

Biochemistry Laboratory CHEM 3820

Prof. Michelle Knowles

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Meeting time and location: Wednesday and Thursdays 1-4:50 pm, Room 209

Office: Mudd 101

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Introduction: The purpose of this course is to learn fundamental biochemistry laboratory techniques, how to write scientific papers, and give scientific presentations.

Required Materials:

Protein Purification by Robert Scopes

A lab notebook with numbered pages, available at the bookstore

Lab manual is available on Blackboard

Grading:

A. Presentation: Prior to beginning an experiment, one group will prepare a presentation that explains to the rest what we are doing in lab. This should explain the techniques in theory and application and will be peer reviewed, but graded by me. Send your powerpoint presentations to me 3 days before you present, then your corrected ones after the presentation. See handout.

B. Lab Reports: There 6 mini lab reports and one final lab report due. The mini lab reports will focus on a small portion of what you will include in the final lab report. The final lab report must be written in the format of a journal article (Abstract, Introduction, Materials and Methods, Results and Discussion). Questions will be given from that need to be addressed in the discussion. You must write your lab report INDEPENDENTLY! If two reports are identical in any way, both get zeros. Make your own figures and analyze the data yourself.

Mini lab reports (all need references): DUE DATES ARE BELOW

- i. Materials and Methods – For Experiment #1
- ii. Results and Discussion - For Experiment #2
- iii. Introduction - For Experiments #1-3
- iv. Results and Discussion - For Experiment #4
- v. Abstract – For Experiments #1-5
- vi. Lab report for either Experiment #6 or #7 – you choose.

C. Results: One week after lab #1, lab #3 and lab #5 are finished, you will turn in the results and figures for that lab. I am grading for completion at this point. These figures will go into your final paper and, at that point, I will grade for accuracy.

D. Notebooks: See handout on how to keep a notebook.

- E. Lab Participation and preparation:** Be involved in lab and clean up when you are done. Read ahead and make a list of all reagents and equipment needed for the next day/week of lab. If you do not have something, you do not get to do the lab and will have to make it up. You can work with the rest of the class on this. Use the marker board.

Do before lab: 1) Read the lab, 2) make a list of reagents and equipment needed, 3) write a procedure, draw pictures, 4) locate reagents and equipment. I will check notebooks at the beginning of class.

- F. Peer-review:** We will help each other with the papers. Your feedback to your peers can be helpful and also help you. I will give out a worksheet for each peer-review session and your feedback to your peer determines your grade. If you write "Great" on everything, this is not helpful and you will get 0 points for it. Be critical.

G. Evaluation and Grades:

<i>Assignment</i>	<i>points</i>	<i>%</i>
Prelab preparation	150	15
Mini lab reports (6)	250	25
Journal-style paper	200	20
Presentation**	150	15
Lab Participation*	100	10
Peer review worksheets (2)	100	10
Lab Notebook	50	5

<i>Grade</i>	<i>%</i>
A	94-100
A-	91-93
B+	88-90
B	84-88
B-	81-83
C+	78-80
C	74-77
C-	71-73
D	60-70
F	Below 60

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

** = I will give grades on presentations after the last group has gone.

Date	Experiment	Reading (Scopes)	Due
January 7	1A	2	Dr. Knowles presents Experiment 1
January 8	1A/B	4.1-4.3	Record what you need and what you will do prior to coming to lab (due for EVERY lab session from here on)
January 14	1C	1.3,5.3,6.1,6.2	
January 15	1C/D	1.4,8.4	
January 21	1D	8.1	(Minilab 1) Materials and Methods from Experiment 1
January 22	2	3.1	Group A presents Experiment 2
January 28	3	8.2	Group B presents Experiment 3, Results 1 due
January 29	3B	11.1	(Minilab 2) Results and Discussion from Experiment 2
February 4	4A		Group C presents Experiment 4, Results 3 due
February 5	4B		(Minilab 3) Introduction to Experiment 1-3
February 11	4C		<i>Optional data analysis and writing help session</i>
February 12	5		Group D presents Experiment 5
February 18	6A		Group E presents Experiment 6 (Minilab 4) Results and Discussion for Experiment 4 – for peer review.
February 19	6B		Results 5 due
February 25	6C		Abstract for Experiments #1-5
February 26	**		Peer-review session, how to look up papers
March 4	7A		Group F presents Experiment 7. Turn in a copy of peer review worksheet #2.
March 5	7B		
March 11	7C		Journal-style paper due. Covers Labs 1-5
Finals week	No lab!		Final lab report due (over either 6 or 7, you choose)

** = Dr. Knowles is out of town.