours on weekends. This may be longer when I have to travel for work.
Be ethical. To have a good attitude and maintenance of honest and ethical principles towards me, your classmates, and the execution of the course. Please read UCLA's True Bruin Values.	**Provide timely and fair feedback**. To make every effort to provide feedback on presentations in a timely manner, and to be respectful and fair with public feedback during meetings.
Have integrity. To give an honest, fair, responsible, respectful, trustworthy, and courageous effort on all	**Have integrity**. To uphold integrity standards and create an environment that fosters active learning, creativity, critical thinking, and honest collaboration.

academic work and collaboration. Please see UCLA's Student Conduct Code.	
Be flexible. Sometimes my schedule gets affected by unavoidable work travel, necessitating some rescheduling at the last minute.	**Be reasonable**. I will provide reasonable accommodation and understanding for student situations that arise; however, I will not make exceptions for one person that are not available to every other person in the course.
Be respectful. In the classroom environment, you should treat your classmates as honored colleagues in the pursuit of an understanding the natural world and using that understanding to improve our society. Respect and treat each person in the classroom with dignity, being conscious that others in the classroom come from different backgrounds, experiences, and cultures other than your own.	**Be respectful**. I will treat each person in the course with dignity and respect. It is a part of my responsibility as the course instructor to address the learning needs of all students in the course. I will present materials that are respectful of diversity and lived experiences.

Lectures: MWF - Young Hall CS24

Lectures will be in person and will introduce the materials and concepts covered in this course. All materials will be posted on the course BruinLearn page: https://bruinlearn.ucla.edu/courses/220811

Calendar of assignments and exams:

You should submit a homework by 11:59 PM on Monday on all weeks highlighted in Blue.

Lectures YH-CS24

Tutorials YH-CS24

Midterms YH-CS24

No Class

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	1/5		1/7	1/8	1/9
2	1/12		1/14	1/15	1/16
3	1/19		1/21	1/22	1/23
4	1/26		1/28	1/29	1/30
5	2/2		2/4	2/5	2/6
6	2/9		2/11	2/12	2/13
7	2/16		2/18	2/19	2/20
8	2/23		2/25	2/26	2/27
9	3/2		3/4	3/5	3/6
10	3/9		3/11	3/12	3/13

iClickers:

To facilitate active learning and promote engagement with course material, students will answer quizzes shown on some of the lecture slides using iClickers. The iClicker app is now integrated into BruinLearn and you can access it for no additional cost:
https://mhe.my.site.com/iclicker/s/article/Student-Guide-iClicker-Roster-Grade-Sync-Integration
Course Name: Chem 153B
Use this link to register your iClicker for this course (or follow the QR code to the right):
https://join.iclicker.com/WCUO

Tutorials (Prof. Kappel):

• Tutorials on January 29th and February 19th will be used for midterm exams in Young Hall CS24.

• The other tutorials will be in person in Young Hall CS24. These sessions typically consist of a brief review of recent course material followed by working through old exam questions in small groups. These sessions are not recorded and attendance is highly recommended since they are mostly used for problem solving in small groups. **I reserve the right to cover exam-relevant material during tutorials if I deem it necessary to achieve the course learning objectives by end of quarter.**

Discussions (TAs):

1A:	T	9:00-9:50 AM	Boelter Hall 4283	Izaiah Cole
1B:	T	1:00-1:50 AM	Young Hall 3069	Izaiah Cole
1C:	W	11:00-11:50 AM	Young Hall 1044	Jake Cozy
1D:	W	3:00-3:50 PM	Young Hall 2200	Jake Cozy
1E:	R	9:00-9:50 AM	Boelter Hall 5252	Marcella Mirabelli
1F:	R	4:00-4:50 PM	Boelter Hall 2444	Marcella Mirabelli

The first discussion section will focus on an introduction to PyMol, and the following discussions will focus on problem sets in preparation of midterms/final exam. Attendance will be taken, and please attend your assigned discussion section.

