

BIBC 100 Structural Biochemistry – WI22 Syllabus

Lecture Time: Tu/Th 3:30 PM-4:50 PM

Lecture Zoom Link (if remote):

<https://ucsd.zoom.us/j/91065635408?pwd=TVB0bHdKTzhrNFI3Wi8rNVZFFeUZpZz09>

Lecture Room (if in person): GH242

Instructor: Enfu Hui

Email: enfuhui@ucsd.edu

Website: <https://canvas.ucsd.edu/courses/32216>

All times posted in this syllabus is US Pacific Standard Time (PST).

Lecture format: Due to the recent surge of the Omicron variant of SARS-COV-2 and the prediction by CDC of a large number of positive cases in the following weeks, UC San Diego is exercising caution and moving our instruction to a remote-only mode from Jan. 3 to Jan. 17. **Therefore, lectures 1-4 will be delivered remotely via zoom** using the link above.

- Lecture 1 will be delivered synchronously via zoom. In this lecture, Professor Hui will describe course policies and zoom tutorials.
- Lectures 2-4 will be pre-recorded and uploaded to Canvas at least three days before the scheduled lecture time. During the normal lecture time, professor Hui will run a live Zoom session for Q/A and problem solving. Students are expected to study the pre-recorded lectures prior to the normal lecture time, mark their confusing points, and clarify them during the live Zoom sessions. The live Zoom sessions **will also be recorded** and uploaded to Canvas, available to all students enrolled in this class. Attendance of the live Zoom lecture is optional but strongly encouraged.

Similarly, discussion section #1 will also take place on zoom (links will be announced on Canvas later).

The format of the remaining lectures and discussion sections will be determined according to campus regulations and announced as soon as the decision has been made.

Please note that this syllabus is subject to change, particularly because of campus efforts to contain covid-19. Any schedule changes will be posted on the course website. Make sure to frequently check the website to keep updated.

Please make sure that you check out this website for resources on how to learn remotely:

<https://digitallearning.ucsd.edu/learners/learning-remote.html>

SCHEDULE

Lecture	Date	Topic	Problem set	Discussion section	Wk
1	Jan 4 Tue	Course policies and zoom tutorials		No discussion section	1
2	Jan 6 Thu	Introduction	PS 1 – covers lectures 2 & 3 <i>Upload: Jan 8, Sat</i> <i>Due: Jan 15, Sat</i>		
3	Jan 11 Tue	Amino acids and peptides		Discussion section 1 for PS1 (contents for lectures 2 & 3) <i>Jan 12 Wed or Jan 14 Fri</i>	2
4	Jan 13 Thu	Protein 2° and 3° structures	PS 2 – covers lectures 4 & 5 <i>Upload: Jan 15, Sat</i> <i>Due: Jan 22, Sat</i>		
5	Jan 18 Tue	Fibrous proteins and protein folding		Discussion section 2 for PS2 (contents for lectures 4 & 5) <i>Jan 19 Wed or Jan 21 Fri</i>	3
6	Jan 20 Thu	Assisted protein folding	PS 3 – covers lectures 6 & 7 <i>Upload: Jan 22, Sat</i> <i>Due: Jan 29, Sat</i>		
7	Jan 25 Tue	Nucleic acids structure		Discussion section 3 for PS3 (contents for lectures 6 & 7) <i>Jan 26 Wed or Jan 28 Fri</i>	4
8	Jan 27 Thu	Protein-DNA interactions	PS 4 – covers lectures 8 & 9 <i>Upload: Jan 29, Sat</i> <i>Due: Feb 5, Sat</i>		
9	Feb 1 Tue	Immune recognition		Discussion section 4 for PS4 (contents for lectures 8 & 9) <i>Feb 2 Wed or Feb 4 Fri</i>	5
10	Feb 3 Thu	Oxygen binding proteins	PS 5 – covers lectures 10 & 11 <i>Upload: Feb 12, Sat</i>		
Feb 8 Tuesday Midterm on Canvas (test for lectures 2-8)					

