

Chemistry 120, Spring 2017

Selected Topics in Chemistry: A Survey of General, Organic, and Biochemistry

Meeting Time	MWF 8:15-9:20 am
Location	OSB 417
Instructor	Dr. Annette Neuman
E-mail	annette.neuman@emory.edu
Office	OSB 404
Office Hours	Mondays 1:00-3:00 pm, Tuesdays 1:00-3:00 pm, Thursdays 10:00 am–12:00 pm (drop-in) Or by appointment (e-mail me to set up a time)

Description All life depends on molecules containing carbon, known as organic compounds. Chemistry 120 is a one-semester survey of general, organic, and biochemistry designed for non-chemistry majors. In this class, we will examine the attributes of carbon that make it well suited as the backbone of organic molecules that are important in biological systems. This course tends to be popular with pre-nursing students, but it designed for anyone who is interested in chemistry. **This class has no prerequisite.**

Oxford College is dedicated to a liberal arts education. The ultimate goal of a liberal arts education is not to provide a collection of knowledge, but rather to teach you how to think and how to learn. The study of science is an integral part of a liberal arts education. The mastery of chemistry requires a thorough understanding of fundamental principles and the ability to use those principles to analyze, classify, and predict. The mastery of nursing and other fields makes similar demands. Your success in Chemistry 120 will not only provide you with knowledge about the molecules of life, it will also hone the critical thinking skills that will be valuable in your career.

Learning Outcome The primary goal of this course is to train you to explain biological topics using the principles of organic chemistry.

Content Knowledge To succeed in this class, you must master the following topics:

1. atomic and molecular structure
2. structure and bonding of organic molecules
3. how medicines work
4. structure and functions of biological molecules

Course Materials Required textbook: *General, Organic, and Biological Chemistry: Structures of Life*, 5th edition, by Karen C. Timberlake

Bring a notebook and pen or pencil to every class. It is not necessary to bring your textbook.

Required for lab: Carbon-copy lab notebook (you must have this *before* your first lab meeting)
Safety glasses (these may be purchased during the first lab meeting)

Grading

Your course grade will be computed as a weighted average comprising 80% of your course grade and 20% of your lab grade.

Your lecture grade will be determined as follows:

Short writing assignments	100 pts
Homework 10 @ 10 pts	100 pts
In-class exams 3 @ 100 pts	300 pts
Mini-research paper	50 pts
Final paper	150 pts
<u>Final presentation</u>	<u>50 pts</u>
Total	750 pts

***Note that this class does not have a final exam! Your last obligation to this class is to submit your final paper on Reading Day.

Your final letter grade will be determined by the usual scale. *There is no automatic rounding or curve to course grades.*

93	90	87	83	80	77	73	70	67	60	
A	A-	B+	B	B-	C+	C	C-	D+	D	F

In fairness to all students, grades must be based solely on your performance in the course. If you believe I have misgraded an assignment, please bring this to my attention immediately. Otherwise, **under no circumstances will grades be open for negotiation.**

Partial credit will be awarded at my discretion and is not open for negotiation.

Case studies and problem sets will be completed as groups. You will choose a small group for these activities during the first week of class.

Writing Assignments

Throughout the semester, I will assign brief (one-page) reflections. You will be expected to complete these on your own outside of class.

Throughout the semester, we will spend several class periods working through case studies related to the course material. You will work with your group members to briefly write up your findings.

Problem Sets

Diligently working problems is one of the major keys to success in chemistry. To this end, you will choose a small group during the first week of class. You must work with your group on each problem set and submit a single copy of your assignment. ***Your submission must reflect the collaboration of all group members.*** Ten problem sets will be assigned throughout the semester.

Exams

We will have three in-class exams. These exams will be given during the regularly scheduled class period.

Exam 1	Friday, February 10	Atomic and molecular structure
Exam 2	Friday, March 3	Organic structure and reactivity; medicinal chemistry
Exam 3	Friday, April 14	Lipids, carbohydrates, proteins, and nucleic acids