Grading: Exams, Homework and Participation

Midterms: 30%
Your higher midterm score will count for 20% of your grade, and the lower score as 10%.

Final Exam: 40% **Wednesday, March 18th, 8:00 AM-11:00 AM**
If you have scheduling conflicts regarding the midterms or final exam, please reconsider your enrollment in the course.

Homework: 10%
To encourage you to explore the problems presented in the weekly discussions ahead of time, you will be required to complete and submit one (out of the four possible) discussion problems on Monday prior to your discussion section (11:59PM deadline) for completion credit. The question you will answer will be the same as your group number, which will be assigned to you during the first week. Your submission should be a screenshot of a digital version or a photo of a paper version of your single question (not a PDF or word document) to help reduce formatting errors that could arise from various document types. You are welcome to work in groups to answer these questions, but every student should write their own answers. If you need clarification, please ask your TAs to help. You will get 1.25% credit for each completed homework, with a maximum possible percentage of 10%. *This equates to being able to miss one problem set during the quarter without penalty.*

Attendance and Participation Points: 10%
• iClicker lecture questions = 10%. While I expect that you will attend every class, you will receive full credit if you submit all iClicker responses in at least 20 lectures throughout the quarter (≥ 20 would be 10%, 19 would be 9.5%, etc). *In short, this equates to 8 skips that you can use throughout the quarter for mandatory classes without penalty.* iClicker participation points are given for completion regardless of whether or not the answer is correct. Since the class is not on Zoom and we will be using active learning techniques**, you must be physically in the classroom to be eligible for iClicker points on any given day**. If you have trouble with iClicker during any given lecture, please speak with me after class.

Discussions Participations = 10%
Please go to your assigned discussion section. While we expect that you will attend all discussions, you must attend at least 8 for full credit (less than 8 is 1.25% per discussion attended). *This equates to 2 skips during the quarter for mandatory discussion sections without penalty.*

Extra Credit: 1% for submitting an online evaluation for the course by the campus deadline.

Grading Scale: Minimum scores for particular grades are listed below. Scores are based on exceeding a cutoff without rounding (for example, 97.9 is an A, not an A+).

A+ ≥ 98%	A ≥ 90%	A- ≥ 85%	B+ ≥ 80%	B ≥ 75%	B- ≥ 70%
C+ ≥ 66%	C ≥ 63%	C- ≥ 60%	D ≥ 55%	F <55%	

Course Policies:

- **Questions and Course Logistics:** If you need me to answer specific questions related to the materials, **please use the BruinLearn discussion forum rather than emailing me or a TA** as it is beneficial for all students to know the answer to this question. If you have a question about course logistics, **please send an email to chem153bkappel@gmail.com. Emails should only be sent directly to the instructor in rare cases that involve private or personal matters.**
- **Technology Policy**: Students are welcome to take class notes however they prefer: pen and paper, using an iPad, or on a laptop. However, students should remain engaged in the class and refrain from using social media, web browsing, online shopping, etc. during class.
- **Sick Policy**: ***In general, do not come to class sick***. If you suspect you have COVID-19, please stay home until you have a negative rapid antigen test. If you feel well enough to attend class, please wear a mask.
- **Participation**: All students are expected to be active participants in the course. This includes attending every class meeting, asking questions, and being present and involved in discussions.
- **Regrade policy**: You are allowed two regrade challenges for the entire term-use them wisely. Like in tennis or football, your available challenges do not decrease if your challenge is found to be valid. However, once you use a challenge and it is not upheld, it counts toward your two. Before submitting a regrade request, carefully ask yourself:
    - Does my answer contain all the information requested by the question?
    - Does my answer contain any incorrect or unsupported claims?

  Historically, valid regrades fall into two categories:
    - Clerical errors: Examples include arithmetic mistakes in point totals, overlooked responses, or issues with automated grading (e.g., multiple-choice answers not captured by Gradescope).
    - Fundamental flaws in the question: If a flaw in the question affects multiple students, a broader correction will be made, and no challenge will be deducted from your total.

