

Instructor: Dr. Nolan Carter

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Webpage: course materials are posted on Blackboard

Lecture: M,W, F 11:00 - 11:50 AM Laney 104

Lab: Th 8:00-10:40 AM (CRN 10535) Laney 306
10:50-1:30 PM (CRN 10536)
2:40-5:20 PM (CRN 10539)

Office hours: M,W 1:30-2:30 PM
T 10:00-11:00 AM
F 12:30-1:30 PM

If I'm not in the office, check my research lab (Laney 204).

Required course materials:

Organic Chemistry, 4th ed., Janice Gorzynski Smith, McGraw-Hill.

eInstruction Response Pad ("clicker")

CHEM 2401 Laboratory Procedures (posted on Blackboard)

Laboratory notebook

Safety goggles

Molecular model set

Optional Course Materials:

Student Study Guide/Solutions Manual for use with Organic Chemistry (4th ed.), Janice Gorzynski Smith.

Course Description and Objectives:

CHEM 2401 (Organic Chemistry I) is the first part of a two-semester sequence which is continued with CHEM 3411 (Organic Chemistry II). This course will serve as an introduction to the field of organic chemistry. Students will gain an understanding of topics including structure and bonding in organic molecules, nomenclature of basic types of organic molecules, as well as fundamental organic reactions and the mechanisms by which they occur.

Prerequisite:

A grade of "C" or better in CHEM 1451 (College Chemistry II) is required to take CHEM 2401 (Organic Chemistry I).

Attendance Policy:

Lecture attendance is strongly encouraged. Given the large amount of material we will cover, it will be extremely difficult to be successful in this class if your attendance is poor. Makeup exams and quizzes will not be given unless the reason for absence is an officially sanctioned UCA activity (it is your responsibility to provide me with documentation at least one week prior to the exam or quiz). For all other absences, if you contact me prior to an exam with a valid excuse (documented serious illness, etc.) that exam will be dropped and your exam grade will be based upon your other exam scores (including the final exam). Missing an exam without an acceptable excuse will result in a grade of "0".

Class disruptions will not be tolerated. Phones must be turned to silent prior to class. Text messaging, talking, and consistent tardiness are also considered disruptive. Penalties for disruptive behavior may range from a deduction of participation points to a "WF" grade for the course.

Laboratory attendance is required. If a laboratory experiment is missed for acceptable reasons (official UCA activity, serious documented illness, etc.), the missed lab experiment will be made up or dropped at the instructor's discretion. If a laboratory experiment is missed without an acceptable excuse, a grade of "0" will be assigned. Tardiness for lab may result in a deduction of points or a grade of "0".

Americans with Disabilities Act:

The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation due to a disability, please contact the UCA Office of Disability Services.

Other UCA Policies:

You should familiarize yourself with policies listed in the UCA Student handbook (<http://uca.edu/student/student-handbook/>), particularly those relating to academics and sexual harassment.

The University of Central Arkansas affirms its commitment to academic integrity and expects all members of the university community to accept shared responsibility for maintaining academic integrity. Students in this course are subject to the provisions of the university's Academic Integrity Policy, approved by the Board of Trustees as Board Policy No. 709 on February 10, 2010, and published in the *Student Handbook*. Penalties for academic misconduct in this course may include a failing grade on an assignment, a failing grade in the course, or any other course-related sanction the instructor determines to be appropriate. Continued enrollment in this course affirms a student's acceptance of this university policy.

An Emergency Procedures Summary (EPS) for the building in which this class is held will be discussed during the first week of this course. EPS documents for most buildings on campus are available at <http://uca.edu/mysafety/bep/>. Every student should be familiar with emergency procedures for any campus building in which he/she spends time for classes or other purposes.

If a student discloses an act of sexual harassment, discrimination, assault, or other sexual misconduct to a faculty member (as it relates to "student-on-student" or "employee-on-student"), the faculty member cannot maintain complete confidentiality and is required to report the act and may be required to reveal the names of the parties involved. Any allegations made by a student may or may not trigger an investigation. Each situation differs and the obligation to conduct an investigation will depend on those specific set of circumstances. The determination to conduct an investigation will be made by the Title IX Coordinator. For further information, please visit: <https://uca.edu/titleix>. **Disclosure of sexual misconduct by a third party who is not a student and/or employee is also required if the misconduct occurs when the third party is a participant in a university-sponsored program, event, or activity.*

How to Be Successful in This Class:

1. **Come to class prepared.** Read through the material we will cover in lecture **before** class. Identify the material that you think is hard to understand and come prepared to ask questions about it. PowerPoint presentations will be posted on Blackboard-print these out and bring them to class. I recommend bringing the full-size versions to class to allow plenty of room for note taking.

