CHEM 6600
BIOCHEMISTRY I
Fall 2015

Instructor:
Dr. Aimin Liu and Dr. Ming Luo
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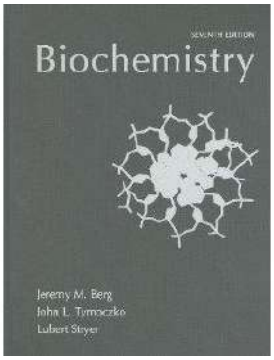
Phone: 404-413-5532 and 404-413-6608

Lecture Schedule & Room:
Monday, Wednesday and Friday 5:30-6:50 pm;
327 Classroom South (CLSO, 65 seats)

Office Hours:
Students are required to bring their lecture notes.
Office hours are suspended the day of the exams, and no questions will be answered on the day of the exams.
Students desiring to discuss more in-depth about a topic or career plans may request to schedule an appointment outside office hours via email

Textbook:
No textbooks are recommended by instructors. However, "Biochemistry, 4th, 6th, 7th, or 8th edition, Lubert Stryer et al., is a good reference. The 5th edition is not recommended.



Course Objective:
A comprehensive and integrated review of modern biochemistry with emphasis on proteins, enzymes, nucleic acids, carbohydrates, lipids, regulation and control of enzymes and metabolism, bioenergetics, vitamins, nucleotide metabolism, protein synthesis, and cellular sensing mechanisms.

Tests and Assignments:

Four in-class exams 100 points each (the lowest score will be dropped)	= 300
One comprehensive final exam	= 200
Total	= 500

Exams schedule (Please mark your calendar):

September 18 (M) class exam 1
October 9 (M) class exam 2
November 2 (M) class exam 3
November 30 (M) class exam 4
December 9 (T) final exam
No make-ups or rescheduling of exams will be carried out under any circumstance

The final grade will be counted against the possible points out of 500 (3 class exams + final exam). The final exam is mandatory, and it must be taken on December 9. You are responsible for withdrawing before the deadline if you need to do so. If more than two in-class exams are missed for legitimate reasons, you should seek a hardship withdrawal or an incomplete. If you do not withdraw and miss the final exam, or more than two in-class exams, then zeros will be assigned for your grades.

Projected Grading Scale:
A+: 97%, A: 90%; A-: 86%; B+: 81%; B: 77%; B-: 72%; C+: 68%; C: 65%; C-: 60%; D: 55%; F: <55%

Notes:
The Instructor reserves the right to seat or move students during the tests.
Students are required to show (and leave) their student identification on the desk to take the test. Tests will be graded ONLY upon showing a student I.D.

The Department of Chemistry follows the university policy on academic honesty published in the "Faculty Affairs Handbook" and the "On Campus: The Undergraduate Co-Curricular Affairs Handbook." All tests taken must represent your individual, unaided efforts. To receive or offer information during an examination is cheating. The use of unauthorized supplementary materials during tests is also cheating. A student who cheats on an exam will receive a zero for that exam which cannot be dropped as the lowest grade. Any suspected offenses may also be referred to the Department Chair for appropriate actions.

Suggestions:
Students are strongly encouraged to carefully read and study in depth the topic before coming to class, and not to wait until the last days to study for tests.

Last day to Withdraw from Class and Receive a "W":
October 13th, semester midpoint
The University requires that faculty members must, on a date after the mid-point of the course to be set by the Provost (or his designee):

1. Give a WF to all those students who are on their rolls but no longer taking the class and
2. Report the last day the student attended or turned in an assignment.

Academic Honesty

Students will be expected to maintain the highest standards of academic honesty. With respect to homework assignments, it is expected that no student will turn in work that is not his or her own by copying the work of another student or by using the work or solutions from this course given in previous years. Discussion of approaches to solving the homework problems after attempting to work the problems independently, however, is permitted and encouraged.

It is expected that during a test or examination, a student will not:
1) Accept or use information of any kind from other students.
2) Present the work of another student as his or her own.
3) Use aids to memory other than those expressly permitted by the examiner.