  Please note that we do not negotiate changes in partial credit. Regrade requests should be submitted on GradeScope, along with a clear explanation that directly addresses the questions above.
- **Course Evaluations**: All students are strongly encouraged to fill out course evaluations.

Collaborative learning
Learning works best if it is a collaborative process. The best way to master a difficult concept is to explain it to someone else. Therefore, I strongly encourage you to form study groups and to work together with your classmates. In particular, working together to answer the homework questions is encouraged. Notably, this class is **not** graded on a curve, and I would be thrilled to give all of you A's if everyone in the class demonstrates a deep understanding of the material.

Online resources
• Course website: https://bruinlearn.ucla.edu/courses/220811

All course materials will be posted here. In addition, a forum discussion is available for electronic communications with your fellow students and the instructors.

Textbook:
There is no required textbook for the course as none of the current textbooks cover all the information I give during lectures. You may find it useful to have one of the following texts as a reference to supplement the lecture:

Lehninger Principles of Biochemistry - David Nelson and Michael M. Cox

Many of you may already own the eBook or the hard copy book. For example, if you purchased Achieve/Lehninger for 153A, you already have 4-year access to the eBook. If you can still access your Chem 153A Achieve page, you should be able to read it through the Vital Source website or to download it to your computer for offline viewing (downloading for offline viewing requires that you first install the MacMillan Learning eBook or Bookshelf app on your device).
If you are no longer able to access the previous course, the eBook can be found at macmillan.vitalsource.com. The same email address and password that you used for Achieve must be used and you should then be able to gain free access. If you have any issues with this, contact Macmillan Support at (800) 936-6899 or via their website.

If you already own the book, there is no advantage to purchasing Achieve/Lehninger for this course since I will not be assigning homework in Achieve, and so you should opt out of Inclusive Access before the end of the second week of the course. Access the opt out option from the UCLA Store Course Materials tool in the menu on the left or the Inclusive Access materials list link on program emails or by sending an email to inclusiveaccess@asucla.ucla.edu.

Textbooks I also recommend include:
Molecular Biology: Principles of Genome Function, Nancy Craig, Orna Cohen-Fix, Rachel Green, Carol Greider, Gisela Storz, and Cynthia Wolberger

Biochemistry, Donald D. Voet and Judith G. Voet

Fundamentals of Biochemistry: Life at the Molecular Level, Donald D. Voet, Judith G. Voet, and Charlotte W. Pratt

No need to buy the latest edition - you may find a bargain for a used previous edition on Amazon or Ebay. Other textbooks may also be fine.

Pymol
In many/most lectures, a molecular graphics program called Pymol is used to explore nucleic acids and protein structure. It is essential that you explore these structures by yourself and understand the molecular interactions and recognition mechanisms based on molecular structures visualized with Pymol.

Pymol is available for download to your own computer. The “Educational-Use-Only” version (which is completely adequate for this course) can be downloaded for free after registering at the following web site: http://pymol.org/edu/?q=educational/.
To help you learn to use Pymol, the first discussion will be devoted to how to use this software. Prior to this tutorial, or during the quarter you can use the following resources to help you use the different features of Pymol:

- Some of the basics of Pymol are explained in a Youtube video made by my colleague Professor Al Courey: https://www.youtube.com/watch?v=c8RoP6eeYUg&t=1).
- A Pymol manual can be found here: http://pymol.sourceforge.net/newman/userman.pdf.
- Additional tips and tutorials links:
  http://www.pymolwiki.org/index.php/Biochemistry_student_intro
  http://www.pymolwiki.org/index.php/Practical_Pymol_for_Beginners

- Using ChatGPT in Pymol Navigation**:** ChatGPT can be a valuable resource for assisting you in navigating Pymol, offering insights into its functionalities and usage. However, we advise caution when seeking information related to course content. ChatGPT's responses frequently contain inaccuracies or misinformation regarding scientific topics. For content-related inquiries, we strongly recommend consulting course materials, your instructor, or fellow students.
- Finally, a lot more information about Pymol can be found through Google searches.

