Biochemistry Laboratory CHEM 3820

Prof. Michelle Knowles
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Meeting time and location: Monday and Wednesdays 1-4:50 pm, SGM 209
Office: SGM 101 Email for times to meet
TAs: Glenn Capodagli (Glenn.Capodagli@du.edu), Becki Dillon (Becki.Dillon@du.edu)

Course Goals: The purpose of this course is to learn modern biochemistry laboratory techniques, how to write scientific papers, and give scientific presentations. In the last 5 weeks, we will perform a biochemistry research project.

Required Materials:

- Biochemistry Laboratory by Rodney Boyer
- A lab notebook with numbered pages, available at the bookstore
- All other materials (handouts, lab manual) will be posted on blackboard.

Grading:

A. Lab Reports: There are 4 lab reports due. All reports must be written in the format of a journal article (Abstract, Introduction, Materials and Methods, Results and Discussion, Bibliography).You must write your lab report and analyze your data INDEPENDENTLY! If two reports are identical in any way, including the same figures, both get zeros. You must print the lab report. Do not submit it via email unless he says it is okay. Glenn has a desk in SGM 267.

B. Notebooks: See handout on how to keep a notebook. During the first week of lab I will have an example notebook that received full credit. I will collect and grade notebooks at the end of the term. One lab will be selected for grading.

C. Lab Participation and preparation: Be involved in lab and clean up when you are done. Lab preparation is graded critically. Prior to coming to lab you need to do the pre-labs and watch the pre-lab lectures on blackboard. Pre-labs will collected at the beginning of lab and graded.

D. Poster Presentation of Independent Projects: One poster presentation over the projects will be done on March 11th – a TUESDAY, in conjunction with the Chemistry Frontiers course taught by Dr. Miller. Your presentation of these posters is graded by the chemistry and biology faculty and other graduate students who attend the poster session. A graded draft of your poster is due to Glenn on 3/5. In this class period, he will help with poster details.

E. Project Report: A journal-style paper will be written that fully covers the work done in your project is due the last day of class and should be written independently. You can include some of the background and methods you have written previously on fluorescent proteins. For example, you can re-use the protein purification methods section if you used the same methods in your project. You must have more than 10 peer-reviewed references that pertain to your project. Up to two can be generally on fluorescent protein.

F. Exam: The exam will be given on February 19thand cover the theory and application of protein purification and characterization that will be covered in labs 1-4. The text, discussion questions, data analysis (including linear fitting of data), pre-labs, and journal articles posted on blackboard will be covered.

G. Grading

	B+ = 88.00-89.99	C+ = 78.00-79.99	D+ = 68.00-69.99	F < 60.00
A > 93.00	B = 83.00-87.99	C = 73.00-77.99	D = 63.00-67.99	
A- = 90.00-93.00	B- = 80.00-82.99	C- = 70.00-72.99	D- = 60.00-62.99	

Assignment	*points*
Prelabs (6, 10 pts each)	60
Lab reports (4, 50 pts each)	200
Draft of poster	10
Poster Presentation	50
Project Report	75
Exam	100
Lab Notebook	40
TOTAL	535

The lab, *including the balances*, must be cleaned up at the end of every session. If not, the entire class will lose points.

H. Accomodations: Students who have disabilities or medical conditions and who want to request accommodations should contact the Disability Services Program (DSP); 303.871.2372/ 2278; 1999 E. Evans Ave.; 4th floor of Ruffatto Hall. Information is also available online at www.du.edu/disability/dsp. Please do this *in advance* of the exam or other times that you may need appropriate accomodations.

I. Schedule

Note, there is time built into this schedule that allows you to repeat work. If labs do not work, you must repeat them. This specifically applies to Labs 3, 4, and the projects.

Biochemistry Laboratory Schedule

Day	*Date*	*Do in Lab*	*Due*	*Reading*
M	6-Jan	Lab 1A – Transform bacteria	prelab #1	1, 3D, 10A, 11AB
T	***7-Jan***	***start overnight cultures and move plates to 4C (afternoon)***		
W	8-Jan	Lab 1A – express protein		4
Th	***9-Jan***	***spin (20m) and freeze bacteria pellets***		
M	13-Jan	Lab 1B*- purify protein	Prelab #2	5
W	15-Jan	Lab 2	prelab #3	7A, 3B
F	17-Jan	*Turn in lab report to Glenn by 4pm*	lab report #1	
M	20-Jan	NO CLASSES!		
W	22-Jan	Project planning and pour gels for Lab 3 Turn in Lab report #2 to Glenn by 4pm	Lab report #2	3B
M	27-Jan	Lab 3*	prelab #4	6**
W	29-Jan	Lab 3 – short day, time to repeat work!		
		Begin working on protein purification for projects		
F	*31-Jan*	*Turn in lab report to Glenn by 4pm*	*lab report #3*	
M	3-Feb	Lab 4	prelab #5	7B
W	5-Feb	Lab 4		
F	*7-Feb*	*Turn in lab report to Glenn by 4pm*	*lab report #4*	
M	10-Feb	Independent project	prelab #6	
W	12-Feb	Independent project		
M	17-Feb	Independent project		
W	19-Feb	Independent project, Lab exam 1h	Lab exam	
M	24-Feb	Independent project		
W	26-Feb	Independent project		
M	3-Mar	Independent project		
W	5-Mar	Independent project	Poster draft due	
Th	*6-Mar*	*Posters due for printing by 5pm to Dr. Knowles*	*Final Poster due*	
M	10-Mar	Independent project		
Tu	11-Mar	Poster session with frontiers		
W	12-Mar	Check out and clean lab from 1-2pm	Project Report due	

* = Long day!

** = only read 6B through page 186. I will not cover nucleic acid gel electrophoresis.