Chemistry 120 Syllabus
Spring 2004

Instructor	Ms. Brenda Harmon	**Office Hours**
	220A Pierce Hall	Thurs 1:00-2:30
	4-8341	*All others by drop-in or appointment.

Resources

- Text: "Introduction to General, Organic, and Biochemistry", 6th edition, Bettleheim, Brown, & March
- Optional: study guide and solutions manual.
- Handouts, worksheets and e-reserves.
- Review sessions.
- **The *instructor*. Feel encouraged to talk to me if you are having any problems with this course. I promise to make every effort to help you learn chemistry, but it is *your* learning. The ultimate responsibility for your achievement is your own.

Course Objectives

- Understand and apply the fundamental concepts of organic chemistry (structure, properties, and reactivity) in the context of important biochemical processes and health related topics.
- Understand the connection between the structure of organic compounds and their properties and reactivity. Be able to correctly draw organic structures.
- Understand and describe intra- and intermolecular forces, especially hydrogen bonding.
- Understand and describe simple chemical phenomena on both a microscopic and macroscopic scale. Use the language of an organic chemist to describe simple chemical phenomena.
- Utilize and reinforce previously learned chemistry skills.
- Develop and reinforce scientific problem-solving and critical-thinking skills.

Course Content

- Acid/Base and buffer chemistry in the context of body fluids.
- Structure, properties, naming, and a brief overview of reactivity :
  - Hydrocarbons (alkanes, alkenes, alkynes, and aromatics)
  - Alcohols, phenols, ethers, & halides
  - Aldehydes and ketones
  - Carboxylic acids and esters
  - Amines and amides
- The nature and effects of: isomerism, chirality, and hydrogen-bonding.
- Soaps, detergents, and surfactants: the chemistry behind getting clean.
- Oil and plastics: Chemistry in our daily lives.
- Carbohydrates, lipids, amino acids, peptides, and proteins.
- The chemistry involved in nutrition and digestion; evaluating dieting strategies and fad diets.

Grading Methods and Course Requirements

20%	Worksheets and homework assignments
45%	4 Exams (you may drop the lowest exam grade)
15 %	Final exam
20%	Laboratory course grade

*Late assignments: 5 points per day excluding weekends and holidays.
*Assignments more than 3 days late will not be accepted.

Grades are based on percentages and usually assigned as follows:

93 - 100% A	78 - 80% C+
90 - 92% A-	74 - 77% C
88 - 90% B+	70 - 73% C-
84 - 87% B	68 - 70% D+
80 - 83% B-	60 - 67% D
	Below 60% F

Worksheets & Homework Assignments

Worksheets

Worksheet questions will cover material in the assigned reading from the chapters - prior to the lecture classes. You will be expected to read the assigned sections in each chapter and answer questions based on the reading PRIOR to coming to lecture. This way I can lecture about 20-30 minutes and we can use the rest of the class time to work individually and in groups on the problems or class activities that will really help you learn the material. This way I can give you feedback on your progress and I can better gauge what help you need. I expect you to complete the worksheets on your own based on your comprehension of the reading material. A key for each worksheet will be posted outside my office. The worksheet assignments will include essay questions that examine the broader questions and the application of organic chemistry to everyday life. You will be able to drop the 2 lowest worksheet grades.

Homework

I will assign specific questions at the end of each chapter. You will be required to work these problems and turn in your solutions a few days after we finish each chapter in class. These homework problems can be discussed in your study group but the answers you record should be your own (no copying - if you don't actually work the problems yourself, you will not be able to work them in-class or on the exams). Don't wait until we finish a chapter to start working the problems, by then it will be too late to get help in class. Much of our class time will be devoted to working homework and similar problems. You will be able to drop the 2 lowest homework grades.

***The worksheet and homework grades will be averaged and will count as 20% of your course grade.**

Group Work

You will be asked to form study groups for working in and out of class. Working in groups can be a very valuable experience if you and your peers are well prepared BEFORE you meet. You can learn much more by teaching someone else the concepts than you can by studying on your own. Make sure and take turns being the "group leader".

Group member evaluations
At the end of the semester you will have the opportunity to evaluate your group members. This evaluation will cover topics ranging from knowledge and preparation to carrying a fair share of the workload. Remember, your other group members will have the opportunity to evaluate you. Your group member evaluations will be considered when calculating your homework grade.

Exams

There will be four in-class exams -
Each exam will be worth 10 % of your course grade. The final exam will be comprehensive and will count as 15% of your overall course grade.

Exams will be given on the days indicated in the schedule. In general, make-up exams WILL NOT BE GIVEN. In the case of an EXTREME illness or emergency, the instructor must be notified prior to the time of the scheduled exam. The instructor reserves the right to make any decisions regarding the possibility of a make-up exam. An unexcused exam absence will result in a grade of zero.

Laboratory Course

Your laboratory course grade will count as 20% of your overall lecture grade. Take the laboratory work seriously - your overall lab grade is worth more than any of your individual exams and even more than the final exam. *You must pass both the lecture and laboratory portions of the course to pass the course.*

Absence Policy

Attendance will be taken at every class session, students will be allowed up to 3 absences without penalty. **After 3 absences, 1% point will be deducted from your final grade average for every missed class.** (Be aware: this means that if your final average is an 82 and you miss 7 classes, your final grade will now be reported as a 78. Attend the lectures and labs, do the assignments and do them to the best of your ability, and (as with everything in life) you will get out of it what you put into it.

Honor Code Policy

The Oxford College Honor Code applies to all work completed in this course. You are expected to do the assigned reading and answer the worksheet questions on your own. You may discuss the material with other students, but the answers you give should be your own. You are encouraged to work on the homework assignments in study groups. However, do not simply copy down answers from your group members. It will be obvious during class activities and on

your exams that you do not understand the material. Be aware that if you are found guilty of violating the Honor Code the usual penalty is an F in the course. A few answers on a worksheet or homework assignment, or for that matter on an exam, are not worth the pain and stress involved in an Honor Code case and hearing, and may result as an F in the whole course. Do your own work.

Scheduled exam dates and tentative topics

Exam I **Feb 5**

Review (atoms, ions, molecules, acids/bases, buffers)
Chemistry of Body Fluids
Intro to organic chemistry

Exam II **Mar 4**

Alkanes, alkenes, alkynes
Alcohols, ethers, thiols
Chirality, amines

Exam III **Apr1**

Aldehydes, ketones,
Carboxylic acids, esters, amides
Soap, carbohydrates, plastics and polymers

Exam IV **Apr 27**

Lipids
Protiens, amino acids
Nutrition, digestion
Fad dieting

Final Exam (comprehensive)

Wed, May 5 9:00 –12:00