BIBC 100 – Structural Biochemistry
Summer Session I 2019 syllabus

Course location & days/Time:

Lectures - Mon/Tue/Wed/Thu 8:00am-9:20am   **location** – Cognitive Science Building (CSB) 001

Discussion Sections:

Section #	Day/Time	Location	Instructional Assistant
976521 (A01)	MW 10:00-10:50am	HSS 1128A	Michael Nguyen
976522 (A02)	MW 11:00-11:50am	HSS 1128A	Bernice Leung
976523 (A03)	MW 12:00-12:50pm	HSS 1128A	Bernice Leung

Instructor – Orna Cook   **Email** – ocook@ucsd.edu

Office hours – Tuesday & Thursday 10:00-11:00am

Office location – H&SS Rm. 1145C

Course Website - http://ted.ucsd.edu BIBC100 (S119)

Instructional Assistants:

Michael Nguyen - mnn021@ucsd.edu

Bernice Leung - hyl009@ucsd.edu

To email IAs and instructor please use your UCSD email only

Learning Goals
This course focuses on the structure of major biomolecules: proteins, carbohydrates, nucleic acids and lipids, and how their structures underlie the basis of their particular functions.
At the end of this course student should be able to:
- Describe the basic structure of simple biomolecules such as: amino acids, sugars, nucleotides and fatty acids.
- Explain how simple biomolecules are assembled into macromolecules such as: proteins, carbohydrates, nucleic acids and lipids.
- Describe the role of biomolecules in composing structural features of cells and tissues.
- Explain the chemical basis that underlies biological processes such as enzymatic reactions, gene expression, signal transduction and others.

Tentative course schedule (subject to minor changes)

Lecture	Date	Topic	Reference	Discussion (PS due)
1	7/1 Mon	Introduction, Water, Weak Molecular Interactions	2.1, 2.2	
2	7/2 Tue	Amino Acids, Peptides and Proteins; Protein Analysis Techniques	L. 3, 27.2	
3	7/3 Wed	Proteins Three Dimensional Structure	4.1-4.3	PS1 (lec.1,2)
	7/4 Thu	*Holiday – No lecture*		
4	7/8 Mon	Protein Folding and Denaturation	4.4	PS2 (Lec.3)
5	7/9 Tue	Assisted Folding and Mediated Degradation of Proteins	4.4 ,27.3	
6	7/10 Wed	Oxygen Binding Proteins	5.1	PS3 (Lec.4,5)
7	7/11 Thu	Immune System and Immunorecognition	5.2	
8	7/15 Mon	Enzymes	6.1, 6.2, 6.4	PS4 (Lec.6,7)
9	7/16 Tue	Carbohydrates	7.1, 7.2	
10	7/17 Wed	Nucleic Acids	8.1, 8.2	PS5 (Lec8,9)
11	7/18 Thu	Protein-DNA Interactions	24, 28	
	7/22 Mon	*Midterm in class – **lectures 1-9***		*No discussion*
12	7/23 Tue	Lipids and Membranes	10.1-10.3	
13	7/24 Wed	Membrane Proteins	11	PS6 (Lec.10,11)
14	7/25 Thu	Transport and Signaling	12	
15	7/29 Mon	Receptors and Signaling	12	PS7 (Lec.12,13)
16	7/30 Tue	Protein Design	9.2	
17	7/31 Wed	CRISPR/Cas9	9.2	PS8 (Lec.14,15)
18	8/1 Thu	Review		
	8/2 Fri	*Final exam – **cumulative**!*		

Course textbook: *Lehninger Principles of Biochemistry* Seventh edition (Nelson and Cox)
Other recommended textbook: *Biochemistry* Ninth edition (Berg, Tymoczko, Gatto, **Stryer**)
Book about proteins structure and folding: **Introduction to Protein Structure** 2nd edition (Branden and Tooze)
Textbook (Lehninger **OR** Stryer) is optional but highly recommended.
References listed are the relevant chapters in Lehninger, but you should be able to find most of it in Stryer too.
Midterm and final exams will be based on lectures and problem sets material.

Grading

In class iClicker questions	50 points
Problem Sets	350 points
Midterm	200 points
Final exam	400 points
Total	**1000 points**

Grading scale:

≥ 970 points (100%) A+	820-859 points (82-85.9%) B	690-719 points (69-71.9%) C-
920-969points (92-96.9%) A	790-819 points (79-81.9%) B-	660-689 points (66-68.9%) D+
890-919 points (89-91.9%) A-	760-789 points (76-78.9%) C+	590-659 points (59-65.9%) D
860-889 points (86-88.9%) B+	720-759 points (72-75.9%) C	0-589 points (0-58.9%) F

In class iClicker questions (50 pts):

By answering the iClicker questions during lectures you can earn **up to 50** points. For each question you can earn ½ point for participation and ½ point for correctness. Once you reach the maximum of 50 points your points total will not continue to increase.

Problem sets (350 pts):

Problem sets will be posted on TED every week. IAs will go over the questions in discussion sections and you will be able to correct your answers during the discussion. You may bring a printed hard copy of your answers to the discussion and make additions and corrections during discussion before submitting it to the IA. Please make sure that your handwriting is clear and easy to read (no cursive please); IAs will have to grade two problem sets per week and they should be able to read them in a reasonable time (thank you!).

Problem sets are due **by the end** of the relevant discussion section, as specified in the course schedule. In order to get the maximum points for your problem sets you need to be **submit them on time** to the IA of the **section in which you are enrolled.** If you are unable to attend a discussion section, you may turn in your completed problem set by email to your IA **before the discussion section is over**. Problem sets that are submitted via emails will be graded but will NOT be corrected by the IAs. Problem sets that are submitted late FOR ANY REASON will automatically be grades starting at **40 Pts**. Late submission is NOT ALLOWED after the IAs returned the corrected problems sets.

There are 8 problem sets each worth 50 points. **Only 7** of the problem sets (those with the highest grade) **will be included in the final grade**; the one with the lowest grade will be excluded.

Midterm exam (200 pts):

Midterm will take place in class on Monday 7/22/2019. It will cover all the material from lectures 1-9. Exam questions will cover material from the lectures, problem sets and the discussion sections.

Final exam (400pts):

Final is a **cumulative exam**. It will take place on – Friday 8/2/2019, 8:00am-11:00am, location - TBA

Course Policies

Required learning material:

iClicker (you can get new or used) - any iClicker works but other brands of Clickers will not work.
You need to register your iClicker on **TED** (NOT at iClicker.com) to get credit for your answers. To register, login to course website in TED and click on "iClicker Registration" in the menu block. Enter the serial number from the back of your iClicker. Ask your instructor for help if you have any problem registering it.
Use the same iClicker for the entire course! If you change to a different one your responses will not sync in TED.

This is YOUR responsibility to bring functioning iClicker (with working batteries) to every class.

IF we see students that use more that one iClicker during class all these iClickers will be taken for identifying their owners and all the students involved will be reported to Academic Integrity Coordinator and will face the consequences.

Exams:
Exams will include mostly multiple-choice questions, but may also have some short answer questions. Electronic devices are prohibited during exams.
Written material of any kind (such as books, notebooks, cheat sheets) is prohibited during exams.

There are no make-up exams for Midterm or Final unless you provide documents for medical or family emergency, with contact information. In this case you have to contact the instructor **before the exam** and discuss the situation in order to find a solution. A make up exam will be schedule within one week after the original exam date.

You may submit your exam for re-grading **within one week** from the date when grades were available.

Students that need special accommodation for exams must present a letter issued by the Office of Students With Disabilities to Dr. Cook at the first week of the quarter, as soon as the letter is available. At least a week notice before exam date is required in order to make this accommodation.

Administrative issues:
Please contact the Biology Undergraduate Student Affairs Office at Pacific Hall, Room 1129 for any administrative issue such as drop/add class or any similar issues.

Academic integrity:
We encourage students to work together on problem sets and to study together for the exams. HOWEVER, each student has to complete their work independently, using their own words.
 Students are **NOT allowed** to:
Copy another student's work (problem sets or exam answers)
Allow another student to copy your work
Take an exam for another student or let another person take your exam
Change graded assignment or exam and submit for re-grading
Bring/use any prohibited material to exam (e.g. electronic device, written material)
Answer iClicker questions for classmates using their iClicker

A detailed resource regarding UCSD academic integrity can be found at:
https://students.ucsd.edu/academics/academic-integrity/index.html

All students, instructors and IAs are committed for academic integrity policy. Any suspected incident of violation of academic integrity will be reported to the Academic Integrity Office for review. Consequences of breaching academic integrity may be from a zero grade for an assignment up to failing the course.