

Instructor: Dr. Matthew Junker  
314 Boehm Science Center  
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Office hours: Tue. 1-4 pm; Wed. 10-11 am; Thu. 10-11 am

Lab time and location: Section 011 Monday, 2:00-4:50 pm, BH 207  
Section 012 Friday, 2:00-4:50 pm, BH 207

Textbook: *Biochemistry Laboratory: Modern Theory and Techniques* by Rodney Boyer, 2<sup>nd</sup> ed., Benjamin Cummings, 2012, ISBN-13: 9780136043027. (recommended, not required)

Notebook: A bound notebook is required. Spiral notebooks are acceptable. Entries must be made with ink (not pencil).

Co-requisite: CHM 312 Biochemistry II

Grading: The total final score for this laboratory will be comprised by:

average of all prelab assignments	3%
average notebook grade	5%
average of all worksheets	14%
average of all reports	78%

This total final score plus problem sets will count 20% towards your grade in Biochemistry II (see lecture syllabus).

Attendance policy: Lab attendance is required. If a lab must be missed, notify the instructor as soon as possible to arrange for making up the lab.

Course structure:

The laboratory meets once a week for a 3 hour lab. All glassware and equipment must be cleaned and stored by the end of each laboratory session. Handouts with instructions for each lab will be distributed during a CHM 312 lecture during the preceding week. Students are responsible for reading the handouts before coming to lab.

Graded assignments:

1. A written pre-lab is to be brought to each lab with a Purpose statement and a flowchart or outline of the Experimental section. The pre-lab can be hand-written. (3% of grade)
2. Notebooks will be scored at the end of each lab session for header information (title, date, purpose), calculations, data, summary, and organization. (Notebooks 5% of grade)
3. For some labs, the report that will be handed in will be in the form of "worksheets" with answers to specific questions. These may be hand-written. (14% of grade)
4. For other labs, formal lab reports will be handed in. The format of the reports is described on pg. 7-8 of Boyer. THE REPORTS MUST BE TYPED. Due dates will be specified in the lab handouts (typically one week after the lab session). (82% of grade)

Important notes on grading:

1. Getting experiments to work is always great, but the main emphasis of this course is learning the basic principles of experimental biochemistry, including how to trouble-shoot when things don't "go right." Consequently, the grading of all reports and worksheets will be heavily weighted by demonstrated comprehension, as well as clarity, organization, and thoughtfulness.

2. The worksheets and reports will also be graded for the quality of writing: organization and logical flow, grammar and punctuation, and spelling. Use complete sentences, proper paragraph construction, etc.
3. You will work in teams of 2-3 people for many of the experiments. However, **all handed-in written assignments are to be your own work only, without collaboration with other students.** You may come to me for help (office hours, pre-arranged times, or email) as often as you like.
4. Late assignments will be penalized 10% for the first week, 20% for the second week, and not accepted thereafter.

Course objectives: Upon successful completion of this course, a student will be able to:

- Use traditional and modern techniques of biochemistry
- Explain the concepts on which the laboratory experiments are based
- Write scientific reports, keep a laboratory notebook, and interpret laboratory data

Expected schedule of experiments:

Date	Expt. #	Topic	Graded assignment
Jan. 28		Arrow pushing review	
Feb. 1, 4	1	Recombinant protein expression I	
Feb. 8, 11	1	Recombinant protein expression II	
Feb. 15, 18	1	Recombinant protein expression III	Report
Feb. 22, 25	2	Alcohol dehydrogenase	Report
Mar. 1, 4	3	PCR I	Worksheet
Mar. 8, 11	3	PCR II	Report
Mar. 15, 25	4	Yeast glycolysis	Worksheet
Mar. 18, 22		<b>NO LAB: Spring Break</b>	
Mar. 29, Apr. 1	5	DNA digest & ligation I	
Apr. 5, 8	5	DNA digest & ligation II	Report
Apr. 12, 15	6	Searching online databases (PubMed, BLAST)	Worksheet
Apr. 19, 22	6	Western Blot I	Worksheet
Apr. 26, 29	6	Western Blot II	Report
May 3, 6		ACS exam	
May 10		Question & answer session	

ADA Notice: Please contact me early in the semester if you need accommodation for a disability. You should also contact the KU Disability Services Office at 610-683-4108 or in Stratton 215.