

# ORGANIC CHEMISTRY I - Fall 2010

**CHE 2603, Section 002**  
**ROOM:** BB 2.01.10  
**Office:** BSE 4.252  
**Phone:** 458-7048 (voicemail)

**CLASS HOURS:** MWF 2-2:50 PM  
**INSTRUCTOR:** Doug E. Frantz, Ph.D.  
**Office hours:** M-F 12-1 PM or by appointment  
**Email:** doug.frantz@utsa.edu

**CLASS SI LEADER:** Tim Dreier  
**GRADUATE ASSISTANT:** Hector Aguilar

**REQUIRED TEXTBOOKS:** Janice Smith, *Organic Chemistry (3<sup>rd</sup> edition)*  
**REQUIRED MATERIALS:** A molecular model set is highly encouraged

**PREREQUISITES:** CHE 1303 and 1312

**COURSE OUTLINE:** I plan to cover chapters 1-14 in the Smith text although this is subject to change. See the planned schedule of topics on the attached to this syllabus and be sure to read ahead before attending class each day. Various handouts will be given periodically to supplement what is lacking from the text.

## EXAM SCHEDULE:

Friday	9/17	EXAM 1	100 pts
Friday	10/22	EXAM 2	100 pts
Friday	11/19	EXAM 3	100 pts
<b>Friday</b>	<b>Dec. 10, 7:30-10:00 AM</b>	<b>FINAL EXAM</b>	<b>200 pts</b>
			500 pts total from exams

**QUIZZES:** Weekly quizzes are scheduled for Fridays beginning on September 3<sup>rd</sup> but I reserve the right to give "pop-quizzes" at anytime. I will count the best 10 quizzes (we may have more than 10) and these will count as ONE MAJOR EXAM (100 points).

**GRADING:** The total points you can receive in this class is **600 points** accumulated from exams and weekly quizzes. Grades will not be curved in my class.

The total points will be used to assign grades based on the following scale (based on 600 points):

A: 86-100%                      B: 70-85%                      C: 55-69%                      D: 45-54%

## IMPORTANT DATES:

Monday, September 6	Labor Day Holiday
<b>Wednesday, December 1</b>	<b>Last Day to Drop with "W"</b>
Thursday-Friday, November 25-26 <sup>th</sup>	Thanksgiving Holiday
Dec. 6-7	Student Study Days

**Make-up exams:** Except under extraordinary circumstances, I will not give make-up exams. Generally, if you have a documented reason for missing an exam, I will weight the *final exam* to allow you to accumulate the points you missed. *There are no make-ups for the weekly quizzes regardless of the circumstance.*

**COURSE OBJECTIVES:** Students who successfully complete this course will be able to identify, classify and characterize organic compounds and understand their basic reactivity. Students will gain a strong foundation in organic chemistry useful for future studies in advanced organic chemistry courses as well as biochemistry, the life sciences and medicine.

**WHAT TO EXPECT FROM ME:** This is a very challenging course. The exams you will take in this class will most likely be some of the most difficult you have ever experienced up to this point. You should be willing to commit a significant amount of time and effort outside of class (at least 15 hrs/week) working on problems,

reviewing the lectures, reading the text, attending SI sessions and meeting with me. Each new objective will build off of previous ones so simply memorizing the material will not serve you well in my course. Thus, do not get behind with the material since it will be difficult to comprehend new concepts without learning the previous material thoroughly. Attendance is a necessity if you want to pass my class. ***Also, I strongly encourage you to form study groups with others in the class.....this was by far the best advice I received when I took organic chemistry.*** Please, do not hesitate to come by and talk to me if you are having trouble (and even if you are not). Even though I have designated office hours, my door is always open. My teaching style is very informal and I try to make my lectures interactive where I will encourage class participation on a daily basis. Your world is surrounded by organic chemistry and what you learn in this class could significantly enhance your ability to impact your future regardless of your major!

**\*Use of cell phones, iPods, etc:** Any and all electronic devices are prohibited from use during class and exams. Anyone caught using them during class will be dismissed. Lectures are not to be recorded.