2. **Participate in class.** Class should be a dialogue not a monologue. In other words, don't be afraid to ask questions and answer questions I ask. Your clicker responses are important because they let me know if I am moving too rapidly or too slowly. If I say something that doesn't make sense, **stop me**. I don't mind being interrupted-that way I know you are paying attention.

3. **The suggested problems posted on Blackboard are STRONGLY suggested!** In order to truly grasp the material we cover, you will need to develop your skills by working problems from your textbook. The problems may seem easy when you watch me work them in class, but if you don't practice on your own they won't seem very easy on the day of the exam. Here are some tips on how to approach the suggested problems:

- Review your notes to make sure you understand the concepts we have covered before attempting the problems.
- Before attempting the suggested problems, make sure you understand the example problems in the textbook. These problems are similar to the assigned problems and will give you an idea of how to approach them.

Working questions from old exams is also a helpful way of gauging your understanding of the material. Don't look at the answer key until after you have attempted the problems.

4. **Don't get behind!** You have probably heard the saying that you should spend 2 hours studying for every hour in lecture. This is actually true for this course. This means a **minimum** of 6 hours outside of class each week just working problems and going over lecture material. If you wait until the day before the test to start the suggested problems, it will be too late.

5. **Keep in mind that the course is comprehensive.** Although the only exam that is officially "comprehensive" is the final exam, you can't forget the chapter 1 material and expect to understand what is going on when we get to chapter 7.

6. **Know when to seek help.** If you are having trouble with the course or have a question, stop by my office. If you are having trouble, don't wait until November to ask for help-by then it will be too late!

Grading:

Your grade in this course will be based upon your performance in lecture and laboratory. **The lecture portion of the course is worth 75% of the total grade and the laboratory portion is worth 25%.** Your lecture grade will be based upon your scores on 4 exams, a comprehensive final, 4 quizzes, and clicker participation. The laboratory grade will be based upon your prelab quizzes, lab notebook, attendance, effort, and the quality of your experimental results (see laboratory grade section for further details). The number of tests, quizzes, or labs may be reduced if the class is behind schedule due inclement weather or other circumstances.

Lecture	Points	Laboratory	Points
4 Exams (100 pts each)	400	7 experiments with notebook writeup (25 points each)	175
Best 4 of 5 Quizzes (25 points each)	100		
Final Exam (Comprehensive)	200	5 experiments without notebook writeup (15 points each)	75
Participation	50		
Total	750		250

$$\text{Your Grade} = \left(\frac{\text{Your Lecture Points}}{\text{Total Lecture Points}} \right) (75) + \left(\frac{\text{Your Lab Points}}{\text{Total Lab Points}} \right) (25)$$

Tentative Grading Scale

Final Percentage	Letter Grade
90-100	A
80-89	B
70-79	C
60-69	D
≤ 59	F

Exams: The four exams will consist largely of questions similar to the suggested problems and examples worked in class. Material from the laboratory may also be covered on exams. The best way to prepare for the exams is to work as many problems as you can. The suggested problems are the minimum amount you should work. Use the old exams posted on Blackboard to get an idea of exam length and what types of questions will be asked. No exam will be dropped.

Quizzes: Quizzes will be announced at least one class period in advance. The lowest quiz will be dropped. If you are absent the day of a quiz, that will count as your dropped quiz (unless the reason for absence is an officially sanctioned UCA activity).

Final Exam: The cumulative final exam will be given on Monday, December 7 from 2:00 to 4:00 PM.

Clicker Participation Grade:

The participation component of your lecture grade (50 points) will be based upon the percentage of clicker questions you answer during the semester regardless of whether your answers are correct or incorrect. For example, if we go over 100 clicker questions during the course of the semester and you answer 90 of these questions, your participation grade will be 45 (90% of the 50 points possible). If you forget to bring your clicker to class or are absent, you will not receive participation credit for that day of lecture. There are no excused absences except for official UCA-sanctioned activities.

Participation bonus: A 10 point bonus will be added to the lecture grade of those who actively participate in class. The extent of participation will be defined by the number of days you answer at least one question in class with the clicker. Missing class (or not bringing your clicker) more than 2 times during the course of the semester results in a loss of these bonus points. The 10 point bonus is all-or-nothing.

Laboratory Safety:

During the course of the semester, you will be working with a wide variety of organic chemicals. Many organic chemicals are hazardous—they can be toxic, carcinogenic, caustic, or flammable. You should handle all organic chemicals carefully. Disregarding safety practices will result in dismissal from lab and a grade of “0” for the day. Prior to performing any laboratory work, you must review and sign the CHEM 2401 lab safety agreement.

The most important aspect of safety in an organic chemistry laboratory is eye protection. Safety glasses must be worn at all times. You will not be allowed to attend lab if you do not have safety glasses. No spare goggles are available in the laboratory. Sandals may not be worn in lab. You will not be allowed to attend lab if you are dressed inappropriately. The balances and other common areas should be kept clean and orderly. