

BE 102 Molecular Components of Living Systems Spring
2023

Class Lectures: TR 9:30 AM – 10:50 AM, PFBH 191 (Fung Auditorium)

Discussion Sections: W 9:00 AM - 9:50 AM, Center 205

W 11:00 AM - 11:50 AM, HSS 2321

Instructor: Professor Adam J Engler (aengler@ucsd.edu (<mailto:aengler@ucsd.edu>))

Office Hours: W 2:00 PM - 3:00 PM, via Zoom

Teaching Assistants: Chinmayi Kashyap (ckashyap@ucsd.edu (<mailto:ckashyap@ucsd.edu>)),
Wenxin Zhao (wez018@ucsd.edu (<mailto:wez018@ucsd.edu>))

Recommended Text: Lehninger Principles of Biochemistry, 6th Ed.,

by D.L. Nelson and M.M. Cox, 2013. ISBN-10: 1429234148.

Course Description: Introduction to molecular structures. Macromolecules and assemblies-proteins, nucleic acids, and metabolites. Principles of design of simple and complex components of organelles, cells, and tissues.

Course Objectives: The primary aim of the course is to provide a comprehensive overview of the molecular components and machinery in living systems. The course will provide an introduction to molecular structures, macromolecules and assemblies-proteins, nucleic acids, and metabolites. The course will also cover the principles of design of simple and complex components of organelles, cells, and tissues. Students will gain a solid understanding of: 1) chemical and physical nature of life/living systems; 2) the structures and functions of four major classes of biomolecules (nucleic acids, proteins, lipids and carbohydrates) and their higher-ordered structures; 3) how these molecules are synthesized; 4) how to analyze, catalog, and engineer them (in particular DNA/RNA and proteins).

Rote memorization of facts is not required. Instead students are encouraged to gain a fundamental qualitative or quantitative understanding of the structures, machinery, mechanisms and processes from chemistry, physics and engineering principles and perspective.

Course Schedule: This is posted in the "Files" section of CANVAS.

Homework: Homework will be assigned approximately weekly, but not graded. The assignments will help you understand the materials/topics covered in the lectures and prepare you for the quizzes.

Students are encouraged to solve the problems by themselves first before checking the solutions that will be posted.

Course Evaluation: There will be four quizzes (25% total). The quizzes will be given on specified Fridays in the course schedule (see next page). To help you prepare for the quizzes, some similar problems/questions will be given in ahead. You will do well if you come to the lectures, do the homework/practice problems, and read the recommended sections in the textbook or supplementary reading materials posted on the course website.

Quizzes: All quizzes will be available on CANVAS for a period of 24 hours from 1pm Thursdays through 1pm Fridays. There will not be a cumulative final exam.


Grading: For this Spring 2020 quarter, the Department of Bioengineering will allow you to take classes required for your major with a P/NP grade. To pass this course, you must achieve a score of 70% or higher. Grading will be as follows:

A+	A	A-	B+	B	B-	C+	C	C-	D
95	91	88	85	81	78	75	71	68	58

Re-grading Policy: All regrade requests must be in writing, explaining the issue in grading, and must be turned in to Dr. Engler or the TAs within 1 week of the assignment's return to the class after grading. Aside from re-grades for clerical errors (i.e. error in adding up total points), the entire exam or homework will be re-graded.


Active Participation: Class participation is essential to learning and the development of the level of critical thinking required in college. We will use a variety of interactive methods, including Kahoot!-based Q&A for class-wide participation and individual-based Q&A for impromptu questions in class. Students participating via these methods in a majority of class lectures (10 or more) will receive 1% on top of their final class average.

Course Summary:

Date	Details	Due
Wed Apr 5, 2023	 BENG 102 - Office Hours (https://canvas.ucsd.edu/calendar?event_id=878980&include_contexts=course_44951)	2pm to 3pm


Wed Apr 12, 2023	 BENG 102 - Office Hours (https://canvas.ucsd.edu/calendar?event_id=878981&include_contexts=course_44951)	2pm to 3pm
Wed Apr 19, 2023	 BENG 102 - Office Hours (https://canvas.ucsd.edu/calendar?event_id=878982&include_contexts=course_44951)	2pm to 3pm
Fri Apr 21, 2023	 Quiz 1 (https://canvas.ucsd.edu/courses/44951/assignments/625634)	due by 1pm
Wed Apr 26, 2023	 BENG 102 - Office Hours (https://canvas.ucsd.edu/calendar?event_id=878983&include_contexts=course_44951)	2pm to 3pm
Wed May 3, 2023	 BENG 102 - Office Hours (https://canvas.ucsd.edu/calendar?event_id=878984&include_contexts=course_44951)	2pm to 3pm
Wed May 10, 2023	 BENG 102 - Office Hours (https://canvas.ucsd.edu/calendar?event_id=878985&include_contexts=course_44951)	2pm to 3pm
Fri May 12, 2023	 Quiz 2 (https://canvas.ucsd.edu/courses/44951/assignments/625635)	due by 1pm
Wed May 17, 2023	 BENG 102 - Office Hours (https://canvas.ucsd.edu/calendar?event_id=878986&include_contexts=course_44951)	2pm to 3pm
Wed May 24, 2023	 BENG 102 - Office Hours (https://canvas.ucsd.edu/calendar?event_id=878987&include_contexts=course_44951)	2pm to 3pm
Fri May 26, 2023	 Quiz 3 (https://canvas.ucsd.edu/courses/44951/assignments/625762)	due by 11:59pm
Wed May 31, 2023	 BENG 102 - Office Hours (https://canvas.ucsd.edu/calendar?event_id=878988&include_contexts=course_44951)	2pm to 3pm

Thu Jun 1, 2023

 [BENG 102 - June 1, 2023](https://canvas.ucsd.edu/calendar?event_id=906744&include_contexts=course_44951)
(https://canvas.ucsd.edu/calendar?event_id=906744&include_contexts=course_44951)


9:30am to 10:30am

Wed Jun 7, 2023

 [BENG 102 - Office Hours](https://canvas.ucsd.edu/calendar?event_id=878989&include_contexts=course_44951)
(https://canvas.ucsd.edu/calendar?event_id=878989&include_contexts=course_44951)

2pm to 3pm

Thu Jun 8, 2023

 [BENG 102 - Moleculr Components Living Sys - Engler \[SP23\]](https://canvas.ucsd.edu/calendar?event_id=908262&include_contexts=course_44951)
(https://canvas.ucsd.edu/calendar?event_id=908262&include_contexts=course_44951)

9:30am to 11am

Fri Jun 9, 2023

 [Quiz 4](https://canvas.ucsd.edu/courses/44951/assignments/625763)
(<https://canvas.ucsd.edu/courses/44951/assignments/625763>)

due by 11:59pm

 [Kahoot Bonus](https://canvas.ucsd.edu/courses/44951/assignments/660904)
(<https://canvas.ucsd.edu/courses/44951/assignments/660904>)

 [Total](https://canvas.ucsd.edu/courses/44951/assignments/660903)
(<https://canvas.ucsd.edu/courses/44951/assignments/660903>)

 [Total+Kahoot](https://canvas.ucsd.edu/courses/44951/assignments/660905)
(<https://canvas.ucsd.edu/courses/44951/assignments/660905>)
