BIBC 100 Structural Biochemistry – WI2021 Syllabus

Lecture Time: Tu/Th 3:30 PM-4:50 PM
Instructor: Enfu Hui
Email: enfuhui@ucsd.edu
Website: https://canvas.ucsd.edu/courses/21399
All times posted in this syllabus is US Pacific Standard Time (PST).

Lecture format: Due to the COVID-19 outbreak, all lectures and exams will be delivered remotely. All lectures, with the exception of the first lecture, will be asynchronous, pre-recorded and uploaded to Canvas at least three days before the scheduled lecture time.

During the normal lecture time, the instructor 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 most 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.

All lectures, with the exception of the 1st lecture, will be asynchronous, pre-recorded and uploaded to Canvas at least two days before the scheduled lecture time.

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 5 Tue	Course policies and zoom tutorials			
2	Jan 7 Thu	Introduction	PS 1 – covers lectures 2 & 3 *Upload: Jan 13, Wed* *Due: Jan 20, Wed*	No discussion section	1
3	Jan 12 Tue	Amino acids and peptides			
4	Jan 14 Thu	Protein 2° and 3° structures	PS 2 – covers lectures 4 & 5 *Upload: Jan 20, Wed* *Due: Jan 27, Wed*	Discussion section 1 for PS1 (contents for lectures 2 &3) *Jan 15 Fri or Jan 18 Mon*	2
5	Jan 19 Tue	Fibrous proteins and protein folding			
6	Jan 21 Thu	Assisted protein folding	PS 3 – covers lectures 6 & 7 *Upload: Jan 27, Wed* *Due: Feb 3, Wed*	Discussion section 2 for PS2 (contents for lectures 4 & 5) *Jan 22 Fri or Jan 25 Mon*	3
7	Jan 26 Tue	Nucleic acids structure			
8	Jan 28 Thu	Protein-DNA interactions	PS 4 – covers lectures 8 & 9 *Upload: Feb 3, Wed* *Due: Feb 10, Wed*	Discussion section 3 for PS3 (contents for lectures 6 & 7) *Jan 29 Fri or Feb 1 Mon*	4
9	Feb 2 Tue	Immune recognition			
10	Feb 4 Thu	Oxygen binding proteins	PS 5 – covers lectures 10 & 11 *Upload: Feb 13, Sat* *Due: Feb 20, Sat*	Discussion section 4 for PS4 (contents for lectures 8 & 9) *Feb 5 Fri or Feb 8 Mon*	5
Feb 9 Tuesday Midterm on Canvas (test for lectures 2-8)					6
11	Feb 11 Thu	Enzymes and catalysis			
12	Feb 16 Tue	Cytoskeleton and motor proteins	PS 6 – covers lectures 12 & 13 *Upload: Feb 20, Sat* *Due: Feb 27, Sat*	Discussion section 5 for PS5 (contents for lectures 10 & 11) **Feb 19 Fri or Feb 15 Mon*	7
13	Feb 18 Thu	Carbohydrates and Glycoproteins			
14	Feb 23 Tue	Membrane lipids and structure	PS 7 – covers lectures 14 & 15 *Upload: Feb 27, Sat* *Due: Mar 6, Sat*	Discussion section 6 for PS6 (contents for lectures 12 & 13) *Feb 26 Fri or Feb 22 Mon*	8
15	Feb 25 Thu	Membrane proteins			
16	Mar 2 Tue	Signaling & receptors I	PS 8 – covers lectures 16 & 17 *Upload: Mar 6 Sat* *Due: Mar 13, Sat*	Discussion section 7 for PS7 (contents for lectures 14 & 15) *Mar 5 Fri or Mar 1 Mon*	9
17	Mar 4 Thu	Signaling & receptors II			
18	Mar 9 Tue	Fluorescent proteins		Discussion section 8 for PS8 (contents for lectures 16 & 17) *Mar 12 Fri or Mar 8 Mon*	10
19	Mar 11 Thu	Review			
March 16 Tuesday 3pm- 6pm Final on Canvas					

- Note for Friday sections, no discussion section for on Feb 12, instead the discussion section for PS5 will take place on Feb 19, to ensure you have more time to work on PS5 after the lecture 11.

- Starting from PS5, the due date will be switched from Wednesday to Saturday. This is because the in-class midterm will push our schedule back by one lecture.

