

Introduction to Organic & Biological Chemistry CHE 2100

Fall 2015

Lecture: Mon & Weds 8am-9:50am

Science Building (SI) 308I

Laboratory: See your course schedule for details

Course website: <http://bonhamchemistry.com>

Instructor: Dr. Andrew J. Bonham Office Hours: T,W,&Th 10:00-11:00, W 1:00-3:00

Contact: abonham@msudenver.edu

Office: Science Building 3048 and 3027

Why Study Organic Chemistry & Biological Chemistry?

Organic & biological chemistry encompass the chemical foundations of almost every process that we encounter in our daily lives. A solid understanding of these essential topics will provide a better understanding of how modern industry works, how life functions, and give insight into the endless, fascinating examples of the beauty and complexity of the living world.

What do I expect from you? How can you succeed at this course?

Chemistry is a complex topic, and while I believe that every student can succeed at this course, like any challenge, certain expectations must be met for you to succeed.

- **Regular Attendance and Daily Practice:** Science and math are their own language, with specialized vocabulary and ways of approaching problems. Just like the study of a foreign language, I expect regular attendance and daily practice. If you cannot commit to thinking about, and solving problems in, chemistry every day, you will not acquire enough skill to confidently pass the exams and master this topic to the level that you will need for future careers.
- **Plan for the Future:** I expect you to be aware of the lecture schedule and exam dates, and plan accordingly. I expect at least two weeks notification for any quiz you may miss (see Homework & Quizzes, below), and there will not be any flexibility on the date and time of the Final Exam. Review the schedule now, and plan for the future.
- **Pay Attention and Work Through Problems:** It is exceedingly easy to fall into the trap of half-listening to lectures, nodding along with the material, only to find that you cannot answer the test questions. You cannot succeed by listening alone. I expect you to take notes, engage with the class and your classmates, do the homework exercises, and commit to the often difficult process of learning unfamiliar topics. Note well that simply looking at a problem set, then at the answer key, and saying to yourself, "That makes sense," is not the same as actually solving the problem!
- **Take the lab work seriously.** Labs are designed to reflect, as much as possible, real-world laboratory experiences. This is a great opportunity to learn useful skills, but requires careful attention to safety hazards, details of experiments, and awareness of the lab environment.

What can you expect from the instructor?

I will give clear, relevant, on-time lectures that encourage class participation. I will provide clear assignments, clear and fair grading policies as outlined in this syllabus, and relevant practice problems. I will offer reasonable availability outside of class (e.g., office hours). Through my actions, I will encourage your understanding and enjoyment of the science of biochemistry.

Required Materials:

- Bettelheim, et al., Introduction to Organic and Biochemistry, 7e.
- Laboratory Manual: Available in the Auraria Bookstore.
- i>clicker. Available in the Auraria Bookstore.
- Molecular models are highly recommended but not required. Four model sets are on reserve in the library.
- Safety glasses in the laboratory will be required at all times. A lab coat or an apron is highly recommended.
- Scientific Calculator for Quizzes (no cell phones, graphing calculators, laptops, tablet computers, or other web devices).
- Subscription to Sapling Learning for homework (see below).

Reading:

The course will be primarily based on lecture notes, which will be available online. However, the Bettelheim textbook is a good, informative read, and reading the suggested chapters will improve your understanding of the material immensely—there is only so much lecture time, and a world of interesting things to learn. Additionally, the practice problems are from the book, and quizzes will partly be based on that content. If you attend lecture, read the textbook, and do the homework problems, you will be well prepared to succeed.

Class Participation / iClickers:

Regular attendance and involvement in the classroom learning process is important. This class will use the iClicker evaluation system for in-class responses. These responses, regardless of whether they are "correct" answers, as well as your class participation will constitute a 10% participation portion of your grade.

Homework:

We will be using the Sapling Learning online homework system (<http://www.saplinglearning.com>). Additionally, you may want to do practice problems from the textbook, and review sheets that I will provide before tests. There is no way around the need to actually solve chemistry problems; doing homework is your best way to ensure a good grade in this class and a good understanding of the material. The Sapling homework will constitute a 10% portion of your grade.

Lab Grades: Refer to lab syllabus

Quizzes:

Quizzes will be given approximately bi-weekly (see schedule for dates). The six quizzes will consist of 30 short answer / calculation / structure and/or multiple choice questions. Quizzes are worth 45% of the course grade and will cover the material stated on the lecture schedule (2-3 chapters per quiz). Study questions and old quiz questions will be provided on MetroConnect. The quizzes will be given during the first 45 minutes of the class. Lecture will follow. At the end of the course, your lowest quiz grade will be dropped (we all have bad days).

Final Exam:

The final exam will be the American Chemical Society General-Organic-Biochemistry exam. The final is required for all students. It is worth 15% of your course grade and will be given during finals week in December (TBA).

Grade Calculation & Policies:

Class Participation / iClicker points	10 %
Sapling Homework	10 %
4 Quizzes (lowest dropped, remaining three are 15% each, 25 questions)	45 %
Lab Experiments & Write-ups	20 %
Final Exam	15 %
Total	100 %

Points are tentative and subject to change by the instructor.

The grading scale is as follows: A (90 -100%), B (80 - 89%), C (70 - 79%), D (60 - 69%), F (< 60%)

FERPA policies prohibit me from releasing your grades via phone or email unless you register with the Registrar's office and obtain a non-identifying security code.