11	Feb 10 Thu	Enzymes and catalysis	<i>Due: Feb 19, Sat</i>		6
12	Feb 15 Tue	Cytoskeleton and motor proteins	PS 6 – covers lectures 12 & 13 <i>Upload: Feb 19, Sat</i> <i>Due: Feb 26, Sat</i>	Discussion section 5 for PS5 (contents for lectures 10 & 11) <i>Feb 16 Wed or Feb 18 Fri</i>	7
13	Feb 17 Thu	Carbohydrates and Glycoproteins			
14	Feb 22 Tue	Membrane lipids and structure	PS 7 – covers lectures 14 & 15 <i>Upload: Feb 26, Sat</i> <i>Due: Mar 5, Sat</i>	Discussion section 6 for PS6 (contents for lectures 12 & 13) <i>Feb 23 Wed or Feb 25 Fri</i>	8
15	Feb 24 Thu	Membrane proteins			
16	Mar 1 Tue	Signaling & receptors I	PS 8 – covers lectures 16 & 17 <i>Upload: Mar 5 Sat</i> <i>Due: Mar 12, Sat</i>	Discussion section 7 for PS7 (contents for lectures 14 & 15) <i>Mar 2 Wed or Mar 4 Fri</i>	9
17	Mar 3 Thu	Signaling & receptors II			
18	Mar 8 Tue	Fluorescent proteins		Discussion section 8 for PS8 (contents for lectures 16 & 17) <i>Mar 9 Wed or Mar 11 Fri</i>	10
19	Mar 10 Thu	Review			
March 15 Tuesday 3pm- 5:59pm Final on Canvas					

TEXTBOOKS:

Lectures will cover much of the information in the readings listed on the schedule above. **Exams will be based solely on materials covered in class.**

Textbooks are Optional. If you are interested, the following three books are recommended.

- **Lehninger Principles of Biochemistry** (Nelson and Cox) 7th Edition – listed below as Lehn
- **Introduction to Protein Structure** (Branden and Tooze) 2nd Edition – listed below as B&T
- **XBio** (a new online textbook <https://explorebiology.org/>).

Optional Reading Materials

Lecture 2	Introduction	Lehn 2.1, 2.2
Lecture 3	Amino acids and peptides	Lehn 3; B&T 1, 2
Lecture 4	Protein 2° and 3° structures	Lehn 4.1-4.3; B&T 3-5
Lecture 5	Fibrous proteins and protein folding	Lehn 4.4; B&T 6
Lecture 6	Assisted protein folding	Lehn 4.4; B&T 6
Lecture 7	Nucleic acids structure	Lehn 8; B&T 7
Lecture 8	Protein-DNA interactions	B&T 8-10
Lecture 9	Immune recognition	Lehn 5.2; B&T 15
Lecture 10	Oxygen binding proteins	Lehn 5.1; B&T 2
Lecture 11	Enzymes and catalysis	Lehn 6; B&T 11
Lecture 12	Cytoskeleton and motor proteins	Lehn 5.3; B&T 14
Lecture 13	Carbohydrates and Glycoproteins	Lehn 7
Lecture 14	Membrane lipids and structure	Lehn 10.2, 11.1-2
Lecture 15	Membrane proteins	Lehn 11.3, 12.5-6
Lecture 16	Signaling & receptors I	Lehn 12; B&T 13
Lecture 17	Signaling & receptors II	Lehn 12; B&T 13
Lecture 18	Fluorescent proteins	Misc, Xbio

IMPORTANT DATES:

January 17: Deadline to submit your requests to take exams at an alternative time

January 28: Deadline to drop without a W

February 8: MIDTERM

February 11: Deadline to drop with a W

March 15: FINAL EXAM

March 24: Grades available

(<https://blink.ucsd.edu/instructors/courses/enrollment/calendars/2021.html>)

GRADING:

POSSIBLE EARNED POINTS FOR THE QUARTER:	
160 points	Problem sets
150 points	Midterm
250 points	Final

560 points	Total, used for grade calculation
20 points	Bonus for learning during pandemic
580 points	Total possible point with the bonus

Grade will be assigned according to this scale:

Points earned	Percentile	Letter grade	P/NP
≥ 560	100	A+	P
≥ 504	90	A	P
≥ 487	87	A-	P
≥ 470	84	B+	P
≥ 448	80	B	P
≥ 431	77	B-	P
≥ 414	74	C+	P
≥ 392	70	C	P
≥ 375	67	C-	P
≥ 358	64	D+	NP
≥ 336	60	D	NP
≥ 319	57	D-	NP

I understand this is a challenging time and that you may have challenges with accessing the course material, adapting to online-only learning, and taking online quizzes and exams. My goals are to teach you the course material, fairly test your knowledge of this material, and grade you accordingly, while keeping these challenges in mind.

ASSESSMENT:

MIDTERM (150 POINTS): to be administrated on Canvas, see schedule table for time. Covers material through Lecture 8. Exam questions will only cover material taught in class and the discussion sections.

FINAL (250 POINTS): to be administrated on Canvas, see schedule table for time. This is cumulative, but primarily focused on new material covered since the midterm.

Both the midterm and final will be open book, timed and proctored via a zoom meeting, and only test on materials discussed in class. You are allowed to check your notes and lecture slides, but you must finish the exam on your own. Each student will be assigned with a unique version of exam. You are NOT allowed to communicate or collaborate with others. Sharing or posting exam questions online is strictly prohibited. We will monitor these activities at the online sources such as Chegg and course hero etc.

To pass the course, you must take BOTH exams.

PROBLEM SETS (160 POINTS): You can earn up to 160 points through a total of eight problem sets, 20 points each. These problem sets serve two purposes: 1) they will allow you to check and reinforce your learning; 2) they will allow you to earn easier points outside of exams, and thus can be considered as a second mid-term exams. Problem sets **will be posted on Canvas** each week from week 2 in both Word and PDF format.

Credit for completing the assigned problem sets can be earned by submitting your work to Canvas by the deadline listed in the table below. Problem sets should be submitted electronically on Canvas, in **PDF format**. You can work on either the PDF format, the Word format, or a printed version if you have access to a printer. In the latter two cases, **you will need to convert the problem set to PDF version for submission**. If a question requires hand drawing, you can draw on a piece of paper, take a photo of your drawing, and insert the picture into the Word or PDF.

Problem sets submitted by the deadline will be graded by your **official IA**. Points will be awarded based on the accuracy of your answers. **Late submissions will not be graded**. You are expected to work on the problem sets before attending the discussion section.

DISCUSSION SECTIONS:

All eight problem sets will be discussed during our weekly discussion sections, one problem set per section. Discussion sections, led by your IAs, will begin on January 12 for A01-A04 and January 14 for A05-A09. For the entire quarter, there will be eight discussion sections in total with the time listed in the table below.

The main purpose of the discussion sections is to work through the problem set posted in the prior week. They will also help you develop your analysis and problem-solving ability, and provide you with the opportunity to build relationships with fellow students and your IA.

During the discussion section, the IA will explain the corresponding problem set (coded in the same color in the schedule table). However, **you are expected to first work on these problem sets on your own prior to attending the discussion section**. It is likely that the IAs will go through the questions based on a priority list due to time constraint.

According to the campus policy, the 1st discussion section, which will be run exclusively through a live Zoom session. Unless specified otherwise, discussion sections 2-8 will take place in person at the scheduled time and location, with a simultaneous zoom meeting to accommodate students who cannot attend in person.

Students may attend any discussion section in a given week, but ONLY your official IA will be grading your problem sets.

Discussion sections will not be recorded, attendance is not mandatory, but strongly encouraged, the IAs will not hold make up discussion sections.

