BIOCHM 386 **Biochemistry Laboratory II** **Spring 2017**

Objective:
This laboratory course complements Biochemistry Lecture II (BIOCHM 384). The aim is to provide a working knowledge of fundamental and advanced techniques of experimental biochemistry. Emphasis will also be placed on the evaluation and effective use of scientific literature data.

Class:
Monday/Wednesday/Friday 1:00 p.m. - 5:00 p.m. in University Hall Y03-3100.

Prerequisite:
BIOCHM 385 and pre-req or co-req BIOCHM 384.

Recommended Text:
Boyer R., Biochemistry Laboratory: Modern Theory and Techniques, 2nd edition, Pearson Prentice Hall, 2012

Instructors:

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Course website:
The course web pages are operated through Blackboard Learn. Login at https://umb.umassonline.net with your UMB email credentials.

Proposed class schedule: *(subject to change)*

Week of	**Readings from the Textbook**	**Experiment/Topic**	**Assignments/Lab Reports**
JAN 30	p. 1-14 p. 35-53	Check-in & Introduction to Scientific Literature Search	Sign up for Literature Assignment
FEB 6	p. 14-18 p.53-67	IR of Proteins & Buffer Preparation	Quiz 1
FEB 13	p.18-35 p. 201-220	Scavenging of ROS	Quiz 2, Lab Report Due (IR of Proteins & Buffer Prep.)
FEB 20		**NO LABS** *Presidents Day (Holiday)*	
FEB 27	p. 225-230 p. 250-264	Biological NMR	Quiz 3, Lab Report Due (Scavenging of ROS)
MAR 6	p. 165-199	Protein Electrophoresis+ AFM Preparation	Quiz 4, Lab Report Due (Biological NMR)
MAR 13		**NO LABS** *(Spring Vacation)*	
MAR 20		Atomic Force Microscopy of Proteins	Quiz 5, Lab Report Due (Protein Electrophoresis) Turn in Lab Notebook
MAR 27	p. 267-307	PCR of Modified Foods I.	Quiz 6, Lab Report Due (AFM of Proteins)
APR 3	p. 267-307	PCR of Modified Foods II.	Quiz 7, Literature Report Due
APR 10	p. 220-225	Fluorescence Spectroscopy	Quiz 8, Lab Report Due (PCR of Modified Foods I.+II.)
APR 17		**NO LABS** *Patriots Day (Holiday)*	
APR 24	p. 132-140	Spin Label EPR Spectroscopy	Quiz 9, Lab Report Due (Fluorescence Spectroscopy)
MAY 1		Check-out & **Lab Exam**	Lab Report Due (Spin Label EPR) Turn in Lab Notebook

Attendance:
Attendance is mandatory. There will be no make-up labs/exams. In case of any serious problems, contact your instructor in advance.

Lab Manual:
Protocols will be given in class and posted on the course website prior to the labs.

Data Management & Lab Notebook:
You have to keep a neat data notebook to directly record protocols, observations, and results during preparation and experiments. It needs to be written in ink, in a bound notebook with consecutively numbered and dated pages. Pages should not be torn out. *Have your instructor sign your lab notebook upon leaving!*

Lab Reports:
Lab reports will be required for each experiment in the format of research articles with the following sections: Introduction, Materials and Methods, Results and Discussion, Conclusions, References. The report should include a title, date, your and your lab partner's name, and all the answers to the questions asked in the manual or during class.

5-Minute Quizzes:
Starting on the week of February 6, each lab will begin with a 5-minute quiz based on the day's experiment and the related pre-lab reading material assigned from the textbook.

Literature Report:
You will choose one biomolecule from the list provided by the instructor. The assignment is to write an approximately 5-page report on the structure, function, discovery, properties, applications, etc. of the molecule. More information on this assignment will be provided later in the course.

Lab Exam:
An hour long comprehensive exam will begin at 1:00 p.m. during your normal lab section on the week posted. Your own, original, hand-written lab notebook can be used on the exam.

Grading:
Grades will be based on:

- Laboratory Reports: ***max. 700 points*** (100 points for each lab, drop one with the lowest score)
- Literature Report: ***max. 150 points***.
- 5-Minute Quizzes: ***max. 120 points*** (15 points for each, drop one with the lowest score)
- Laboratory Notebooks will be collected and graded twice during the semester: **max. 2x40 points.**
- Final Lab Quiz: **max. 350 points.**

The grade equivalences are as follows:

Points Earned	*%*	*Grade*
1400-1260	>90	A
1259-1204	>86	A-
1203-1148	>82	B+
1147-1092	>78	B
1091-1036	>74	B-
1035-980	>70	C+
979-924	>66	C
923-868	>62	C-
867-812	>58	D+
811-756	>54	D
755-700	>50	D-
below 700	<50	F

All the required assignments, reports and lab notebooks need to be submitted to your instructor in due time (indicated above). Grades will be lowered by 10 points for each day they are late. *All lab reports must be turned in electronically as .pdf files via email.*

Accommodations:
The University of Massachusetts Boston is committed to providing reasonable academic accommodations for all students with disabilities. This syllabus is available in alternate format upon request. If you have a disability and feel you will need accommodations in this course, please contact the Ross Center for Disability Services, Campus Center, Upper Level, Room 211 at 617.287.7430. **http://www.umb.edu/academics/vpass/disability/** After registration with the Ross Center, a student should present and discuss the accommodations with the professor. Although a student can request accommodations at any time, we recommend that students inform the professor of the need for accommodations by the end of the Drop/Add period to ensure that accommodations are available for the entirety of the course.

Code of Conduct and Academic Integrity:
It is the expressed policy of the University that every aspect of academic life--not only formal coursework situations, but all relationships and interactions connected to the educational process--shall be conducted in an absolutely and uncompromisingly honest manner. The University presupposes that any submission of work for academic credit is the student's own and is in compliance with University policies, including its policies on appropriate citation and plagiarism. These policies are spelled out in the Code of Student Conduct. Students are required to adhere to the Code of Student Conduct, including requirements for academic honesty, as delineated in the University of Massachusetts Boston Graduate Catalogue and relevant program student handbook(s). **UMB Code of Student Conduct**