CHEM 373 Syllabus

Instructor

Dr. Jennifer Chik
Email: jchik@calpoly.edu
Office: Building 180, Room 414
Office Hours: Monday 1:10-2 pm and Wednesday 9:10-10 am

Class Meeting Times

Tuesdays and Thursdays 9:40-11:00 am

Classroom

Building 180, Room 361

Contacting Me

The best and fastest way to contact me is via email. If you have questions, comments, or need to set up an appointment, please email me at jchik@calpoly.edu. During the work week, I generally respond to emails between 8 am and 4 pm and within 24-48 hours. Please do not email me through the Canvas email system. I do not check that regularly and I will not respond.

Required Materials

Textbook: Lehninger Principles of Biochemistry 8th edition by Nelson and Cox.
All of the sections listed below will be in reference to the 8th edition. Any supplemental course materials will be listed on the Canvas site. These may include texts available in the library, videos, or links to helpful websites.

Learning Objectives

At the end of this course you will be able to:

1. Draw structures of the basic units that make up nucleic acids and the linkages between them
2. Explain the structure of DNA and RNA and how the differences in their structures relates to their respective functions
3. Describe the processes of the central dogma, including replication, transcription, and translation, and explain how they are regulated
4. Compare and contrast these processes in prokaryotic and eukaryotic systems
5. Relate our current understanding of DNA/RNA structure and the central dogma to early experimental evidence
6. Discuss modern molecular biology techniques

Grading

Your final grade consists of:

Reading Quizzes	10%
In-Class Quizzes (2)	15%
Journal Assignments (2)	10%
Midterms (2)	40%
Final Exam (Cumulative)	25%

The grading will be as follows: A/A- = 100-90%, B+/B/B- = 89-80%, C+/C/C- = 79-70%, D+/D/D- = 69-60%, F< 60%. Cutoffs may be lowered depending on the overall class mean. Any adjustment of course grades will occur at the end of the quarter.

How to Succeed

Simply showing up to lecture will not be enough for you to succeed. Some means of active learning are active reading, active participation in the lecture, asking questions and discussing topics with the instructor and/or your peers, and solving problems. All of these can be important ways of developing your understanding; try all of them to see what works best for you.

If you don't understand something, please ask! As I'm sure you know, if you have a question, it is very likely that others have same question, so don't feel shy about asking questions in class. Even so, if you don't feel comfortable asking questions in class, come to office hours or email me to get your questions answered.

Working through practice and suggested end of chapter problems will give you an opportunity to apply the facts and concepts we cover in class. It is important to work on problem solving diligently throughout the quarter, not just right before the exam. Keys will not be posted for practice problems, but I am more than happy to go over any questions during office hours or over email.

Reading Quizzes

In order to have an active and engaging discussion, you will be asked to complete the chapter reading and a short reading quiz prior to each class. These will consist of multiple-choice questions posted on the course Canvas page. Your two lowest reading quiz scores will be dropped. Quizzes are due at 9:40 am before each lecture and late submissions will not be accepted.

Quizzes and Exams

Over the course of the quarter, you will take two quizzes, two midterm exams, and a cumulative final exam. Quizzes (Weeks 3 and 7) will generally take 20 minutes and are meant to be used as a midpoint check-in before your midterm exam. Midterm exams are scheduled in Weeks 5 and 9 and will consist of multiple choice questions, short answer questions, problem solving (including calculations), and drawing of structures or diagrams. The final exam will be cumulative and will follow a similar format to the midterm exams.

Assessments will not be returned to you, but I encourage you to review them in my office during office hours. Once grades are posted on Canvas, you have *one week* to review the assessment and submit a re-grade request. If you believe a mistake has been made, please email me a clear written explanation as to why you deserve extra points. I reserve the right to re-grade your entire quiz/exam when re-grade requests are submitted. Any exams that have been written on during student review will be excluded from re-grade eligibility.

There are no make-up exams, so please be sure to plan ahead! University-approved excuses for missing an exam must be communicated at least two weeks prior to the scheduled exam date. In the event of an unexpected absence from a midterm exam, your final exam score will count twice toward your overall course grade.

Journal Assignment

Learning to read and interpret scientific literature is an exceptionally important skill for any scientist. Two journal article-based assignments will be due throughout the quarter (Weeks 3

and 10). You are expected to bring hard copies of your assignment to class on the due date. Late submissions will not be accepted.

Technology
This course will use real-time polling during lectures for thought exercises and comprehension checks. Your participation is greatly encouraged and will require a cell phone with a camera and internet access. These check-ins will be the only instances in which cell phones are to be used during class. Cell phones and other devices should always be silenced during class time. Please be respectful of your classmates and me. There is no recording of lectures allowed (photo, audio, or video) without my consent. If you need to take a picture of the board, please ask. Use of cell phones (even to check the time) is strictly forbidden during quizzes and exams.

Attendance, Punctuality, and Classroom Conduct
Your attendance and punctual arrival is expected in every lecture period. Late arrivals are disruptive to everyone's learning, so plan to arrive on time to every meeting. If you are disruptive to the class, you will be asked to leave the classroom.

Academic Integrity
Cal Poly will not tolerate academic cheating or plagiarism in any form. Students are expected to understand and adhere to the University's academic integrity policy: https://osrr.calpoly.edu/academic-integrity. Students who violate this policy will fail the course and will be referred to the Office of Student Rights and Responsibilities.

Examples of Policy Violations:

- Copying answers (even paraphrased) from somebody else's assignment is considered cheating by *both* students.
- Collaborating on assignments or tests when collaboration is not allowed and/or utilizing notes, texts, etc. on any assignment where use of such materials is not allowed.

Commitment to Equity and Inclusivity

All members of this class are expected to contribute to a safe, respectful, and inclusive environment for every other member of the class. For more information on resources related to diversity and inclusion, please visit the Office of University Diversity & Inclusion website at diversity.calpoly.edu.

Learning Differences and Accommodations

I am always open to discussing accommodations and supporting your success. It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact the Disability Resource Center (805-756-1395), drc@calpoly.edu, as early as possible in the term. Please note that if you are authorized for extended time on assessments, I expect them to be scheduled with maximum overlap to days/times in our course schedule.

Tentative Lecture Schedule

Week	Day	Topic	Lehninger Sections	Special Considerations
1	Tuesday	Syllabus, Introduction, Nucleosides, Nucleotides	8.1, 8.4	
	Thursday	Nucleotide biosynthesis	22.4	
2	Tuesday	DNA/RNA structure	8.1, 8.2, 8.3	
	Thursday	Chromosome Structure	24.1, 24.2, 24.3	
3	Tuesday			Monday Schedule
	Thursday	Prokaryotic DNA Replication	25.1	Quiz 1 Journal Assignment Due
4	Tuesday	Eukaryotic DNA Replication	25.1	
	Thursday	DNA Repair	25.2	
5	Tuesday	DNA Repair Cont.		
	Thursday			Midterm 1
6	Tuesday	Transcription Introduction	26.1	
	Thursday	Prokaryotic Transcription	28.1, 28.2	
7	Tuesday	Eukaryotic Transcription	26.1, 26.2, 28.3	
	Thursday	Genetic Code and Ribosome	27.1	Quiz 2
8	Tuesday	Prokaryotic Translation	27.2	
	Thursday	Eukaryotic Translation	27.2	
9	Tuesday			Midterm 2
	Thursday	CRISPR	9.2	
10	Tuesday	DNA Cloning	9.1	
	Thursday	DNA Technology	8.3	Journal Assignment Due
11	Thursday	Final Exam 10:10-1:00 pm		

Schedule is subject to change.