Table. List of problem set contents, due dates, and relevant discussion sections

Problem set	Available on Canvas	Due on Canvas	Content	Relevant discussion section dates
1	Jan 8, Sat	11:59pm, Jan 15, Sat	Lectures 2 & 3	Jan 12 Wed (A01-A04) Jan 14 Fri (A05-A09)
2	Jan 15, Sat	11:59pm, Jan 22, Sat	Lectures 4 & 5	Jan 19 Wed (A01-A04) Jan 21 Fri (A05-A09)
3	Jan 22, Sat	11:59pm, Jan 29, Sat	Lectures 6 & 7	Jan 26 Wed (A01-A04) Jan 28 Fri (A05-A09)
4	Jan 29, Sat	11:59pm, Feb 5, Wed	Lectures 8 & 9	Feb 2 Wed (A01-A04) Feb 4 Fri (A05-A09)
5	Feb 12, Sat	11:59pm, Feb 19, Sat	Lectures 10 & 11	Feb 16 Wed (A01-A04) Feb 18 Fri (A05-A09))

6	Feb 19, Sat	11:59pm, Feb 26, Sat	Lectures 12 & 13	Feb 23 Wed (A01-A04) Feb 29 Fri (A05-A09)
7	Feb 26, Sat	11:59pm, Mar 5, Sat	Lectures 14 & 15	Mar 2 Wed (A01-A04) Mar 4 Fri (A05-A09)
8	Mar 5, Sat	11:59pm, Mar 12, Sat	Lectures 16 & 17	Mar 9 Wed (A01-A04) Mar 11 Fri (A05-A09)

*** No discussion section on the week of Feb 8th due to midterm.**

Table. List of discussion section times

Section	Day	Time	Instructional Assistant
A01	Wednesday	8:00a-8:50a	Kylah Angeles
A02	Wednesday	10:00a-10:50a	Charles Palmer
A03	Wednesday	11:00a-11:50a	Sara Yanke
A04	Wednesday	12:00p-12:50p	Minjie (Jay) Guo
A05	Friday	1:00p-1:50p	Silas Xu
A06	Friday	2:00p-2:50p	Silas Xu
A07	Friday	3:00p-3:50p	Ariane Yu
A08	Friday	4:00p-4:50p	Sharon Zhao
A09	Friday	11:00-11:50a	Stephanie Nguyen

INSTRUCTIONAL ASSISTANTS:

Name	Email Address	Section(s)	Office Hours
Kylah Angeles	klangele@ucsd.edu	A01 Wednesday 8:00a Meeting ID: 975 6958 5057	Wednesday, 4:00p Meeting ID: 931 7026 0949 Location if In-Person: TBA
Charles Palmer	cnpalmer@ucsd.edu	A02 Wednesday 10:00a Meeting ID: 931 3923 9253	Friday, 10:30a Meeting ID: 957 4855 6360 Location if In-Person: TBA
Sara Yanke	syanke@ucsd.edu	A03 Wednesday 11:00a Meeting ID: 993 0333 8293	Thursday, 11:00a Meeting ID: 917 9045 9676 Location if In-Person: Outside Roger's Market (in Revelle)
Minjie (Jay) Guo	m2guo@ucsd.edu	A04 Wednesday 12:00p Meeting ID: 910 5976 3713	Tuesday 5:00p Meeting ID: 947 4866 4839 Location if In-Person: TBA
Silas Xu	jix007@ucsd.edu	A05 Friday 1:00p Meeting ID: 910 5387 8735 A06 Friday 2:00p Meeting ID: 924 7585 3318	Monday, 5:00p Meeting ID: 976 7342 3107 Location if In-Person: TBA
Ariane Yu	yiy033@ucsd.edu	A07 Friday 3:00p Meeting ID: 951 8613 6089	Tuesday 9:30a Meeting ID: 913 1504 4096 Location if In-Person: TBA

