

Chemistry 130: Physiological Chemistry

Fall 2012 Syllabus

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Course website: <http://alpha.chem.umb.edu/chemistry/ch130> AND the Blackboard site.

This is a one semester course to introduce the theoretical fundamentals of chemistry as they pertain to physiological systems and processes. Tools are presented and developed (both descriptive and quantitative) to provide a basis for understanding metabolic pathways at the molecular level. Atomic and molecular structure, energetics, and reaction dynamics will be studied to illustrate the molecular mechanisms of human biological chemistry. This course consists of lecture, discussion, and laboratory. You must be enrolled in all three parts of the course.

NOTE: This course is designed to satisfy the chemistry requirement for the UMass/Boston Nursing program. Please check that **your program** needs only a one semester chemistry requirement.

Textbook: We will use K. C. Timberlake, "Chemistry: An Introduction to General, Organic, and Biological Chemistry," 11th Edition, Pearson (Prentice-Hall), 2012. We will also be using the publisher's MasteringChemistry – an online tutorial, homework, and assessment tool. We will begin with Chapter 1 and proceed through the text, emphasizing some chapters and skipping others, as we progress to the required biological chemistry. Because of the nature of this course, we will cover a huge amount of material during this one semester. My best advice: Do not fall behind! Work **daily** on this course.

Laboratory: Lab will begin the week of Monday, September 17th. You are expected to attend the lab section for which you are registered! The laboratory experiments for this course are available on the course website. Please print out the experiment before your lab. Lab reports are due at the end of each lab period; they are to be submitted on the proper report sheets from the lab experiment printout. These reports will be graded on the basis of results, understanding, scientific approach, and neatness. *There are no make-up labs.* Your lab grade will be calculated on the basis of the total points earned on the best nine of your ten lab reports. If you do not have nine reports, your lab grade will be based on those you have turned in. A minimum of six (6) lab reports is necessary in order to pass the lab. And, because this is all one course, *you must pass the lab in order to pass the course.*

Exams: There will be three (3) exams during our regular class periods. Each exam will be 50 minutes long (each valued at 100 points). A cumulative final exam (valued at 200 points) will be given during the final exam period; you will have three hours for this final exam. Make an effort to arrive on time for each exam. If you arrive late, you will not be given extra time. Exam answers are posted on the website after grading is completed. See the attached schedule for exam dates. The final exam is what is known as a "resurrection final." It will consist of three subsections mirroring the three midterms. If your percentage score on the subsection corresponding to a given midterm is better than your score on that midterm, the subsection score will *replace* your midterm score. This means that you can *always* improve your grade fairly dramatically.

NOTE: If an exam is scheduled on a day of inclement weather and the University has *not* cancelled classes, the exam will be given as scheduled - if at all possible. However, if the University has cancelled classes, the exam will be given in the next class meeting. *Exam Review Sheets* will be available on the web site; check them as we progress during the semester and certainly before each exam. **There are no make-up exams.**

Homework: Chemistry is a problem-solving science! There are a lot of problems at the end of each chapter; do not try to do all the problems at the end of each chapter. I will assign specific homework problems - see the web site and MasteringChemistry. Your homework progress will be recorded in MasteringChemistry. Remember: it is the rare student who can grasp all this material without doing the problems before the exams! The best way to learn chemistry is by doing problems!

Discussion: Discussion meets one day a week. During this time, you will work in small groups to solve problems. The more effort you put in to discussion, the more rewarding it will be. It has been conclusively proven that students learn material better when they work with their peers to discover and explain how to solve different kinds of problems. I will be present to answer questions and provide guidance, but most of the work is up to you.

Grades: Your course grade will be based on the points attained on your midterms, the final exam, and the laboratory reports. Each midterm is worth 100 points, the final exam is worth 150, and the lab is worth 150. Course grades are based on your total points earned out of the 600 points possible. You *must* have at least two midterms, a final, and a 'complete' lab in order to pass the course. I expect that course grades will look something like this:

Percentage of Points Earned	Grade
>90	A
>88	A-
>86	B+
>81	B
>79	B-
>75	C+
>65	C
>62	C-
Less than 62%	other

It is entirely possible that my eventual grading scheme will be *more generous* than this scale, but it will not be any less generous.