Following a test or examination, a student will not try to deceive teachers or graders by misrepresenting or altering his or her previous work. In advance of a test or exam, a student will not knowingly obtain access to the exam questions.

Departures from the above standards are contrary to fundamental principles of GSU. Such departures are considered serious offenses for which disciplinary penalties, including suspension and expulsion, can be imposed.

Disability Service:

Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services. Students may only be accommodated upon issuance by the Office of Disability Services of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which an accommodation is sought.

Tentative Lecture Schedule (check https://gsu.view.usg.edu/ on a daily basis for updates, lecture notes and schedule changes etc):

Section I. Protein Structure & Function Relationships, Enzyme Mechanisms (Liu)
Amino Acids, Protein Structure, Protein Isolation, Protein in Action, Enzymes, Enzyme kinetics
Exam 1: September 18

Section I. Metabolism: Carbohydrate Structure, Glycolysis, TCA Cycle, Oxidative Phosphorylation (Liu)
Enzyme regulation, Carbohydrate Structure, Glycolysis, TCA Cycle, Oxphos and ATP Synthesis
Exam 3: October 9

Section III. Carbohydrate Metabolism (Luo)
Gluconeogenesis, and Glycogen, NADH Shuttle, Pentose Shunt Pathway, Common Mechanistic Strategies, Lipid Structure and Metabolism
Exam 3: November 2

Section IV. Bioenergetics, Lipids, Nucleic Acids, Vitamins, and Cellular Sensory Mechanisms (Luo)
Nucleotide Structure and Metabolism, Vitamins & Minerals, and Cellular Sensory Mechanisms, others
Exam 4: November 20

V. Final Exam

December 9: Comprehensive Final Exam

Tentative lecture schedule (may be changed as the course progresses)

Week	Date	Chapter	Topic	Lecturer (Liu or Luo)	
1	August 24	1	Course Introduction, pH, buffer	Liu	Luo
	26	2	Amino acid	Liu	
	28	2	Protein structure - I	Liu	
2	31	2	Protein structure - II	Liu	
	September 2	3	Protein purification	Liu	
	4	7	Protein in action	Liu	
3	7		***Labor Day, No class***		
	9	7	Protein in action	Liu	
	11	8-10	Enzymes and catalytic strategies	Liu	
4	14	8	Enzyme kinetics	Liu	
	16		**Review**	Liu	
	18		**Midterm Exam 1**		
5	21	15	Metabolism: Introduction	Liu	
	23	11	Carbohydrates	Liu	
	25	16	Glycolysis	Liu	
6	28	16	Glycolysis: regulation	Liu	
	30	17	Citric acid cycle	Liu	
	October 2	18	Citric acid cycle	Liu	
7	5	18	Oxidative phosphorylation	Liu	
	7	18	ATP synthesis	Liu	
	9		**Midterm Exam 2**		
8	12	16	Gluconeogenesis		Luo
	14	17	Pyruvate dehydrogenase		Luo
	16	18	NADH shuttle		Luo
9	19	20	Calvin cycle		Luo
	21	20	Pentose phosphate pathway		Luo
	23	21	Glycogen metabolism		Luo
10	26	12	Fatty acid metabolism		Luo
	28	22	Fatty acid metabolism		Luo
	30		**Review**		Luo
11	November 2		**Midterm exam 3**		
	4	25	Nucleotide biosynthesis		Luo
	6	25	Nucleotide biosynthesis		Luo
12	9	30	Protein Synthesis		Luo
	11	4	DNA structure and function		Luo
	13	5	Tools for molecular biology		Luo
13	16	14	Signal transduction		Luo
	18	27	Metabolic pathway integration		Luo
	20	27	Metabolic pathway integration		Luo
14	23		***Thanksgiving no class***		
	25		***Thanksgiving no class***		
	27		***Thanksgiving no class***		
15	30		**Midterm exam 4**		
	December 2		**Review I**	Liu	
	4		**Review II**		Luo
16	7		Office hour or Q&A	Liu	Luo
	9		**Final exam (time & location to be announced)**		

Reference Textbook for the chapters: Biochemistry, 7th edition, Berg, Tymoczko, Stryer.