

**Chemistry 2323-01  
Organic Chemistry I  
Spring 2018**

**Instructor:** Dr. Christopher Hobbs

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**Office:** CFS 317C, 294-3750

**Class location and time:** CFS 101 at 10:00 am, MWF

**Office hours:** MWF 11:00-12:00 pm or by appointment

**Course Material:**

1. Textbook: Karty, Organic Chemistry, Principles and Mechanisms (W. W. Norton & Company) **Required**
2. Molecular Model kit. This will help visualize 3D structures. Not required, but **HIGHLY** recommended and you can use them on exams. There are several types that you can order.

**Course Format:** This will be a traditional lecture course, but with emphasis on discussions and questions. You are expected to come to class prepared, having read the lecture material (textbook) before class. You will need to take comprehensive notes during lecture. So, no texting, facebook-ing, tweeting, instagram-ing, 4-square-ing, redditt-ing, or social media-ing at all, this is to ensure that you are paying close attention to what is going in class.

**Course Description and Objectives:** This is the first half of a 2-semester series (Organic I and Organic II). It is typically meant (and required) for science majors and is critical for those wanting to continue their education in graduate school and professional programs (medicine, veterinary, dental, pharmacy, etc.). The reason this course is so critical is that it teaches critical thinking and problem solving. The way that we will learn to do this is applicable to almost any field. The objectives of this course include: understanding molecular structure, learn differences of alkanes, alkenes, alkynes (structures and reactivities), learn the differences of other functional groups (structures and reactivities), learn nomenclature, understand the foundations of standard chemical reactivity (i.e. acid/base reactions), and learn to predict reaction products and mechanisms.

**Disclaimer:** This course will involve a great deal of study time from each one of you. Organic Chemistry is a very difficult field of study. I do not go out of my way to make this hard, but try my very best to deliver the material in a clear, understandable way. Learning is a two way street, I will do my part but most of the learning will be left up to you. This means completing assignments and studying every day. *Organic chemistry requires diligent studying every single day.* This means reading, re-reading, and most importantly, doing practice problems. Ultimately, you are responsible for learning this material, not the instructor. I do not intend that there should be a grading curve in this course. You

will get the grade that you earn. *Although I have given many F's in this course, I have never failed a student; students have failed themselves.* Here is some good advice on how to study: <http://www.summer.harvard.edu/blog-news-events/7-tips-survive-organic-chem>

### **Studying for Organic Chemistry:**

1. Allocation of time: You will *NEED NO LESS* than 10 hours each week for studying for this course. This begins *NOW*.
  - a. Set up study time at useful and regular times with no distractions.
  - b. Multi-tasking doesn't work...studies have shown this. Focus on the work.
  - c. Read, re-read, and re copy all your class notes. Writing is amazing for learning. **DO NOT TAKE PICTURES**...this is a *passive* way of learning. When I was in college I had three notebooks for organic chemistry, the original class notes, the recopied ones, and the re recopied ones incorporated with notes from the chapters.
  - d. Work (**REALLY WORK**) practice problems. The suggestions in point c are good, but learning organic chemistry is much like practicing a musical instrument or an athletic competition, it requires much, much practice. The "practice" of organic chemistry is in the form of problems (like math class). It has been found that testing yourself is the **BEST** way to learn and understand the course material.

- What NOT to do:** Most students in organic chemistry do not know how to study, that's okay, it is not your fault. This course serves as the first **REAL** challenge for almost every single student. Because of this, many students take problems from the back of the chapter, read the problem, then automatically read the solution manual for the problem then say, "Oh yeah, I see how they did that." This is a passive way of learning and **DOES NOT WORK**. In order to learn, you have to test your self. You will get problems wrong. This is okay. In order to learn you have to make mistakes...this is called learning how to fail effectively. This means that when you get a problem wrong (either in studying or on graded material like homework or exams) you should **NOT** feel discouraged. This is the first step in falling behind. Instead, you need to relax, go back and check your work and figure out how you made a mistake.
2. Practice daily: Just like learning a new language, daily sessions will yield better results. Study actively: This means, re writing notes, reading the text book, making notes from the reading with **PEN** or **PENCIL**. No highlighting, this is passive. **WORK PRACTICE PROBLEMS**.
  3. **NO ALL NIGHTERS**
  4. Seek help for difficulties. Office hours, office hours, office hours. I should be your **FIRST** choice for help in this course. Tutors are good, but a tutor is **NO SUBSTITUTE** for an expert in the field (i.e. Me).

