BIBC 100 STRUCTURAL BIOCHEMISTRY SPRING 2013

LECTURE: Tuesday and Thursday 8:00 am – 9:20 am
Price Theater

INSTRUCTORS: M. Montal (x40931)
Office Hours: Thursday 9:30 am – 10:20 am
2130 Pac Hall

Project Assistant: Kathleen McPherson
Pacific Hall 3100e
(x43568)

LECTURE	DATE			TOPIC	Branden & Tooze Reference Chapter*	Lehninger 6th Edition Reference Chapter
				STRUCTURAL PRINCIPLES		
1	**APRIL**	2	Tue	Basics	1	1 & 2
2		4	Thu	Motifs	2	3
3		9	Tue	α domains	3	3 & 4
4		11	Thu	α/β and β structures	4, 5	3 & 4
5		16	Tue	DNA structure	7	1 & 8
6		18	Thu	Folding	6	4
7		23	Tue	Folding and Flexibility	6	4
8		25	Thu	RECOGNITION: Protein-DNA	8, 10	28
9		30	Tue	RECOGNITION: Immune System	15	5
10	**MAY**	**2**	**Thu**	**MID-TERM IN CLASS**		
11		7	Tue	CATALYSIS: Proteasess	11	6
12		9	Thu	TRANSDUCTION: Membranes	12	10 & 11
13		14	Tue	Membrane Proteins - I	12	10 , 11, 19
14		16	Thu	Membrane Proteins - II	12	10 , 11, 19
15		21	Tue	Channels	12	10 & 11
16		23	Thu	Receptors	13	12
17		28	Tue	Receptors	13	12
18		30	Thu	Protein Design	17	4
19	**JUNE**	4	Tue	X-Ray and NMR	18	4
20		6	**Thu**	**REVIEW**		

FINAL EXAM Thursday June 13 - 8:00 - 10:59 a.m. , location TBA

Textbook: **Lehninger Principles of Biochemistry 6th Edition**
D. Nelson & M. Cox
W.H. Freeman & Co. 2013

***Textbook (Optional)-**
Strongly Recommended: **Introduction to Protein Structure**. C. Branden and J.Tooze, 2nd Edition. Garland Publishing Co., NY 1999.

***Strongly Recommended - Kinemage Supplement to Branden and Tooze**
J.S. Richardson and D.C. Richardson
Garland Publishing Co., NY
You may download the program using the following link
http://kinemage.biochem.duke.edu/

Class Websites: http://classes.biology.ucsd.edu/bibc100.WI13
Required Websites: http://www.rcsb.org

Course Requirements: **GRADE**

Midterm:	Thursday, May 2, during class	40%
Final:	Thursday, June 13 - 8:00 - 10:59 a.m.	60%

Note: Check your midterm and final exam schedules NOW. There are no alternate exams offered for this class regardless of whether you have other exam(s) on one day. Please plan ahead.

You are only responsible for the material covered in class, not for all the material in each chapter. Figures from other sources will be included in the lectures. Many of these figures will appear in the class Power Point presentations which will be available on the class website. This class will not be podcast.

Graduate and Undergraduate Student Teaching Assistants

Graduate:

Barna, Orazio, obarna@ucsd.edu
Pirie, Elaine Christine, epirie@ucsd.edu

Undergraduate:

Liu, Caroline, cal008@ucsd.edu
Johnson, Nicholas David, ndjohnso@ucsd.edu

BIBC 100: STRUCTURAL BIOCHEMISTRY

GRADING INFORMATION: Plus and minus grading will not be used

MIDTERM: Grade Revisions:
Submit request to TA no later than May 9, 2013
No grade changes after May 15, 2013
NO EXCEPTIONS

FINAL: Grade Revisions:
Submit request to Professor or TA no later than June 18, 2013
No grade changes after June 24, 2013
NO EXCEPTIONS

POLICY ON REGRADES:

Regrades: If a student considers that his/her exam was not properly graded, they may turn in the unaltered, complete exam for a regrade to the TAs no later than 1 week after the exams become available for pick-up. Students must write up on a separate sheet attached to the exam which questions they consider require regrading and sign the bottom of this sheet.

Students are responsible for understanding that, by requesting a regrade, the entire exam in addition to the indicated questions will be re-evaluated, and points may be added or taken away as a result.

BIBC 100: Structural Biochemistry

Guidelines for Class Etiquette During Examination

1. All writing instruments must contain non-erasable ink. If students choose not to write in pen, they forfeit the opportunity for a future regrade.

2. All books and handbags should be placed at the front or back section of the auditorium for the duration of the exam.

3. Students should sit in alternating seats whenever possible.

4. When time is called, anyone who is still writing will automatically receive a zero for that page. THIS WILL BE STRICTLY ENFORCED. Remain in your seat and hand your exam down the aisle.

UCSD Policy on Integrity of Scholarship (UCSD online catalog 2012-13) and Rules of academic dishonesty will be strictly enforced.

Protein Data bank

The Research Collaboratory for Structural Bioinformatics Protein Data Bank (PDB) **<http://www.rcsb.org/>** is the single international source for 3D structure files. A four character **PDB ID** is the identifier for the structure of a given **Protein**. Using the identifier and the molecular viewer **Jmol,** or preferably **Protein Workshop,** you can see and study the 3D structure of these proteins (and many, many more). Also if you have an iPhone you can download the free App **Molecules**.

ENJOY AND IMAGINE!

Protein	**PDB ID**
Hemoglobin	1A3N
GroEL/GroES complex	1AON
Chymotrypsin	6GCH
Myoglobin	1MBO
Myoglobin	2MBW
α-hemolysin	7AHL
Immunoglobulin G 2A intact	1IGT
Immunoglobulin G 2A fab fragment	1GGC
Immunoglobulin G 2A fab fragment (50.1) complex with 16-residue peptide	1GGI
Lysozyme	1LZE
Bacteriorhodopsin	2AT9
Aquaporin	2B6O
Maltoporin	1AF6
Maltoporin	1MAL
Lactose permease (lactose transporter	1PV7
Aquaporin 1, AQP-1	1J4N
K^+ channel protein	1BL8
Voltage-gated K^+ channel	1J95
Voltage-gated K^+ channel	2A79
Voltage-gated K^+ channel	4H33
Ras protein	5P21
Protein kinase A; R_2C_2 complex	1U7E
Green fluorescent protein (GFP)	1GFL
Calmodulin	1CLL

SHC (SH2 domain)	1SHC
Bacteriorhodopsin (rhodopsin and G protein transducin	1BAC
Protein kinase (active site)	1S9I
Cytochrome *c* oxidase	1OCC
Bovine mitochondrial F_1-ATP Synthase	1BMF
ATP synthase áchain (F_oF_1)	1QO1
Photosynthetic reaction center	1PRC
Light harvesting complex II	2BHW
Bacteriorhodopsin	1C8R
Photosystem II	2AXT
Cytolytic α-helical toxin- cytolysin	2WCD
SecA-SecYEG Protein translocation channel	3DIN
GPCR- β-adrenergic receptor	2RH1
β 2 adrenergic receptor–Gs complex	3SN6