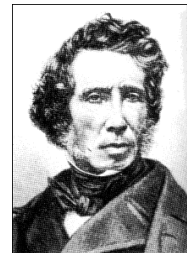


**MORRISVILLE STATE COLLEGE
ORGANIC CHEMISTRY CHEM 242
SPRING SEMESTER - 2020
M, W, F 11:00 – 11:50 pm
350 CRAWFORD HALL**



SPRING 2020 TENTATIVE OUTLINE
<http://people.morrisville.edu/~habera/>

DR. A. HABER, RM 349 CRFHL
voice mail 684-6184/e-mail HABERA@Morrisville.edu

REQUIRED

Organic Chemistry, 10th edition, F. A. Carey and R. M. Giuliano,
McGraw Hill, New York, 2017

Student Study Guide/Solutions Manual to accompany **Organic Chemistry 10th Edition**,
Neil T. Allison, Robert M. Giuliano, and Francis A. Carey, McGraw Hill, 2017

Organic-Inorganic Chemistry Molecular Models Student Set
ISBN-13: 978-0-534-49465-0

OPTIONAL

- **Publisher's Website**
- **The Nuts and Bolts of ORGANIC CHEMISTRY**, Joel Karty,
Pearson/Benjamin Cummings, and Bartlett Publishers, 2006
- **Organic Chemistry II as a Second Language: Translating the Basic Concepts**, 2nd edition, David R. Klein, John Wiley & Sons, Inc., 2007
- **Organic Chemistry Demystified: A Self-Teaching Guide**, Daniel R. Bloch, McGraw-Hill, 2006
- **The Bridge To Organic Chemistry: Concepts and Nomenclature**,
Claude H. Yoder, Phyllis A. Leber, Marcus W. Thomsen, Wiley, 2010
- **Get Ready for Organic Chemistry**, 2nd edition, Joel Karty, Prentice Hall, 2011
- **Organic Chemistry (Test Yourself)**, Drew H. Wolfe, Peter K. Trumper,
Edward J. Walsh, NTC Learning Works, August 1996)
- **Basic Skills for Organic Chemistry: A Toolkit**, Stuart Rosenfeld, Jones
and Bartlett Publishers, 1998
- **ORGANIC NOMENCLATURE: A Programmed Introduction**, Sixth
Edition, James G. Traynham, Pearson/Prentice Hall, 2009

REQUIRED CHAPTERS

Chapter 14 Spectroscopy (Ch 14 Assign)
Chapter 15 Organometallic Compounds (Ch 15 Assign)

EXAM I

Chapter 16 Alcohols, Diols, and Thiols (Ch 16 Assign)
Chapter 17 Ethers, Epoxides, and Sulfides (Ch 17 Assign)
Chapter 18 Aldehydes and Ketones: Nucleophilic Addition to the Carbonyl Group (Ch 18 Assign)

EXAM II

Chapter 19 Carboxylic Acids (Ch 19 Assign)
Chapter 20 Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution (Ch 20 Assign)
Chapter 21 Enols and Enolates (Ch 21A Assign)
(Ch 21B Assign)

EXAM III

Chapter 22 Amines (Ch 22 Assign)
Chapter 23 Phenols (Ch 23 Assign)
Chapter 13 Aryl Halides/Nucleophilic Aromatic Substitution (Ch 13 Assign)

EXAM IV

FINAL EXAM

COMMENTS

The study of organic chemistry is a much more intense activity than the study of general chemistry. Organic chemistry may well be the most difficult course a student will take. This is not because the subject matter is inherently most difficult, but because sophisticated study skills are necessary to be successful in “orgo.”

Organic chemistry is one of the four or five traditional branches of the science of chemistry and is a crucial tool to anyone pursuing a material science, forensic, biological, or medical oriented career. Much of the chemistry of life is organic chemistry. Many means to treat and diagnose disease are based on organic chemistry. Half of industrial chemistry is organic chemistry. The discovery of new materials, the search for extra-terrestrial life, the study of emergence, and an understanding of self-assembly depends heavily on organic chemistry.

Many definitions and relationships must be mastered to be successful in organic chemistry. There are several factors that make these relationships more difficult compared to the relationships learned (and it is hoped not forgotten) in freshman chemistry. The relationships in organic chemistry are non-mathematical, very highly interrelated, and spatially dominated. The organic chemistry student must juggle several concepts simultaneously while thinking in three dimensions in attempting to solve a problem; he or she must live in an *Organic Metropolis*.