Sharon Zhao	ziz013@ucsd.edu	A08 Friday 4:00p Meeting ID: 924 3290 8938	Thursday, 5:30p Meeting ID: 923 6285 9561 Location if In-Person: TBA
Stephanie Nguyen	s4nguyen@ucsd.edu	A09 Friday 11:00a* Meeting ID: 976 9090 4294	Monday, 10:30a Meeting ID: 914 2111 5612 Location if In-Person: Sun God Lounge

***Note that A09 starts at 11am instead of 11pm.**

CLASS POLICIES:

EXAMS:

One midterm exam will be synchronously administered on Canvas during one regularly scheduled lecture time: 3:30pm-4:50pm PST. The date is tentatively set on **February 8, Tuesday**.

The final exam will be synchronous on Canvas at **3pm- 6pm on March 15 Tuesday**.

To promote academic integrity and effectively address questions you may have during the exam, both exams will be proctored by a live Zoom session, and students are required to **keep their webcam on throughout the exams**.

Exceptions will be made for those in vastly different time zones (+/- 6 hrs) or with personal situations/extenuating circumstances that you can provide documentation of. You must email Dr. Hui (enfuhui@ucsd.edu) within the first 2 weeks of the winter quarter if you wish to take the exams at an alternate time. All students with an exception will take the exam at one agreed upon alternate time. Accommodations will not be made for students that choose to schedule courses with overlapping class or final exam times.

Any student who is found cheating on a midterm and/or final will be reported to the Academic Integrity Office according to university policy for an investigation into academic dishonesty (see section on Academic Integrity below).

Students suspected of AI violations on exams will be invited to Zoom follow-up meetings where they will be asked to (in real time, on video) justify their answers (before the graded exams or solutions are released). If the instructor isn't convinced during the meeting, or the student refuses to participate, they're submitted for AI violations.

REGRADES: If you discover an error in the grading of your exam, you may request a regrade by emailing Dr. Hui or the instructional assistant for your section within one week of when the graded exams are made available. No requests will be considered after one week, except for correction of point addition errors.

ACCOMODATIONS: Students requesting accommodations and services due to a disability for this course need to provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD), prior to eligibility for requests. Receipt of AFAs in advance is necessary for appropriate planning for the provision of reasonable accommodations. Please note that instructors are unable to provide accommodations unless they are first authorized by OSD. For more information, contact the OSD at (858) 534-4382 (voice), osd@ucsd.edu, or visit osd.ucsd.edu."

ACADEMIC INTEGRITY

Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. **Academic misconduct** is broadly defined as any prohibited and dishonest means to receive course credit, a higher grade, or avoid a lower grade. Academic misconduct misrepresents your knowledge and abilities, which undermines the instructor's ability to determine how well you're doing in the course. Please do not risk your future by cheating.

As defined by UCSD policy, academic dishonesty includes:

- Taking an exam for another student or allowing another student to take an exam for you.
- Copying another student's work on an exam or allowing another student to copy your work.
- Altering graded exams or assignments and submitting them for a regrade.
- Bringing answers or cheat sheets to the exam in note form or using a calculator, phone or other electronic device.

Any student caught or suspected of cheating by doing one of the things on the list above will be reported to the UCSD Academic Integrity Coordinator and the Dean of the student's college. Confirmed cases of cheating on exams or altering an exam and submitting it for a regrade will result in the student receiving an automatic F as their final grade as well as other disciplinary actions determined appropriate by the Academic Integrity Coordinator.

LETTER OF RECOMMENDATION POLICY:

Professor Hui will be happy to support students in his class for their future endeavors, through letters of recommendation. However, he will only write letters for students who meet either of the two following conditions:

1. The student obtains an A+ from this class. This will automatically guarantee you a letter if needed.
2. The student obtains a B+ or above from this class **and** Professor Hui knows you by the time you finish the course, such that he could comment positively on your potential or personality besides your performance in this class.

Plain letters restating the grades usually do not help your application.