Syllabus: *Chemistry 2322-002: Organic Chemistry II*

Spring, 2017

Instructor	Dr. Junha Jeon
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Email and Website	jjeon@uta.edu Research Website: http://www.uta.edu/faculty/jjeon/ Faculty Profile: https://www.uta.edu/profiles/junha-jeon
Course Webpage	Blackboard (course materials and quizzes): https://elearn.uta.edu
Lectures	Tu/Th 9:30am–10:50am CRB 114 http://www.uta.edu/maps/?building=CRB
Office Hours	Tu/Th 11pm–12:30pm (unless announced otherwise). Other times can be scheduled by appointment.
Important Dates	Jan 17, First day of classes Feb 01, Census Day Mar 13–18, Spring Break Mar 31, Last day to drop classes Last day to drop classes; submit requests to advisor prior to 4:00 pm May 05, Last day of classes May 10 (Wed 5:30-8pm), Final exam
Textbooks:	**Required:** Organic Chemistry, 2nd Edition by David Klein, Wiley, 2012, ISBN-10: 1118452283, **ISBN-13:** 978-1118452288. **Auxiliary** (recommended)**:** Organic Chemistry, Student Study Guide and Solutions Manual 2nd Edition, David Klein, Wiley, ISBN-13: 978-1118647950. Molecular model set Simple calculator (not cell phones or related communication devices)
Course Description:	A comprehensive survey of the chemistry of carbon compounds: their structure, properties, bonding, stereochemistry, reactions, and reaction mechanisms. An introduction to mass spectrometry, infrared and nuclear magnetic spectroscopy and its application in structure determination. A description of carbonyl chemistry and its relevance to biomolecules, amino acids, carbohydrates and lipids. A description of the chemistry of dienes, benzene and aromatic substitution reactions and the chemistry of amines.

Position of the Course in the College Curriculum:

CHEM-2322 is intended for students who are majoring in chemistry or biology, or who plan to enter a health profession 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 a prerequisite for CHEM-5319 General Biochemistry I. Organic I, CHEM-2321 (or equivalent) with a grade of C or higher, is a prerequisite for this course – what this means in reality is that you will need material from this course to successfully navigate Organic II. It is therefore incumbent on you to review and thoroughly understand the material from this earlier course.

Learning Objectives:

As a result of participating in this course, you should be able to:

Correctly *name* any organic compound using IUPAC nomenclature, or, given an IUPAC name, depict the molecular structure.

Accurately *represent* the structure of any organic compounds, both on paper and also in three-dimensional space using models or drawings.

Account for the physical properties and chemical reactivity of any organic compound on the basis of molecular structure.

Predict the outcome of an organic reaction, given the identities of the reactants, or provide the reagents given the starting materials and products.

Recognize important substances and chemical processes, which have practical applications in household, laboratory, industry, and medicine.

Use the theoretical concepts of reactive intermediates, molecular orbitals, hybridization, resonance, tautomerism, and polarity in discussing the structure, reactivity and mechanisms of organic compounds.

Departmental Goals Promoted by the Course:

Train chemists for graduate research and industry.
Prepare instructors to teach chemistry in secondary schools.
Prepare students to enter medicine and other health professions.
Assist students to integrate knowledge of chemistry with their major discipline and to make useful applications of chemistry in their field of specialization.
Promote a greater appreciation of the natural world, an understanding of the scientific method of investigation, and a heightened awareness of the accomplishments, the potential and the limitations of science.

Topics to be Covered:

Chapter 15. Structural Determination of Organic Compounds: Infrared and Mass Spectroscopy
Chapter 16. Structural Determination of Organic Compounds: Nuclear Magnetic Resonance Spectroscopy
Chapter 17. Conjugated Pi Systems and Pericyclic Reactions

Midterm Exam I on CHAPTERS 15-17 (Feb 21, Tuesday; Week 6, ca. 10 lectures)

Chapter 18. Aromatic Compounds
Chapter 19. Aromatic Substitution Reactions
Chapter 20. Aldehydes and Ketones

Midterm Exam II on CHAPTERS 18–20 (Mar 28, Tuesday, Week 11, ca. 7 lectures)

Chapter 21. Carboxylic Acids and Their Derivatives
Chapter 22. Alpha Carbon Chemistry: Enols and Enolates

Midterm Exam III on CHAPTERS 21–23 (Apr 25, Tuesday, Week 15, ca. 7 lectures)

Chapter 23. Amines
Chapter 24. Carbohydrates

Chapter 25. Amino Acids, Peptides, and Proteins

Final Exam (comprehensive, May 10, Wednesday 5:30pm-8pm)

(*Please note that Exam Dates are **tentative**. Any changes to Exam Dates will be announced in class.*)

Course Requirements and Policies

Lectures: At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, faithful *attendance* is necessary (excessive absences will lower the final grade), but attendance alone is not sufficient. Active participation is essential for success. Participation includes advance preparation of reading assignments, coming to class prepared with *molecular models* and calculators, and involvement with classroom discussions. Questions are always welcomed, I will be happy to re-explain concepts. Successful participation in the classroom will frequently stimulate continuing discussion outside the classroom, both with fellow students and with the instructor. These ongoing interactions will prove valuable and they are to be encouraged. A point to note is that class time is limited and I will not have time to cover all of the material given as reading assignments (see above). You are responsible for all of the material covered in the lectures, the assigned text, and the problems.