Review Sessions	Review sessions will be held one or two days before each exam, at a mutually agreed upon time. These sessions are completely optional and will give you the opportunity to ask me any questions you may have about the current material.																
Makeups	Makeup exams are not given after missed exams. In extenuating circumstances, it may be possible for a student to take an exam ahead of time, if I am given at least seven days' notice. Under no circumstances will a makeup exam be given <i>after</i> the scheduled time and date of the exam.																
Mini-Research Project	In our first lab meeting, on January 12, we will discuss your first writing assignment. You will choose a plant to study how its component molecules are isolated and used. You will submit a 2-3 page paper (hard copy) on the topic of your choosing by 4 pm on Friday, February 3.																
Research Projects	<p>In the second half of the semester, each student will choose a drug to research. You will study how it was developed, how it is synthesized, and how it works in the body. You will share your findings through a research paper and a presentation to the class.</p> <p>A hard copy of your final 4-6 page research paper will be due in my office by 4:00 pm on Reading Day, Tuesday, April 25. In recognition of the fact that excellent writing takes time, several intermediate deadlines will be enforced. The writing schedule will be as follows:</p> <table> <tr> <td>Friday, February 24</td><td>Research proposal due by 4 pm (e-mail or hard copy)</td><td>10 points</td></tr> <tr> <td>Friday, March 17</td><td>Outline of research paper due by 4 pm (e-mail or hard copy)</td><td>15 points</td></tr> <tr> <td>Friday, April 7</td><td>Rough draft of research paper due by 4 pm (hard copy required)</td><td>25 points</td></tr> <tr> <td>Tuesday, April 25 (Reading Day)</td><td>Final draft of research paper due by 4 pm (hard copy required)</td><td>100 points</td></tr> <tr> <td colspan="2">Total</td><td>150 points</td></tr> </table> <p>Each student will give a 10-minute presentation to give to the class on his or her research topic during the last week of classes, April 17-21.</p>		Friday, February 24	Research proposal due by 4 pm (e-mail or hard copy)	10 points	Friday, March 17	Outline of research paper due by 4 pm (e-mail or hard copy)	15 points	Friday, April 7	Rough draft of research paper due by 4 pm (hard copy required)	25 points	Tuesday, April 25 (Reading Day)	Final draft of research paper due by 4 pm (hard copy required)	100 points	Total		150 points
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Expectations	<p>Electronics including but not limited to cellular phones, tablets, laptop computers, and mp3 players may not be used during class or exam periods. <i>Using these devices during class or lab meetings may adversely affect your course grade.</i></p> <p>You should minimize your trips to the restroom or other reasons for leaving during class. You may excuse yourself from class if necessary, but this is very distracting and should be kept to a minimum.</p> <p>Take responsibility for your own successes and failures. Work hard, and don't make excuses!</p>																
Honor Code	Academic integrity is crucial to the Oxford community. Therefore, as in all courses, you will be expected to adhere to the Oxford College Honor Code. Academic misconduct, as defined in the honor code, will not be tolerated and will be immediately referred to the Honor Council. Collaboration is not permitted on exams or research projects.																

Disability Accommodations

If you are registered with Access, Disability Services, and Resources (ADSR), please submit the documentation letter to me during the first week of the semester so that I can make appropriate accommodations.

Attendance

All students are expected to attend all lecture and laboratory sessions. However, I recognize that emergencies can arise that may result in absence from class. You should notify me if an absence is due to illness or other emergency. You are responsible for all material covered in lecture if you are absent.

Besides missing class, these also count as an absence:

1. Being late to class two times. (This means coming in after I've finished checking the class roster.) If you come in late, it is your responsibility to see me immediately after class to ensure that you are marked as being tardy and not absent. No adjustments will be made at a later time.
2. Coming to class more than 15 minutes late.
3. Leaving class early.
4. Going in and out of class.
5. Being inattentive or working on other assignments in class.

You are allowed 3 *absences* from lecture. If you exceed the 3 absence limit for *any* reason, by any combination of absences and tardies, you will:

1. Lose 2 points for the next 2 absences (absences 4 and 5)
2. Lose 3 points for each additional absence

Note that each point deducted is a **percentage point** of your final grade. Therefore, excessive absences will have a significant negative impact on your course grade.

Chronic absences due to severe illness or other extenuating circumstances are to be handled through the office of the Dean of Academics, at the student's initiative. Only that office can dictate a deviation from course policy.

Canvas

The Chemistry 120 page on Canvas will be the primary means of communicating outside of class. It will also house supplementary course resources. **Please be sure to check the course page daily.**

Student Work

Occasionally I will photocopy assignments that you turn in for inclusion in my teaching portfolio. Furthermore, student work submitted as part of this course may be reviewed by Oxford College and Emory College faculty and staff for the purposes of improving instruction and enhancing Emory education.

Tips for Success:

1. Develop a good attitude. Chemistry can be both fun and interesting if you allow it to be.
2. WORK PROBLEMS! The assigned problem sets are a good place to start, but you should also work lots of problems from the textbook.
3. Manage your time and your life. There are LOTS of extracurricular activities to get involved in at Oxford. None of them are an excuse for poor performance in the classroom. Remember why you are here.
4. Our class time is limited. Therefore, I will not tell you everything you need to know. Class time is for working through new problems and clearing up complex concepts. **You are responsible for all the information in the assigned reading**, regardless of whether it is discussed in class.
5. Memorizing facts is important to establish a basis for your knowledge but is not sufficient for success in Chemistry 120. You must be able to use your knowledge to think logically and analytically. Many of the test questions will require you to apply your knowledge to unfamiliar situations.
6. Come to class every day, stay alert, and take good notes.
7. Read the assigned material before each class, read it again after each class, and read it a third time before the exam.
8. Form a study group with a few classmates and work problems together.
9. Use the resources available to you: office hours, review sessions, and your classmates are all excellent resources to help you achieve success in this class.
10. The pace of this course is rapid. Stay current with the material and don't get behind.