

Classes: MW @ 7-8:20 PM in 114 Research Chemistry Building (114 CRB)

Instructor: Dr. Keith Combrink

Office: SH 229B

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Open Office Hours M 6-7 PM W, 6-7 PM

Supplemental Instruction 114 CRB

Required Materials

1. Organic Chemistry, 1st edition by David Klein
2. Organic Chemistry, Study Guide and Solutions Manual, 1st edition by David Klein.
3. Molecular model Set
4. Electronic calculator that is capable of trigonometric, logarithmic, exponential and statistical functions.

Course Description:

Organic Chemistry II explores the structure of organic materials, the physical and spectroscopic properties defined by these structures, and the manner in which we can manipulate materials by altering their structure. This course will focus on structure, properties, bonding, stereochemistry, reactions and reaction mechanisms of carbon based molecules.

Course Goals:

CHEM-2322 is intended for students majoring in Chemistry, Biochemistry, Biological Chemistry, Biology health professions such as medicine, dentistry, pharmacy or allied health. It is the second half of a one-year course designed to survey the structure, reactivity and synthesis of carbon compounds. This course is preceded by CHEM-2321 Organic Chemistry I. You will be expected to draw on material from Chem 2321 in Chem 2322.

Objectives:

At the end of this course you should be able to:

1. Use modern spectroscopic data including MS, IR, NMR and UV to deduce the structure of simple organic compounds.
2. Correctly name any organic compound using IUPAC nomenclature or convert an IUPAC name to a molecular structure.
3. Account for physical properties and chemical reactivity of any organic compound on the basis of molecular structure.
4. Predict the outcome of an organic reaction, given the identities of the reactants or provide the reagents given the starting materials and products.
5. Recognize important substances and chemical processes which have practical applications in household, laboratory, industry and medicine.

6. Use the theoretical concepts of reactive intermediates, molecular orbitals, hybridization, resonance, tautomerism and polarity in the discussing the structure, reactivity and mechanism of organic compounds.
7. Recognize important substances and chemical processes which have practical applications in household, laboratory, industry and medicine.
8. Use the theoretical concepts or reactive intermediates, molecular orbitals, hybridization, resonance, tautomerism and polarity in discussing structure, reactivity and mechanisms of organic compounds.

Topics to be covered (31 classes and 4 exams)

1. Chapter 14.11 – Thiols and Sulfides.
2. Chapter 15 - IR Spectroscopy and Mass Spectrometry.
3. Chapter 16 – Nuclear Magnetic Resonance Spectroscopy.
4. Chapter 17 – Conjugated Pi Systems, Pericyclic Reactions and UV-Vis Spectroscopy.
Omit 17.9 and 17.10

Exam 1 - Chapters 14.11 and 15-17 Wednesday February 8th

5. Chapter 18 – Aromatic Compounds.
6. Chapter 19 – Aromatic Substitution Reactions.

Exam 2 - Chapters 18-19 Wednesday Feb 29th

7. Chapter 20 – Aldehydes and Ketones
8. Chapter 21 – Carboxylic Acids and Their Derivatives.
9. Chapter 22 – Alpha Carbon Chemistry.: Enols and Enolates

Exam 3 - Chapters 20-22 Monday April 2nd

10. Chapter 23 – Amines
11. Chapter 24 – Carbohydrates
12. Chapter 25 – Amino Acids, Peptides, and Proteins.

Exam 4 - Chapters 23- 25 April 25th

Last Class May 2, 2012

Final Exam Chapters 14-25, Wednesday, May 9 at 5:30-8:00 pm. University Hall 100 (?)

Course Requirements and Policies

Examinations:

Examinations, mid terms (1 hour) and the final (2 1/2 hours) will consist of mainly of multiple-choice and a few short-answer questions. Each mid term will emphasize the material discussed since the previous test. However, you should realize that chemistry is a cumulative subject in which new material builds on previous material. Therefore, if you simply memorize the indicated chapters for a test, you will not do well. Some knowledge from previous chapters will normally be necessary. Only exams which are missed due to prior excused absences for genuine, documented emergencies may be made up. You will take a new make-up test covering the same material. Examinations will be graded within 2-3 days after they are administered. No grades will be reported over the telephone. Results of exams will be distributed at a regularly scheduled class meeting as soon as they are available.