Examinations: Examinations, both mid terms (1.2 hour) and the final (2.5 hours) will consist of mainly 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 that are missed due to *prior excused absences for genuine, documented emergencies* may be made up. If you otherwise miss an exam you will receive zero. *Midterm exam booklets will be returned and an explanatory answer key for each exam will be posted on the course web page through the Blackboard.* 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. You should also be aware that this is a departmental final, meaning that all instructors teaching CHEM 2322 will put together the final.

Quizzes: During the course of the semester short quizzes will be administered *in class.* No make-up quizzes will be given.

Problems Sets: Problem Sets will be assigned for each chapter [8 problem sets, 10% towards grade]. Similar problems will appear on exams, therefore if you do the assigned 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.
The due of each problem sets would be *a week later* the day after the corresponding chapter is completed (overall, you will be given *ca. two weeks to complete* each chapter, so that this time frame would be well enough to complete each problem set). Only problem sets that are missed due to *prior excused absences for genuine, documented emergencies* may be extended (covering ca. two weeks). If you otherwise miss a problem set you will receive zero.

For homework submission: Please submit your homework in class.

Course Preparation

Hours–A general rule (yet, highly depending upon learners) of thumb is this: for every credit hour earned, a student should spend 3 hours per week working outside of class. Hence, a 3-credit course might have a minimum expectation of 9 hours of reading, study, etc. Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend an additional hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Conceptual Understanding–read course materials (e.g., textbook) before classes.

Problem-Solving–engaging in (many) practice problems (e.g., textbook) earlier in the semester (and keep up).

Earlier Study–Study earlier (earlier in the semester), not necessarily more. This significantly impacts later topics, which tend to build on earlier ones. Consequently, once students get behind, subsequent study increasingly inefficient.

Grading and Grade Assignments

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

Individual grades will contribute to the final total as follows:

Homework and Quizzes	10%
Midterm Exams (3 exams)	66%
Final comprehensive	24%

Final letter grades will be awarded on the following basis:

Final Total	Letter Grade
ca. 87% or higher	A
ca. 73% or higher	B
ca. 60% or higher	C
ca. 45% 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.

Student Support Services

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/universitycollege/resources/index.php

Chemistry Clinic

The Chemistry Clinic, located in Room 318 Science Hall, will be staffed with tutors available to answer your questions related to lecture and homework. This service is free for

all UT Arlington students enrolled in Chemistry 2321 and 2322.

Supplemental Instruction
Supplemental Instruction (SI) is a free voluntary academic development program that increases student performance and retention. The program is offered to all students in this class, as well as for other historically difficult subjects on campus. SI provides regularly scheduled out-of-class peer facilitated sessions. Senior students (SI Leaders), who have successfully taken the course before, facilitate structured group study sessions to support students to master course content and learn effective study skills. All SI Leaders receive extensive training. Session times will be presented by your SI Leader during the first week of class; alternatively you can visit the SI website at www.uta.edu/utsi

Science Education and Career Center
The Science Education and Career Center, located in Room 105 of the Life Science Building, provides a variety of materials for assisting Chemistry students, including old Chemistry exams.

Disability Accommodations

UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD).** Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:
The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364.
Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671.
Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX

The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos. For information regarding Title IX, visit www.uta.edu/titleIX.

Academic Integrity

All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents' Rule 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Drop Policy

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/ses/fao).

Electronic Communication

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php

Student Feedback Survey

At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week

A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures

Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

[As you see, this section requires faculty members to be fully aware of the exits nearest their classrooms, even before the semester begins. In the case that you are unable to ascertain this information in time for your syllabus, you must be sure to explain to your students on day one how best to exit the building. Inclusion of this verbiage as well as a brief discussion on the matter with your students at the beginning of the term is mandated by UT Arlington Procedure 7-6: Emergency/Fire Evacuation Procedures (http://www.uta.edu/police/Evacuation Procedures.pdf)

[Should you learn that your class roster includes students with physical/sensory disabilities, you should arrange to meet *in private* with each of these students to discuss their needs for assistance in the event of an emergency evacuation.]

Emergency Phone Numbers

In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381.