

Fall 2009 Organic Chemistry II (Unique # 53705)

CH 310N

TTh 2:00–3:30 p.m.

WEL 1.308

Dr. John A. Colapret

Instructional Staff:

Role	Name	Office Hours	Location
Lecturer	Dr. John A. Colapret		WEL 4.142
TA		TBA	TBA

Course E-Mail: All e-mail related to CH 310N should be sent to the following address:

jcolapret@cm.utexas.edu

Please include the word “CH 310N” in the subject line. We will make every effort to respond to e-mail queries within 24 hours.

Course Web Site:

To reach the web site for CH 310N, point your browser to the following URL:

<http://courses.cm.utexas.edu/jcolapret/>

The web site will be an integral component of this course! It will be updated regularly with course announcements, lecture notes, homework assignments, and exam information. Important updates will be announced in lecture, but you should plan to visit the web site regularly so you don't miss anything.

Course Materials:

Textbook (required): Brown, Iverson, Anslyn *Organic Chemistry*, 5th Ed., Brooks/Cole, 2008.

Study Guide (recommended): Iverson & Iverson, *Student Study Guide and Solutions Manual for Organic Chemistry*, 5th Ed., Brooks/Cole, 2008. Purchase of a molecular models kit is also highly recommended. Although use of models will not be allowed during exams, most students find them to be extremely helpful when first learning how to visualize the 3-dimensional structures of organic molecules.

Prerequisites and Co-requisites:

CH 204 or CH 317 with a grade of at least C. CH 310M (or CH 610A) with a grade of at least C. Credit or registration for CH 210C. Please visit the Chemistry Lower Division Office as soon as possible if you are having trouble enrolling in a lab section.

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Adds, Drops and Withdrawal:

Friday, Sep 11: Last day of the official add/drop period. After this date, changes in registration require the approval of the department chair and usually the student's dean.

Last day an undergraduate student may add a course except for rare and extenuating circumstances. Last day to drop the course for a possible refund.

Wednesday Sep 23: Last day to drop the class without possible academic penalty.

Wednesday Oct 21: Last day a Q drop can/will be assigned by the instructor. You will need the approval of Dr. Colapret, your academic adviser, and your college's dean to drop the course at this point. After this date, withdrawal from the course requires a substantial non-academic reason, and can only be approved by your college's dean.

Friday Dec 4: Last Class Day.

All questions related to enrollment in the course should be directed to the Chemistry Lower Division Office in WEL 2.212.

Attendance:

Although attendance will not be monitored, the lectures are the heart of this course. Attendance at all lectures is expected and all students will be responsible for information and announcements presented in lecture. **Cell phones, pagers, watch alarms, etc. must be turned off during all lectures and examinations.**

Office Hours:

Please take advantage of office hours if you have any questions about the course content (lecture notes, textbook readings, homework assignments). Although e-mail has become increasingly important as a means of communication in modern society, it does not provide a convenient forum to discuss a visual subject like organic chemistry. You'll need to visit us in person to have your chemistry questions answered so that we can draw structures! The complete schedule of office hours is provided on the first page of this syllabus. Any changes to this schedule will be announced as far in advance as possible on the course web site, and if possible in lecture.

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Homework:

The exams in this class require that you solve problems. The best way to prepare for the exams, then, is to work as many practice problems as you possibly can. To encourage this good habit, two different types of homework will be assigned on a regular basis:

(1) Several homework problems from the textbook will be suggested at the beginning of the semester. You should attempt to work these problems after you study your lecture notes. *Assigned problems from the textbook will not be collected or graded*, but you'll want to work through as many of them as possible so that you can develop the analytical skills you'll need in order to do well on the exams. Students who make an effort to work through and understand the textbook problems perform significantly better on exams than students who do not.

(2) One graded homework problem set, from outside of the text, will also be assigned each week (problems of the week POW). These problems will be posted on the course web site every Monday, and you will be responsible for downloading them from the web site. The deadline for submitting your answer to a graded homework problem will be 1 week after the problem is posted, at 3:00 p.m. In other words, a "Graded Homework Problem" posted on Monday, Sep 7, must be turned in no later than 3:00 p.m. the following Monday, Sep 14. Answers to all graded homework problems must be submitted to the collection box located outside of the Chemistry Lower Division Office (WEL 2.212).

Homework must be turned in before the deadline, or it will not be graded. Late homework, or homework deposited in the wrong slot of the collection box, will automatically receive a grade of 0. Out of fairness to all, there will be no exceptions to this policy. It your responsibility to submit the homework on time. Only the best 10 homework grades will count in the calculation of your final course grade. You may therefore miss up to 3 graded homework assignments without penalty.

Each "Graded Homework Problem" will be worth 10 raw points. Your best 10 out of 13 homework grades will be added together, and this sum will be the final homework grade on a 100 point scale. Unlike exam grades (see below), your final homework grade will not be curved. The graded homework problems are worth 10% of your final course grade.

The "Graded Homework Problems" are "open book and open note". Please feel free to discuss the homework problems with other students in the class, but **the written work you**

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submit should be your own. Since you will be graded on these homework problems, don't expect the TA's to do your homework for you in office hours. To do well on the exams in this course, you will ultimately need to develop the ability to solve challenging problems on your own – a major objective in assigning these homework problems is to give you an opportunity to develop your independent problem solving skills. The TA's will be happy to answer general questions about the related chemistry, but they will not answer specific questions about the graded homework assignments.

Evening Major Exams:

Three evening major exams will be given during the semester. These exams are scheduled from 7:00 to 9:00 p.m. on the Monday evenings listed below. These dates were published in the Spring 2009 course schedule. Each exam will **tentatively** cover the range of lectures indicated below. (Room assignments are subject to change.)

Exam*	Coverage	Date (exam time is 7–9 p.m.)	Locations (Subject to change)
Exam #1	Lectures 1–15	Monday, 9/21	WEL 1.308
Exam #2	Lectures 15-27	Monday, 10/19	WEL 1.308
Exam #3	Lectures 27–44	Monday, 11/16	WEL 1.308

*The exam will emphasize material covered in these lectures. Organic chemistry is a cumulative subject, however, so you will still be expected to know the material from earlier in the course.

Unless otherwise announced, all exams will be “closed book”, and you will not be allowed to use molecular models, calculators, books, or notes. Exams written in pencil will not be eligible for re-grades. Answers written in pencil with ink overlay will not be graded. Answers written in red ink will not be graded.

Please bring your valid UT ID card to all exams, since you will need to show it when attendance is taken during the exam. Exams will commence promptly at the stated time. Students arriving after the first exam has been turned in will not be allowed to take the exam!!! Instances of academic dishonesty will be handled according to university policy, and will likely result in failure of the course.

Each major exam will be worth a total of **150 raw points** (this provides the graders with maximum flexibility in assigning partial credit). Your raw score (out of 150) will then be

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converted into a percentage (out of 100), which in turn will be converted into a standard T-score. **The T-score represents your “curved” grade on the exam, on a 100 point scale.** T-scores are calculated using the following formula:

$$T = [(x-X)/s] \cdot 10 + 75$$

where x = your raw percentage (out of 100)

X = the raw percentage average for the class = $\sum x/N$

N = number of exam scores recorded

s = standard deviation = $[\sum (x-X)^2 / (N-1)]^{1/2}$

Use of standard T-scores allows an effective averaging of grades without introducing a bias in favor of tests with the greatest standard deviations. Since it is based on a normal (Gaussian) distribution, it generally represents the fairest way of grading. (Nearly all national exams such as the SAT, MCAT, and GRE use a similar form of Standard T-scores.)

*****Important Notice*****

In general, using T-scores increases everyone's grades compared to using absolute percentages. Nevertheless, we will keep track of your absolute percentage scores on every test. If your absolute percentage is ever higher than your T-score, we will use the absolute percentage score for your course grade calculation. Thus, if everyone does extremely well in this course, no grade will be lowered by using a curving system.

Combined, the major exams will account for 50% of your overall course grade. The lowest of your three midterm exam T-score grades will automatically be dropped. If you miss an exam for any reason, the missed exam will automatically be counted as the exam that is dropped. Failure to take two of the midterm exams without a valid, **documented** excuse will automatically result in a failing grade for the course.

Exam File and Keys:

Answer keys to all graded materials (homework and exams) will be posted on the web site, **after** the deadline for submitting the assignment has passed.

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Conflict Exams:

Only those students having an excusable, documented conflict are eligible to take the conflict exams which will be offered before each midterm. An excusable conflict is another regularly scheduled class or lab (published in the course schedule) which meets on Monday evening between 7:00 and 9:00 p.m., an evening exam in another class scheduled at the same time as our exam (please be prepared to provide documentation, i.e. a copy of the syllabus from the other class), or a religious observance. **An organizational meeting or a job is not an excusable conflict!!!** If you have a job and you normally work on Monday evenings, plan now to change your work schedule so that you can be present for the major exams. Students who qualify to take the conflict exams must bring the conflict to the attention of Dr. Colapret by filling out the appropriate paperwork at the Chemistry Lower Division Office (WEL 2.212) on or before Friday, September 4. The conflict exams will be given from 4:00 to 6:00 p.m. on the same date as the regular exam, in a location to be announced. September 4 is the deadline for all conflict exam requests for the semester.

Excused Absences:

If you miss one midterm exam, for any reason, the grade for that exam will automatically be dropped. Failure to take **two** midterm exams will result in an automatic F (or, in the case of justifiable excuse, an X) being assigned in 310N. Personal problems, family vacations, weddings, etc. are not valid reasons to receive an excused absence. Excused absences will require appropriate documentation.

Final Examination:

The final exam is mandatory, and will be given at the time scheduled by the university registrar (**Saturday, Dec 12** from 7:00–10:00 p.m, location to be announced). Please note that standard final exam times are published in the Fall 2009 course schedule, so you should have been aware of this exam time when you signed up for the course! The final exam will be comprehensive. Material from the entire semester can be included. The final exam will be worth 300 raw points, and will account for 40% of your overall grade in the course. Standard T-scores will be calculated in the manner described above. There will be **no make-up or conflict exam for the final**. Failure to take the final exam at the scheduled time and place without an approved, documented excuse will automatically result in a failing grade for the course. If an extreme medical emergency or justifiable nonacademic

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excuse prevents you from taking the final exam at the scheduled time, the symbol "X" (incomplete) will be assigned when final grades are reported at the end of the semester. (The procedure for making up an incomplete will be worked out on an individual basis, but almost always requires a student to take the final exam when it is given at the end of the next long semester.) In general it is best for students to see a counselor in their Dean's Office regarding non-medical excuses for missing the final.

Students with Special Needs:

Any student needing extra time, a reduced distraction environment, aids, etc. for exams is required to notify Dr. Colapret in writing, on or before Friday, Sep 4. **A letter of documentation of special needs must be furnished by the Dean of Students' office before this deadline;** otherwise we may not be able to arrange for suitable accommodations. For more information, please contact the Office of the Dean of Students at 471-6259, 471-4641 TTY.

Grading Policy:

Your final course grade will be calculated as a **weighted** numerical average, on a 100 point scale, as described below. Remember, you can miss any one major exam for any reason, since only your best 2 out of 3 major exam T-scores will be used in the calculation of your final weighted numerical average. Also remember that only the best 10 out of 13 graded homework scores will count.

Weight Graded Item (max. score = 100)

40.0% Final Exam Grade

25% Highest Exam Grade

25% Second Highest Exam Grade

10.0% Graded Homework

Remember, if your raw percentage score for any exam is higher than your T-score for that exam, the raw percentage score will be used for the calculation of your grade. Also note that the T-score for each exam represents your curved grade for that exam. Since individual exam grades are curved, no additional curve will be applied at the end of the semester. Finally, remember that homework grades **will not** be curved.

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The following conversion table will be used to determine final course letter grades*:

A range: $90.000 \leq T$

B range: $80.000 \leq T \leq 89.999$

C range: $70.000 \leq T \leq 79.999$

D range: $60.000 \leq T \leq 69.999$

F range: $T < 60.000$

*Missing two midterms or the final exam without a documented, valid excuse will automatically result in a failing grade.

Please note that letter grades in this course are based performance of the work you submit. You **earn** the grade; I do not give the grade. Grade boundaries do need to be established, and a consequence is that some students will finish with a “borderline” grade. **However, everyone is graded according to the same standards, out of reasons of fairness, the policy in this course is to NOT adjust grades in such circumstances.** Final grades assigned according to the scheme described above will indeed be final, and will not be adjusted for any reason. Requests to do so cannot be considered.

Regrade Policy:

Requests for major exam re-grades must be submitted in writing to the Lower Division Office (WEL 2.212) within **one week** after the return of the graded material. When you fill out the re-grade request form, please provide a clear and concise explanation of the perceived problem. To demonstrate that you have reviewed the “official” answer key, you will also be asked to staple a copy of the relevant page(s) from the posted answer key to your re-grade request form. Re-grades will not be considered for exams written in pencil, for questions answered in red ink, or for questions that refer to “see back of page” or that give similar instructions to graders. Re-grades will not be considered for less than a 5 raw point change, except for mistakes in addition by graders. Do not write on the exam itself, as submitting an altered exam for a re-grade is considered to be cheating and will be treated as such! (A random sample of exams will be photocopied before graded exams are returned.) We will usually re-grade the entire exam and that may result in a lower score as well. There will be no re-grades possible for the final exam. Dr. Colapret will look carefully at the final exams of all students who end up reasonably close (generally within 2 percentage points) to the final letter grade boundaries to determine if each exam was graded correctly, according to the instructions.

Academic Dishonesty:

We expect each of you to conduct yourselves honorably. Students who violate the University rules on scholastic dishonesty are subject to disciplinary penalties including the possibility of failure in the course and dismissal from the University. ***The university policies on scholastic dishonesty will be strictly enforced.***

STUDY GUIDE AND TIPS FOR ORGANIC CHEMISTRY

Organic chemistry will be challenging and difficult, even for the brightest students. In this course, you will develop analytical (reasoning) thinking skills to solve organic problems. This is an acquired skill, which take time to develop. Although it will require some memorizing of facts, memorization alone will not be sufficient. You must apply these tools, in an analytical fashion to solving organic problems. Follow these important guides for you to be successful:

1. **DO NOT FALL BEHIND.** There is a large volume of material to be covered and each concept is built upon the previous one; this means that the material is cumulative. Get into the habit of reviewing each day's lecture and the previous days lecture; you will see how the whole is related to the parts. **A good way to do this is to re-copy your class notes.** You can add material and other hints and you will quickly recognize things you do not understand. Ask for help that day!
2. **OUTLINE THE TEXT.** This sounds like it would require too much time. However, you will be reading the textbook anyway, so an outline is an effective way to condense the material and merge it with your class notes. A complete outline will save you hours of study time when you are reviewing for exams.
3. **UNDERSTAND THE BASICS.** All of chemistry is governed by the basic laws of physics and mathematics. We will not be dealing with the high levels of math in this class, but the results of the calculations are simplified to drawings of structures. Most reactions can be understood by attaching positive "pieces" (electrophiles) to negative "pieces" (nucleophiles). Regardless of the topic, try to identify the basic underlying principle. This approach will always be presented in the lecture.
4. **DEVELOP YOUR ANALYTICAL THINKING.** This is an acquired skill; all of us have had to learn it. One of the best ways to develop this cognitive process is to solve as many problems as you can. Homework sets (for graded credit) will be assigned, but all the problems at the end of the chapters deserve attention. Some of those will appear on the major exams.
5. **BRAIN MAINTENANCE.** This material is intense and you can only absorb a finite amount of material in any one study session. You have other courses to study as well. Arrange a daily schedule so that you mix in a non science course with your science courses; take a study break at least every 2 hrs; exercise and eat balance meals, your brain requires oxygen and glucose to function properly; get plenty of sleep; if you plan to be up late, take a nap in the late afternoon. A certain amount of school (course) anxiety will be natural, but your best defense against it will be thorough preparation.

Course Outline

This semester, we will cover the material organized into “Units”. Chapters 12 – 14 are spectroscopy and spectrometry. Chapter 15 through 23 will be completely covered. Selected sections from Chapters 24 through 29 will be added as time permits. The order in which we will cover this material is reflected below:

Unit 1: Organic Structure Determination (Chapters 12, 13, 14)

Unit 2: Introduction to Organometallic Compounds (Chapter 15)

Unit 3: Aldehydes and Ketones (Chapter 16)

Unit 4: Carboxylic Acids and Carboxylic Acid Derivatives (Chapters 17 & 18)

Unit 5: Enolates and Enamines (Chapter 19)

Unit 6: Conjugated π Systems and Aromaticity (Chapters 20–22)

Unit 7: Amines (Chapter 23)

Unit 8: Pericyclic Reactions (Chapter 24, selected sections)

Unit 9: Biological Molecules (Chapters 25–28, selected sections)