Extra Credit: Because you are all college students, I will not *require* attendance at lecture or discussion, nor will I collect or grade your homework. It is up to you to put in your best efforts. Instead, I will *reward* your full participation in all units of the course. There will be up to 10 points of extra credit available for lecture attendance, homework completion, and discussion participation, for a total of 30 points available – 5% of the total points for the course.

Academic Conduct: It is important that you read these sections of the UMass Boston 2005-2007 Undergraduate Catalog: “Academic Standards, Cheating, and Plagiarism” [pp. 352-353], and “Student Rights and Responsibilities” [pp. 355-362].

One Final Comment: Incompletes for this course are only allowed under *exceptional* circumstances, and are never granted automatically. This means that if you think you qualify for an incomplete, you must request one! The basic requirements for an INC are: (1) you must be passing the course, and (2) you must

have an insurmountable reason for not being able to finish the course. INCs are never given before the withdrawal period has passed (Monday, Nov 7th).

*Students who require “extra” accommodations to complete the course requirements **must** contact the Ross Center in the Campus Center [2-2010 or (617) 287-7430]. They will make appropriate arrangements with me.*

Miscellaneous Information:

- Tutors are available through Academic Support Services (Campus Center 1st floor)
- You will need a scientific calculator – capable of handling exponents – for both lecture exams and lab reports. You may not use your smart phone!

Chem 130 – Physiological Chemistry Lecture Schedule Fall 2012

Monday	Wednesday	Friday
<u>Sept 3</u> - Labor Day No class	5 – Introduction Chapters 1+2	7 - Chapters 1+2
10 – Chapters 1+2 Add/Drop ends on 9/11	12 – Chapters 1+2	14 – Chapter 3
17 – Chapter 3	19 – Chapters 3+4	21 – Chapter 4
24 – Chapter 4	26 – Chapters 4+5	28 – Chapter 5
<u>Oct 1</u> – Chapter 5	3 – Chapter 5	5 – EXAM 1
8 – Columbus Day No class	10 – Chapter 7	12 – Chapter 7
15 – Chapters 7+8	17 – Chapter 8	19 – Chapter 8
22 – Chapter 10	24 – Chapters 11+12	26 – Chapters 12+13
29 – Chapter 13	31 – Chapter 13	<u>Nov 2</u> – Chapter 13
5 – EXAM 2	7 – Chapter 14 W/P/F closes on 11/8	9 – Chapters 14+15
12 – Veterans Day No class	14 – Chapter 15	16 – Chapter 15
19 – Chapter 16	21 – Chapter 16	23 – Thanksgiving Recess No class
26 – Chapters 16	28 – Chapter 16+17	30 – Chapter 17
<u>Dec 3</u> – Chapter 17	5 – Chapters 17+18	7 – Chapter 18
10 – Chapter 18	12 - EXAM 3 Last Day of Classes	14 - Final Exams Start Final Exam Date TBA

Please NOTE that this schedule is definitely tentative – however the exam dates will not change. Each exam will cover the material covered up to and including the previous Friday's lecture.

Chemistry 130 Laboratory Schedule - Fall 2012

Chemistry 130 Lab meets in room S-2-079. There are ten weeks that we will do an experiment.

Please be sure that you have the correctly titled experiment for each week including any addendum (regardless of the “experiment number” listed on the website!).

Week beginning	Experiment Title
Sept 3	No Lab
Sept 10	No Lab
Sept 17	Calculators, Unit Conversions, Density
Sept 24	Salt in Sea Water
Oct 1	Physical and Chemical Change
Oct 8	No Lab (Columbus Day)
Oct 15	Conservation of Mass
Oct 22	Titration and Analysis
Oct 29	Isomerism
Nov 5	Carbohydrates
Nov 12	No Lab (Veterans Day)
Nov 19	Preparation of Soap
Nov 26	Proteins
Dec 3	Salicylic Acid Derivatives
Dec 10	No Lab

This schedule should allow for lecture presentation of the necessary concepts before each experiment. It is certainly subject to change, however.