Note: I reserve the right to change any policy or plan stated on this syllabus at any time.

Resources:

Academic Integrity

UCLA is a community of scholars. In this community, all members including faculty, staff and students alike are responsible for maintaining standards of academic honesty. As a student and member of the University community, you are here to get an education and are, therefore, expected to demonstrate integrity in your academic endeavors. You are evaluated on your own merits. Cheating, plagiarism, collaborative work, multiple submissions without the permission of the professor, dishonest submission of iClicker responses, or other kinds of academic dishonesty are considered unacceptable behavior and will result in formal disciplinary proceedings usually resulting in suspension or dismissal.
Additional information can be found on the website for the Office of the Dean of Students:
https://deanofstudents.ucla.edu/student-conduct-code

Remember: There are many alternatives to academic dishonesty!

- Seek out help – meet with your TA or Professor, ask if there is special tutoring available.
- Drop the course – can you take it next quarter when you might feel more prepared and less pressured?
- Ask for an extension – if you explain your situation to your TA or Professor, they might grant you an extended deadline.
- See a counselor at Student Psychological Services, and/or your school, college or department – UCLA has many resources for students who are feeling the stresses of academic and personal pressures.

Accessibility

Students needing academic accommodations based on a disability should contact the Center for Accessible Education (CAE) at (310) 825-1501 or in person at Murphy Hall A255. When possible, students should contact the CAE within the first two weeks of the term as reasonable notice is needed to coordinate accommodations. For more information visit www.cae.ucla.edu.

Assault, Harassment, and Discrimination

Title IX prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. If you have experienced sexual harassment or sexual violence, you can receive confidential support and advocacy at the CARE Advocacy Office for Sexual and Gender-Based Violence, 1st Floor Wooden Center West, CAREadvocate@caps.ucla.edu, (310) 206-2465. In addition, Counseling and Psychological Services (CAPS) provides confidential counseling to all students and can be reached 24/7 at (310) 825-0768. You can also report sexual violence or sexual harassment directly to the University's Title IX Coordinator, 2241 Murphy Hall, titleix@conet.ucla.edu, (310) 206-3417. Reports to law enforcement can be made to UCPD at (310) 825-1491. Please note, I am legally required to share information of this nature with the Title IX office.

Navigating Student Services

UCLA's new Student Affairs Guidebook gathers key resources for graduate and undergraduate students related to living and learning during these tumultuous times: https://www.studentaffairs.ucla.edu/guidebook. Students can always consult the Student Care Managers program website for information about supportive services, including information about confidential one-on-one consultation:
http://www.studentincrisis.ucla.edu/Who-can-Help.

Basic Needs/Food Resources
If you find yourself having difficulty accessing meals and/or groceries, go to this link for information on a variety of on- and off- campus resources available to students: https://basicneeds.ucla.edu/.

LGBTQIA Resources
The UCLA LGBT Campus Resource Center (www.lgbt.ucla.edu) provides a range of services supporting intersectional identity development as well as fostering unity, wellness, and an open, safe, and inclusive environment. UCLA also has a range of policies and services especially relevant to transgender students here: www.lgbt.ucla.edu/Trans-At-UCLA.

Mental Health
As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, depression, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. UC offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, consider utilizing the confidential mental health services available on campus. I encourage you to reach out to the Counseling Center for support (www.counseling.ucla.edu and 310-825-0768, available 24/7). An on-campus counselor or after-hours clinician is available 24/7.

The Department of Chemistry and Biochemistry at UCLA acknowledges the Gabrielino/Tongva peoples as the traditional land caretakers of Tovaangar (the Los Angeles basin and So. Channel Islands). As a land grant institution, we pay our respects to the Honuukvetam (Ancestors), ‘Ahiihirom (Elders) and ‘Eyoohiinkem (our relatives/relations) past, present and emerging.