TEXTBOOKS:

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

Textbooks are Optional. If you are interested, the following three books are recommended.
- **Lehninger Principles of Biochemistry** (Nelson and Cox) 7th Edition – listed above as Lehn
- **Introduction to Protein Structure** (Branden and Tooze) 2nd Edition – listed above 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 29: Deadline to drop without a W
February 9: MIDTERM
February 11: Deadline to drop with a W
March 16: FINAL EXAM
March 23: Grades available
(https://blink.ucsd.edu/instructors/resources/academic/calendars/2020.html)

GRADING:

POSSIBLE EARNED POINTS FOR THE QUARTER:	
140 points	Problem sets
150 points	Midterm
250 points	Final
540 points	**Total**
20 points	**Bonus**

Grade will be assigned according to this scale:

Points earned	Percentile	Letter grade	P/NP
≥ 540	100	A+	P

≥ 486	90	A	P
≥ 470	87	A-	P
≥ 454	84	B+	P
≥ 432	80	B	P
≥ 416	77	B-	P
≥ 400	74	C+	P
≥ 378	70	C	P
≥ 362	67	C-	P
≥ 346	64	D+	NP
≥ 324	60	D	NP
≥ 308	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 7. 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.

For both the midterm and final, you will not be tested on material if it has not been discussed in class.

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 open book mini-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 15 for A01-A04 and January 18 for A05-A08. 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.

Your section IA will run the discussion section remotely through a live Zoom session at the scheduled time, during which the problem set will be explained. 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.

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

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 13, Wed	11:59pm, Jan 20, Wed	Lectures 2 & 3	Jan 15 Fri (A01-A04) Jan 18 Mon (A05-A08)
2	Jan 20, Wed	11:59pm, Jan 27, Wed	Lectures 4 & 5	Jan 22 Fri (A01-A04) Jan 25 Mon (A05-A08)
3	Jan 27, Wed	11:59pm, Feb 3, Wed	Lectures 6 & 7	Jan 29 Fri (A01-A04) Feb 1 Mon (A05-A08)
4	Feb 3, Wed	11:59pm, Feb 10, Wed	Lectures 8 & 9	Feb 5 Fri (A01-A04) Feb 8 Mon (A05-A08)
5	Feb 13, Sat	11:59pm, Feb 20, Sat	Lectures 10 & 11	***Feb 19 Fri (A01-A04)** **Feb 15 Mon (A05-A08)**
6	Feb 20, Sat	11:59pm, Feb 27, Sat	Lectures 12 & 13	Feb 26 Fri (A01-A04) Feb 22 Mon (A05-A08)
7	Feb 27, Sat	11:59pm, Mar 6, Sat	Lectures 14 & 15	Mar 5 Fri (A01-A04) Mar 22 Mon (A05-A08)
8	Mar 6, Sat	11:59pm, Mar 13, Sat	Lectures 16 & 17	Mar 12 Fri (A01-A04) Mar 8 Mon (A05-A08)

* For sections A01-A04, no discussion section on the week of Feb 8th.

Table. List of discussion section times

Section	Day	Time	Instructional Assistant
A01	Friday	9:00a-9:50a	Christina Trinh
A02	Friday	10:00a-10:50a	Felix Yiu
A03	Friday	11:00a-11:50a	Samuel Anavim
A04	Friday	12:00p-12:50p	Benjamin Mercier
A05	Monday	1:00p-1:50p	Lehan Li
A06	Monday	2:00p-2:50p	Howard Wang
A07	Monday	3:00p-3:50p	Howard Wang
A08	Monday	4:00p-4:50p	My Nguyen

INSTRUCTIONAL ASSISTANTS:

Name	Email Address	Section(s)	Office Hours
Christina Trinh	chtrinh@ucsd.edu	A01 Friday 9a Meeting ID: 922 6883 2320	W: 6-7p Meeting ID: 937 1901 2284
Felix Yiu	feyiu@ucsd.edu	A02 Friday 10:00a Meeting ID: 982 5500 9067	Th: 2-3p Meeting ID: 989 5224 0208
Samuel Anavim	sanavim@ucsd.edu	A03 Friday 11:00a Meeting ID: 999 0009 1760	M: 11a-noon Meeting ID: 923 4476 0980
Benjamin Mercier	bmercier@ucsd.edu	A04 Friday 12:00p Meeting ID: 983 5842 7982	W: 1-2p Meeting ID: 912 9296 9640
Lehan Li	l2li@ucsd.edu	A05 Monday 1:00p Meeting ID: 926 7346 4854	Tu: 11a-noon Meeting ID: 954 2190 6955
Howard Wang	haw056@ucsd.edu	A06, A07 Monday 2:00p, 3:00p A06 Meeting ID: 956 8602 4370 Password: OGT3 A07 Meeting ID: 963 7235 1054 Password: OGT3	M: 4-5p Meeting ID: 755 418 6947 Password: OGT3
My Nguyen	mdn038@ucsd.edu	A08 Monday 4:00p Meeting ID: 939 3257 7466	M: 5-6p Meeting ID: 977 8982 0949

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 9, Tuesday**.

The final exam will be synchronous on Canvas at **3pm- 6pm on March 16 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 (+/- 6hrs) 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 an A 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.