**Office hour policy:** I have office hours listed above. You can also make appointments. If you happen to be in the building and I am in my office, please stop by. If I am here you can visit and ask questions.

Now, I have been teaching for about four years and one of the biggest obstacles that I have faced is that students are often intimidated to come to office hours and seek help. Students have complained (and probably rightly so) that I do not seem like the warmest teddy bear in the toy store. For whatever reasons (I have a deep voice, I am quite large, I have a dry sense of humor, etc.) students seem to be almost frightened of approaching me. I assure you, I am not mean and I want to help you in this course. For this reason I have instituted a mandatory office meeting with each one of you in the first two weeks of class. This is to show you that no matter how intimidating I may seem during lecture, I am much more approachable than you think. This will help you in the long run because (i) you will get to know me, (ii) I will get to know you, and (iii) you will not be so apprehensive to visit my office when you need help. There will be a sign in sheet the first week of class for you to sign in.

**Attendance:** I will be taking attendance via sign in sheet everyday only because the university mandates. You are expected to take this class seriously and attend all lectures. I have no policy correlating how many days you miss with the grade you get. However, missing a day will put you very far behind. Most of you have friends (I hope), and many of these friends may have taken this course before. Ask them how important attendance is and I am sure that they will say the same thing.

**Grading scheme:** There will be three midterm exams and a comprehensive final exam. Each exam will be worth 100 points. More than likely I will drop your lowest exam. **BUT:** if you skip an exam I will **NOT** drop that one. The zero will be incorporated into your grade. Before each exam I will post “study guides” to blackboard. In addition to the exams, we will have quizzes each week at the beginning of class every Friday. If you are late, you will not be permitted to take the quiz. Each quiz will be worth 10 points and will cover the material from that week. I will also periodically post “problem sets” to blackboard. These will not be turned in for a grade, but are excellent practice. Additionally, I will recommend problems out of the textbook. Again, these will not be turned in for grades, but are good practice.

	Points each	Quantity	Total points
Exams	100	4 (drop 1)	300
Quizzes	10	10	100
Total			400

**Grade breakdown:** A (> 90 %) requires 360 points  
B (80 – 89 %) requires 320-359 points  
C (70 – 79 %) requires 280-319 points

D (60 – 69 %) requires 240 -279 points  
 F (< 60 %) < 240 points

### Academic Dishonesty:

**Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action.** SHSU can initiate disciplinary proceedings against a student accused of academic dishonesty (cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials).

**For More University Wide Policies:** see <http://www.shsu.edu/syllabus/>.

### Tentative Course Schedule

<i>week of</i>	<i>topic</i>	<i>section in text</i>	<i>note</i>
17-Jan	Introduction, syllabus, formal charge, chemical bonds	1.1-1.9	
22-Jan	Resonance, functional groups, nomenclature, VSEPR, dash-wedge drawing	1.10-2.3	
29-Jan	Polarity, noncolvalent forces	2.4-2.9	
5-Feb	Atomic orbitals, molecular orbitals, hybridization, valence bond theory	3.1-3.11	
12-Feb	Conformational isomerism and analysis, cycloalkane isomerism, constitutional isomerism	4.1-4.12	<b><u>EXAM 1 Friday</u></b>
19-Feb	Spectroscopic analysis	16.1-16.19	
26-Feb	Configurational isomerism, enantiomers, chirality, stereochemistry, diastereomers, double bonds	5.1-5.11	
5-March	The proton transfer, curved arrows, equilibrium, thermodynamics, acidities, resonance affects	6.1-6.8	
12-March	Spring Break		<b><i>No class</i></b>
19-March	SN2 reaction , how bonds break/form, E2 reaction, nucleophilic and electrophilic additions/eliminations, carbocations, tautomerism	7.1-7.9	<b><u>EXAM 2 Friday</u></b> ACS Meeting, March 18-22 ( <b>No Class Monday or Wednesday</b> )
26-March	SN1 and E1, kinetics, stereochemistry, multistep mechanism characteristics	8.1-8.7	
2-April	SN1, SN2, E1, E2 competition, RDS,	9.1-9.2	
9-April	Factors determining mechanism	9.3-9.12	

16-April	Strong/weak acids and alkenes, regiochemistry, stereochemistry, kinetics/thermodynamic control	11.1-11.10	
23-April	Electrophilic addition through 3-membered ring TS, alcohol synthesis, carbenes, halides	12.1-12.5	<b><u>EXAM 3 Friday</u></b>
30-April	Epoxide formation, alcohol synthesis	12.6-12.8	
7-May	<b><i>FINAL EXAM 10:30 am</i></b>		