Lectures and Assignments

Attendance is mandatory and excessive absences will lower your final grade. Students should come prepared including reading and working problems for each chapter. Assigned problems will not be turned in or graded. Exams will be based on similar problems and if you can work all of the problems in the textbook you should do well on exams. The study of organic chemistry is a cumulative process and material from previous chapters may be covered.

An answer key for each exam will be provided. It will be your responsibility to review the answer key, and to re-work questions which you have missed, until you understand the material thoroughly. Seek guidance from me if you still have difficulty answering a question after the key is posted and you have attempted to rework the problem. I will not assist you if I do not see evidence that you have re-worked the problem. Any item which is missed by a significant number of students may be re-tested on a subsequent examination. From time to time errors are made during the grading process either in arithmetic or in the number of points awarded for a particular question. It is your responsibility to ensure that your points have been totaled accurately. In the event that this has not occurred, please bring this to my attention. This should be done after the class during which the tests are returned, but prior to the next scheduled class meeting. In the event that you perceive that insufficient credit has been awarded for a question then you have until the next scheduled class to bring it to my attention.

However, there are rules regarding regrades.

1. Only answers written in ink will be considered for re-grading (multiple choice excepted)

2. If a regrade is requested, then all of the exam will be re-graded. This could result in your grade going up or down.

3. All of the multiple choice and random write-outs will be photocopied.

The final examination is an exception to some of the foregoing policies. No answer key will be published and no exam booklets or student responses will be returned, although they can be examined in my office. The final examination will be given on Wednesday, May 11, 5:30-8:00 PM and it will be comprehensive in nature.

Problems

Working the problems in the chapters is critical part of learning this material. You will be responsible for being able to work all of the problems in each chapter. Similar problems will appear on exams, therefore if you do the problems you are going to be better prepared for the exam problems. I will be happy to assist you with any difficulties that may arise during office hours. Please note, assistance will only be given if you provide evidence that you have attempted these problems, I am not going to do them for you! An optional on-line homework is available through OWL which requires registration (number provided with text-book) and linked through class web site.

Grading

A. Each examination will receive a numerical grade expressed as a fraction of the maximum grade. Numerical grades cannot be easily translated to letter grades. Due to popular demand, we often provide a "curve" for examination scores; *however, letter grades on a curve are estimates only, and they do not guarantee that you will receive the same final grade.*

Individual grades will contribute to the final total as follows:

Four midterms 55% ; Quiz Grade 10%

Final comprehensive 35%

The grade in the final exam, if greater than one of the midterms, will replace that grade.

Final letter grades will be awarded on the following basis:

Final Total	Letter Grade
88% or higher	A
75% or higher	B
63% or higher	C
50% or higher	D

Any individual whose final total is borderline between two letter grades will receive the higher grade if his/her attendance record is excellent.

Academic Honesty:

The purpose of academic study is to develop proficiency in an area of study. This course is to help you acquire problem solving skills, and a detailed knowledge of organic chemistry. Presumably, you would also like to acquire good scores in examinations. However, please remember that grades are not the goal; grades are merely evidence of your progress toward the goal. Your grades cannot be a valid measure of your learning unless the papers you submit represent your own work.

All students are expected to pursue their scholastic careers with honesty and integrity. Academic dishonesty will not be tolerated by the Department of Chemistry and Biochemistry. Academic dishonesty includes (but is not limited to) cheating, falsification of data, plagiarism, and contracting/collusion with others to take your tests or do your work. Cheating is the use or acquisition of information (data, constants, formulas, textual material, etc.) from either unauthorized sources or in an unauthorized manner. Examples include but are not limited to:-

- *exchanging information during a test or quiz*
- *looking at another student's paper during a test or quiz*
- *bringing information in any form into a test or quiz other than personal knowledge. This includes written notes (crib sheets) and digitally stored information (formulas, constants, textual, etc.) on calculators, cell phones, pagers etc.*
- *looking at a book or other unauthorized source during the test or quiz.*
- *accessing information by any electronic means (cellular phone, pagers, personal stereos, etc.)*
- *processing data or information in an unauthorized manner using a programmable calculator or computer. In other words, unless you have received authorization, you are not to use any computer program. This includes specialty computers or calculators in which the programming is "built in" to the computer. You are permitted to use simple calculators which perform arithmetical, logarithmic, and trigonometric functions.*

In the event that a test proctor or instructor determines that a student is cheating, the following actions will be taken:-

- *the student will be notified and, if the situation merits, asked to explain their actions*
- *the source of the unauthorized information will be removed during the remainder of the test period and returned to the student following the test, if appropriate. The student may be removed to a different location to complete the test.*
- *calculator/computer memory will be cleared of the stored information and programs as appropriate.*

In some cases the proctor will need to temporarily examine the calculator to verify unauthorized use. The calculator will be returned to the student to finish the test.