### **Miscellaneous Info:**

**Syllabus Disclaimer:** "This Syllabus is provided for informational purposes regarding the anticipated course content and schedule of this course. It is based upon the most recent information available on the date of its issuance and is as accurate and complete as possible. I reserve the right to make any changes I deem necessary and/or appropriate. I will make my best efforts to communicate any changes in the syllabus in a timely manner. Students are responsible for being aware of these changes."

**ADA Compliance: Special Accommodations for Students with a Disability** are defined below. **The Americans with Disabilities Act of 1990** requires that the university make reasonable accommodation to persons with disabilities as defined in the Act. **The University of Texas at San Antonio provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of Disability Services at 458-4157. Please notify the professor of any special accommodations that you may need prior to the end of the second Class Session.**

**Roadrunner Honor Code:** A Roadrunner doesn't cheat or plagiarize, or tolerate those that do. Upon accepting admission to UTSA, a student immediately assumes a commitment to uphold the Honor Code. For additional information, please visit: <http://www.utsa.edu/infoguide/appendices/b.html> under the section 203.

### **Tentative Course Schedule**

<b>Week</b>	<b>Date</b>	<b>Topic</b>	<b>Chapter</b>	<b>Sections</b>
1	8/27	Review of periodic table, bonding, atomic orbitals	1	1.1-1.2
2	8/30 thru 9/3	Drawing Lewis structures, Octet rule, isomers, resonance structures, molecular geometry, drawing organic structures, hybridization, bond lengths and strengths, electronegativity, polarity of bonds and molecules	1	1.3-1.13
3	9/8 thru 9/10	Acids and bases, pKa and acid strength, acid/base reactions, Lewis acids and bases	2	2.1-2.8
4	9/13 thru 9/15	Functional groups, physical properties, solubility, nomenclature, alkanes, conformations	3 & 4	3.1-3.9 4.1-4.15

	<b>Sept 17</b>	<b>EXAM 1</b>	<b>1-4</b>	
5	9/22 thru 9/24	Stereochemistry, chiral and achiral molecules, stereogenic centers, enantiomer and diastereomers, assigning configuration	5	5.1-5.13
6	9/27 thru 10/1	Organic reactions, thermodynamics, energy diagrams, kinetics, catalysis, enzymatic processes	6	6.1-6.11
7	10/4 thru 10/8	Alkyl halides, nucleophilic substitution reactions, $S_N^2$ and $S_N^1$ mechanisms, Hammond's postulate, organic synthesis	7	7.1-7.10
8	10/11 thru 10/15	Elimination reactions, alkenes, $E_1$ and $E_2$ mechanisms, stereochemistry of $E_2$ eliminations, Zaitsev Rule	7&8	7.11-7.19 8.1-8.6
9	10/18 thru 10/20	Substitution vs. elimination pathways	8	8.7-8.11
	<b>Oct. 22</b>	<b>EXAM 2</b>	<b>5-8</b>	
10	10/25 thru 10/29	Alcohols, ethers and epoxides, nomenclature, preparation and reactions of, physical properties, uses	9	9.1-9.10
11	11/1 thru 11/5	Reaction of ethers and epoxides, applications, leaving groups, alkenes and nomenclature, synthesis and reactions of alkenes, halogenation	9 & 10	9.11-9.17 10.1-10.14
12	11/8 thru 11/12	Halohydrin formation, hydroboration/oxidation, synthesis and reactions of alkynes, acetylide ions	10 & 11	10.15-10.18 11.1-11.12
13	11/15 thru 11/19	Oxidation and reductions, applications, dihydroxylation, Sharpless epoxidations, "green chemistry"	12	12.1-12.15
14	<b>Nov. 22</b>	<b>EXAM 3</b>	<b>9-12</b>	
	11/24	Introduction to mass spectrometry and infrared spectroscopy	13	13.1-13.3
15	11/29 thru 12/3	IR absorptions, structure determination, NMR spectroscopy, $^1H$ NMR, $^{13}C$ NMR, structure determination	13 & 14	13.4-13.8 14.1-14.12
16	12/6 thru 12/8	<b>Student study days</b>		
	<b>Dec. 10</b>	<b>FINAL EXAM 7:30-10:00 AM</b>	<b>Comprehensive</b>	