Administrative Syllabus policies

Students are responsible for full knowledge of the provisions and regulations pertaining to all aspects of their attendance at MSU Denver, and should familiarize themselves with the policies found on the following web site:

<https://www.msudenver.edu/handbook/academicpoliciesforstudents/>

Students should be aware that any kind of withdrawal can have a negative impact on some types of financial aid, including scholarships. For further information, follow this link: <http://msudenver.edu/financialaid/undergraduate/keepingawards/>

1. **WITHDRAWAL FROM A COURSE** <https://www.msudenver.edu/handbook/academicpoliciesforstudents/#Withdrawal>
2. **ADMINISTRATIVE WITHDRAWAL**
https://www.msudenver.edu/handbook/academicpoliciesforstudents/#Withdrawal_Due_to_Emergency
3. **INCOMPLETE POLICY** <https://www.msudenver.edu/handbook/academicpoliciesforstudents/#Incomplete>
4. **ACADEMIC DISHONESTY** <https://www.msudenver.edu/deanofstudents/studentconduct/academicintegrity/academicdishonesty/>
5. **PROHIBITION ON SEXUAL MISCONDUCT** <https://www.msudenver.edu/deanofstudents/studentconduct/sexualmisconducttitleix/>
6. **ACCOMMODATIONS TO ASSIST INDIVIDUALS WITH DISABILITIES**
<http://www.msudenver.edu/access/faculty/adasyllabusstatement/>
7. **CLASS ATTENDANCE ON RELIGIOUS HOLIDAYS**
https://www.msudenver.edu/handbook/academicpoliciesforstudents/#Class_Attendance_Holidays
8. **STUDENT EMAIL POLICY** http://www.msudenver.edu/handbook/generaluniversitypolicies/#Electronic_Communication_Policy

If you have any difficulty accessing the hyperlinks in this document, please inform the instructor.

Syllabus Changes and Policy:

Any changes in this syllabus I may deem necessary during the semester will be announced in class and made available in writing. I reserve the right to revise the syllabus and grading policies at any time.

Week	Dates	Lecture Topics	Reading	Sapling HW (due Mondays at midnight)
1	Aug 17 th and Aug 19 th	<ul style="list-style-type: none"> • Introduction • Alkanes 	Chapters 10 & 11	
2	Aug 24 th and Aug 26 th	<ul style="list-style-type: none"> • Alkanes 	Chapter 11	
3	Aug 31 st and Sept 2 nd	<ul style="list-style-type: none"> • Alkenes and Alkynes 	Chapter 12	<ul style="list-style-type: none"> • Chapters 10,11
4	Sept 9 th	<ul style="list-style-type: none"> • Aromatics 	Chapter 13	<ul style="list-style-type: none"> • Chapter 12
5	Sept 14 th and Sept 16 th	<ul style="list-style-type: none"> • Alcohols, Ethers and Thiols • Quiz Sept 16th over Chapters 10,11,12,13 	Chapter 14	<ul style="list-style-type: none"> • Chapter 13
6	Sept 21 st and Sept 23 rd	<ul style="list-style-type: none"> • Chirality • Amines 	Chapters 15 & 16	<ul style="list-style-type: none"> • Chapter 14
7	Sept 28 th and Sept 30 th	<ul style="list-style-type: none"> • Aldehydes, Ketones • Carboxylic Acids 	Chapters 17 & 18	<ul style="list-style-type: none"> • Chapters 15,16
8	Oct 5 th and Oct 7 th	<ul style="list-style-type: none"> • Carboxylic Esters, Anhydrides and Amides • Quiz Oct 8th over Chapters 14,15,16,17,18 	Chapter 19	<ul style="list-style-type: none"> • Chapters 17,18
9	Oct 12 th and Oct 14 th	<ul style="list-style-type: none"> • Acids & Bases • Chemical Rates 	Chapters 7 & 8	<ul style="list-style-type: none"> • Chapter 19
10	Oct 19 th and Oct 21 st	<ul style="list-style-type: none"> • Carbohydrates • Lipids 	Chapters 20 & 21	<ul style="list-style-type: none"> • Chapter 8
11	Oct 26 th and Oct 28 th	<ul style="list-style-type: none"> • Lipids • Proteins • Quiz Oct 28th over Chapters 19,7,8,20,21 	Chapters 21 & 22	<ul style="list-style-type: none"> • Chapters 20,21
12	Nov 2 nd and Nov 4 th	<ul style="list-style-type: none"> • Enzymes • Chemical Communications 	Chapters 23 & 24	<ul style="list-style-type: none"> • Chapter 22
13	Nov 9 th and Nov 11 th	<ul style="list-style-type: none"> • Nucleotides • Gene Expression 	Chapters 25 & 26	<ul style="list-style-type: none"> • Chapters 23,24
14	Nov 16 th and Nov 18 th	<ul style="list-style-type: none"> • Bioenergetics • Metabolic Pathways • Quiz Nov 18th over Chapters 22,23,24,25,26 	Chapters 27 & 28	<ul style="list-style-type: none"> • Chapters 25,26
Break	Nov 23 rd to Nov 27 th	--	--	
15	Nov 30 th and Dec 2 nd	<ul style="list-style-type: none"> • Nutrition • Review 	Chapter 30	<ul style="list-style-type: none"> • Chapters 27,28
FINAL	TBA during Dec 7 th and Dec 11 th	Final Exam TBA		