- *a record of the events and actions surrounding the alleged act of cheating will be submitted to the Associate Vice Provost for Student Affairs for further action. See Undergraduate Catalog for further information.*

The following statement is a summary of University policy on *cheating*-*"Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the University. Since dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced."*

Bomb Threat Policy

In the event of a bomb threat to a particular facility, the University Police will evaluate the threat. If required, the exams may be moved to an alternate location, *but* they will not be postponed. UT-Arlington will prosecute phoning in bomb threats to the fullest extent of the Law.

Grade Replacement

Students enrolling in a course with the intention of replacing a previous grade earned in the same course must declare their intention to do so at the Registrar's Office by CENSUS DATE of the semester in which they are enrolled. Please consult the Undergraduate Catalog for the university policy regarding grade replacement

Pass/Fail

If P or F is a grade option in this class and you intend to take this class for a pass/fail grade instead of a letter grade, you **MUST** inform the instructor, through the necessary paperwork, of your intentions **BEFORE** the census date.

Drop for NON-PAYMENT of Tuition:

If you are dropped from this class for non-payment of tuition, you may secure an Enrollment Loan through the Bursar's Office. You may not continue to attend class until your Enrollment Loan has been applied to outstanding tuition fees.

Other Resources:

IR and NMR Introduction

<http://www.uta.edu/faculty/pomerant/courses/Courses.html>

<http://www.uta.edu/faculty/clovely/>

SDBS NMR database

http://riodb01.ibase.aist.go.jp/sdbs/cgi-bin/direct_frame_top.cgi

UCLA IR/NMR Problems

<http://www.chem.ucla.edu/~webspectra/>

Notre Dame Spectroscopy Problems

<http://www.nd.edu/~smithgrp/structure/workbook.ht>

CHEM-2322 ORGANIC CHEMISTRY II

Spring 2012

Americans with Disabilities Act

In an effort to be certain that students with documented disabilities are reasonably accommodated, I would like to ask your cooperation in informing me of any legitimate needs you may have in this course. Your need for this request will be verified through the appropriate University office to be certain the best accommodation is provided for your particular disability as it relates to this course. It is important for you to understand that this document will be held in the strictest confidence and will not be kept with any of your permanent student records.

Name: SS#

Course: Section:

Disability:

Suggested Accommodation:

Also, if you do not require an accommodation but would be agreeable to having your class notes duplicated or assistance in another manner with a disabled peer, please indicate below.

Name: SS#

Note Sharing: Other Assistance:

Mandatory Online Safety Training: Students registered for this course must complete the University's required "Lab Safety Training" prior to entering the lab and undertaking any activities. Students will be notified via MavMail when their online training is available. Once notified, students should complete the required module as soon as possible, but no later than their first lab meeting. Until all required Lab Safety Training is completed, a student will not be given access to lab facilities, will not be able to participate in any lab activities, and will earn a grade of zero for any uncompleted work.

1. You should have received an email from the UTA Compliance Department. Click on the link in the email (or navigate to <https://training.uta.edu> for the login page).
2. Log on using your network log-on ID and password (what you use to access email). If you do not know your NetID or need to reset your password, visit <http://oit.uta.edu/cs/accounts/student/netid/netid.html>.
3. The available courses for completion will be listed. For Chemistry 1441, complete the course entitled 'Student Lab Safety Training'
4. Go to 'Training I've Completed', and print this displayed page for your TA. Verify that it shows clearly your name, that the training is completed/passed and the date when the training was completed. If you have just completed the training but it is not updated on the 'Training I've Completed' page, try the training again (you should get to the Certificate page). If this does not work, call the training helpline at 817-272-5100.
5. If you did not receive the training email and you have not already completed the training you will need to contact the training helpline (817-272-5100) or email compliance@uta.edu.
6. Students who have not completed the training by census date may be dropped from the lab (and consequently the lecture).

Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e. through next August) for all courses that include a lab. If a student enrolls in a lab course in a subsequent academic year, he/she must complete the required training again.

All questions/problems with online training should be directed to the University Compliance Services Training Helpline at 817-272-5100 or by emailing compliance@uta.edu.