A much larger amount of material needs to be covered during a semester of organic chemistry compared to a general chemistry course. There will not be time to cover every item of information in class, nor time to cover every subtlety in class. The best your instructor can do is to provide insight into problem solving, afford a different perspective than the text, and answer questions. ***Your instructor will be your guide.***

Activities requiring your participation for success in organic chemistry include: reading the textbook, since not all of the subtlety and embellishment can be covered in class; thinking thematically, not by memorizing; asking questions relevant to the current material when you do not understand something; submitting assignments in a timely fashion; maintaining satisfactory class attendance, *since you are responsible for what goes on in class whether you are present or not*; learning how to take coherent class notes and coordinating the notes with your reading; using models to learn, think, and draw in three dimensions; doing as many practice problems (end of chapter and homework problems) as possible; spending a minimum of 3 hours of work outside of class for each hour spent in class; and discussing with your instructor any problems you perceive. The greater your participation in these activities, the easier and more productive will be the time you spend in this course. But, please make no mistake; organic chemistry is a demanding course requiring considerable effort.

TEACHING PHILOSOPHY

The beginning of wisdom is to desire it.

The least of the work of learning is done in the classroom.

Learning chemistry is not a passive or spectator activity; it requires your active participation.

Progress, not perfection.
Robert McCall, The Equalizer.

HOMEWORK

The purpose of homework is to give you a chance to practice problem solving and to enable you to check your understanding. If you cannot solve the problems, then you do not completely understand the material. Do not wait for an assignment to be graded or an exam to be given before you find out whether or not your understanding is complete. ***If you need assistance, ask for help.*** At a minimum, it is necessary to do the practice problems within each chapter of the text. Additional problems from the back of each chapter will also be suggested for additional practice and discussion. The simplest way to be successful in organic chemistry is to do as many problems as possible.

ASSIGNMENTS, EXAMS, AND GRADES







An assignment to be graded will be given for each chapter. Unless otherwise announced, this assignment will be due at the start of the class following the instructor's completion of a chapter in the text. EXAMS I, II, and III will be given as shown above during the second class after the outlined material is completed (subject to adjustment). EXAM IV will be given during the time scheduled for finals. There are no make-up exams, but make-up times are available (except for EXAM IV and the optional FINAL). Makeup times will be allowed, but only for valid reasons. In order to take advantage of this, the make-up time must be scheduled as soon as you are able to return to your classes. In order to schedule a make-up time, you must bring your situation to your instructor's attention ***immediately***. Find some way (e-mail, voice-mail) to let your instructor know before the next class of your willingness to take the exam. If you have a valid reason for not making an exam date, discuss the situation with your instructor if you want your reason considered. If you wait too long to schedule a make-up time (instructor's judgment as to what constitutes too long), you will forfeit your opportunity. Once exams are handed back to students, no make-up times will be allowed. Graded assignments will be 40% of your grade and exams will be 60% of your grade. ***It is to be understood that all material to be submitted for a grade show the work needed to achieve the given answer. Correct answers without work will not receive credit.***

Exam and assignment scores may be adjusted depending on the performance of the class. The adjustment is unknown until all the raw scores are tabulated. Final grades are determined from the weighted sum of the exam and assignment grades according to the following percentage scale: **A**, 100-92%; **A-**, 91-88%; **B+**, 87-85%; **B**, 84-81%; **B-**, 80-77%; **C+**, 76-74%; **C**, 73-70%; **C-**, 69-66%; **D+**, 65-63%; **D**, 62-60%; **F**, <60%. Grades for exams are not dropped, but one exam can be replaced by taking the optional final. While you are most welcome to discuss your progress in the course with your instructor, lobbying for a grade will be ignored. During the time scheduled for finals your exams will consist of EXAM IV and an optional cumulative FINAL EXAM (an American Chemical Society standardized test as a means by which a poor performance during the semester can be rectified). Your course grade is based on work assigned during the time scheduled for classes and exams during final exam week; there are no “extra projects.”

CLASSROOM DECORUM

When the instructor begins class it is time for student conversation to stop. Student activities at this point should be dedicated to the lesson at hand. Homework, chemistry or otherwise, is not an acceptable activity. Completing organic laboratory reports is not an acceptable activity. Students participating in these endeavors have indicated they are not part of the class. Do not waste your time or the instructor's.

INSTRUCTOR'S SCHEDULE

	MON	TUE	WED	THURS	FRI
8:00	CHEM 121 110 CRFHL		CHEM 121 110 CRFHL		CHEM 121 110 CRFHL
9:00	CHEM 242 350 CRFHL	9:30 CHEM 121-02L	CHEM 242 350 CRFHL	9:30 CHEM 122-01L	
10:00	CHEM 122 112 CRFHL	CRFHL 258 CHEM 121-02L 11:20	CHEM 122 112 CRFHL	CRFHL 258 CHEM 122-01L CHEM 122-01L	CHEM 122 112 CRFHL
11:00		11:30			
12:00	CHEM 242L 355 CRFHL	CHEM 242 350 CRFHL 12:20 		12:20 12:30 CHEM 242 350 CRFHL	
1:00	CHEM 242L 355 CRFHL				
2:00	CHEM 242L 355 CRFHL				
3:00	CHEM 242L 355 CRFHL				
4:00					
5:00					



