

# Course Syllabus Spring 2008

## Biochemistry I Lab (CHEM 4130L)

<b><u>Class Meeting:</u></b> Section 2 Tuesday	1:15 pm – 4:05 pm	NCF Room 316 (1 credit)
Section 3 Wednesday	2:00 pm – 4:50 pm	NCF Room 316 (1 credit)
Section 5 Friday	11:00 am – 1:50 pm	NCF Room 316 (1 credit)
Section 6 Friday	2:00 pm – 4:50 pm	NCF Room 316 (1 credit)

### **Office Location and Hours of Your Instructor:**

If these times are not convenient contact your instructor for an appointment.

*Dr. Wolfgang: NCF Room 301 J*

*Monday: 9AM – 12 PM*

*Wednesday: 9 – 11 AM*

*Thursday 9:30 – 10:30 AM*

*Dr. Qasim: NCF Room 301 H*

*Monday: 9AM – 11AM*

*Wednesday: 9AM – 11AM*

*Friday: 9AM – 11AM*

*Dr. Carroll: NCF Room 344*

*Monday-Friday: 11AM – 1PM*

**Course Description:** Selected experiments in Biochemistry covering the study of the properties of biomolecules. The goal of this course is to expose the students to techniques commonly used in a biochemistry lab. Students should learn how to use pipettes, make buffers, calculate dilutions, run agarose gels, use spectrophotometry to calculate concentrations and use Excel to make graphs. In addition students should leave the class with the ability to calculate concentrations, extinction coefficients and absorbances using Beers Law, estimate pKa values, and calculate enzyme kinetic values. Finally students should be able to explain how restriction enzymes are used especially with regard to restriction fragment length polymorphism (RFLP) analysis and be able to explain how PCR works.

**Text:** “Introduction to Biochemistry - Laboratory Manual” A series of experiments compiled by Leonard Price, Donald Robinson, Tuajuanda Jordan, Nitsa Rosenzweig, and David Wolfgang Fall 2007

**Supplemental Text:** “Fundamentals of Biochemistry” by Voet, Voet, and Pratt, 2<sup>nd</sup> Edition

**Class Structure:** Students will work in pairs for each experiment. Before coming to lab, students are expected to read the theory and procedure for that week’s experiment. During the first 10-15 minutes of each class, a quiz will be administered. The quiz will cover **BOTH** the previous week’s and the current week’s experiment. There will be a brief lecture on the theory and procedure before each new experiment. After completion of each experiment, a type-written report must be submitted the following week.

**Class Attendance:** Students should attend each class, and on time. Students are responsible for any notes, assignments, handouts, instructions, etc. given during their absence. If you do need to miss a class, make every effort to attend another section, either one of mine or that of another instructor (with their permission). If you do attend a class with another instructor let me know.

**Grading:** The final grade will be out of 1050 points

**Exams:** Students must be present for all exams!  
Midterm exam – 150 points (14%)  
Final exam – 250 points (23%)

**Quizzes:** Eleven quizzes worth **25 points each** (275 total points). There will be a **quiz before each experiment**.

**Notebooks:** Students are required to **maintain a laboratory notebook**. They should have this notebook with them during every class session. A spiral notebook or composition notebook is fine. A notebook from a previous class may also be used. The notebook is to have a place where all your data and calculations are recorded. This is worth 45 points and will be checked at RANDOM during the semester.

**Extra Credit:** There will be a possibility of 50 extra credit points to be determined by the individual instructor.

**Reports:** Each student **submits a report for every experiment**. The reports are **30 points each** for a total of 11 labs. (330 points total):

**Clear name, (partner’s name in parentheses), section number, and date the experiment was completed.**

**Title of the experiment**

**Purpose of the experiment** – one or two sentences

**Experimental approach** – not a detailed step-by-step procedure.

**Data/results** – The actual numerical data collected in a table, plus a graph if appropriate. Also include any color changes or changes in physical state if appropriate. Include **sources of error**.

**Calculations** – sample calculations, if the calculations are identical except for the numbers one sample calculation is sufficient.

**Discussion and conclusion** – A statement of whether or not the objectives were accomplished and a thoughtful explanation of the reasons why. The conclusion should be drawn from the experimental evidence, not the theoretical or anticipated results.

**Always record the unknown, either number or letter.**

**Academic Honesty: In accordance with University policy  
anyone caught cheating will fail the course.**

Cheating includes but is **not restricted to**:

Handing in reports with identical text: Obviously the data will be the same for people in the same group. Write the reports on your own. **DO NOT SHARE REPORTS OR DISKS.** This is a clear violation and will result in course failure. If your partner needs the data give him/her **ONLY** the data. Copying from another student during a quiz or exam.  
Using any unauthorized material during a quiz or exam.  
Authorized materials are a pen/pencil, a calculator and your brain.

**Final Total Point and Grade Distribution:**

A = 945 – 1050

B = 840 – 944

C = 735 – 839

D = 630 – 734

F = 0 – 629

**Experiment Schedule: See attached calendar**

Biochemistry is a multi-disciplinary course that encompasses immense bodies of knowledge. This semester you will be presented with vast amounts of information. To be successful in this course, you must do a minimum of five things:

1. Read over experiments in advance of the class
2. Attend ALL labs, take good notes, ASK QUESTIONS (if you are hesitant to ask questions during class time, come see me in my office).
3. Review notes with the textbook.
4. Solve problems **ON YOUR OWN**.
5. Study for each test and quiz in advance.

### Chemistry 4130L Schedule Spring 2008

#### January

				10	11 Pipette	12
13	14	15 Pipette	16 Pipette	17	18 Spec.	19
20	21 Holiday	22 Spec.	23 Spec.	24	25 Buffer	26
27	28	29 Buffer	30 Buffer	31		

#### February

					1 Titration	2
3	4 Holiday	5 Holiday	6 Titration	7	8 Protein Quant.	9
10	11	12 Titration	13 Protein Quant.	14	15 Midterm	16
17	18	19 Midterm	20 Midterm	21	22 BSA and Casein	23
24	25	26 Protein Quant.	27 BSA and Casein	28	29 Electro.	

### March

						1
2	3	4 BSA and Casein	5 Electro.	6	7 Catalase	8
9	10	11 Electro.	12 Catalase	13	14 TBA	15
16	17 Holiday	18 Holiday	19 Holiday	20 Holiday	21 Holiday	22
23	24	25 Catalase	26 Dry Lab	27	28 Dry Lab	29
30	31					

### April

		1 Dry Lab	2 Alk. Phos	3	4 Alk. Phos	5
6	7	8 Alk. Phos	9 Rest. Dig.	10	11 Rest. Dig.	12
13	14	15 Rest. Dig.	16 PCR	17	18 PCR	19
20	21	22 PCR	23 FINAL	24	25 FINAL	26
27	28	29 FINAL	30			