= OFFICE HOURS

OTHER OFFICE HOURS BY APPOINTMENT

ADDITIONAL INFORMATION

The instructor's lecture notes are available online. You may use these to fill in details missed in class or you may make copies and add your own class notes. The lecture notes are provided to assist you. Computer assisted instruction is available through the publishers web site, on the Internet in general, or commercially – ask your instructor. Answers to assignments and exams will be posted for brief periods online. **Once answers are posted, no credit can be given for an assignment. It is to be understood that all material to be submitted for a grade show the work needed to achieve the given answer. Correct answers without work will not receive credit.** Once a student has been allowed into class, it must be clearly understood that the student is responsible for everything starting from the first day. All students are graded on this basis. This may mean that certain course obligations may not be met because of the late date at which the student begins attending class. Students are responsible for all material and all announcements made in class. Assignments must be handed in by due dates announced in class; exams must be taken at specified times; otherwise, a grade of zero is recorded. Students beginning attendance at a later date may miss these due dates. For any other work it is the student's responsibility for catching up.



What follows are three other perspectives about organic chemistry.

“Organic Chemistry has the reputation of being a very hard course, requiring a lot of memorization. There is no question that it will challenge your organizational skills, but your instructor is evidence that it is possible to succeed without a photographic memory. Be forewarned, it is not possible to succeed in Organic Chemistry without good study habits. **The three secrets are: Never get behind, practice, and always think about why the reactions occur.**

“Initially, the course will concentrate on language and structure, then will emphasize the classes of chemical reactions. For structural principles, we will use both use models and pencils; the nomenclature is systematic and can be learned with practice. To learn the reagents and products, some memorization will be necessary, and I will provide hints for learning the reactions. If you concentrate on why reactions occur, remembering what reactions occur will be easier to understand and learn. There are many facts to be learned in Organic, but they all fit very nicely into a theoretical framework that makes the learning much easier.

“My lectures will focus on the information found in the text; I will emphasize the experiments and reasoning behind the mechanisms more than the text does. Although I may be a little ahead or behind the schedule on page 1, I will discuss the topics in the order listed. Read the chapters ahead of time: You won’t understand everything, but you will learn much more in the lecture classes. Topics emphasized in class (relative to the book) will be those which merit extra time because of difficulty or importance. I will be providing a variety of handouts during the semester to assist you in your learning and help relate organic compounds to your other courses and interests.

“I strongly recommend that you make reaction summaries, either on flash cards or on sheets of paper, as an aid to learning reactions. Do not buy commercial flash cards or copy the summaries in the text - the main value in flash cards and other study aids is the thought that goes into preparing them. In fact, the best way to prepare your review materials is to try to prepare them from memory, then check against the text and notes, revising as needed.

“It is not possible to learn Organic Chemistry without doing problems. From the beginning of the semester, set aside time each day/week for doing Organic problems, combining problems with analysis of the text and notes. Some people rewrite their notes or make their summaries during their review and problem-solving sessions.

“The problems in the text are very much like those you will be asked to solve on exams, so use these as drills and practice tests.”

--<http://www.towson.edu/~sweeting>



“The most important thing for you to remember in organic chemistry is: **DO NOT GET BEHIND.** Organic chemistry consists of a lot of simple steps, so it is not a difficult subject. But the subject can become overwhelming if you don’t keep up.

“Before many of the theories and mechanisms were worked out, organic chemistry was a discipline that could be mastered only through memorization. That is no longer true. You will find many common threads that will allow you to use what you have learned in one situation to predict what will happen in other situations. So as you read the book and study your notes, always try to understand why each thing happens. If the reasons behind the behavior are understood, most reactions can be predicted. If you approach the class with the misconception that you must memorize hundreds of unrelated reactions, it could be your downfall. There is simply too much material to memorize, and if all your knowledge is based on memorization, you won’t have the necessary foundation on which to lay subsequent material. From time to time, some memorization will be required. Some fundamental rules have to be memorized, and you will have to memorize the common names of some organic compounds. But the latter should not be a problem. All your friends have common names that you have been able to learn.

“Students who take organic chemistry to gain entrance into medical school sometimes wonder why medical schools pay so much attention to how they do in organic chemistry. The importance of organic chemistry is not in the subject matter alone. Mastering organic chemistry requires a thorough understanding of fundamentals and the ability to use these fundamentals to analyze, classify, and predict. This parallels the study of medicine; a physician uses an understanding of fundamentals to analyze, classify, and diagnose.”

--Paula Yurkanis Bruice



“Finally, a word of advice to students, advice that has been offered by organic chemistry teachers many times previously. *Organic chemistry is not learnt by reading*: paper and pencil are essential at all times. It is only through drawing structures and mechanisms that true understanding is attained.

--Paul M. Dewick
from the preface of **Essentials of Organic Chemistry**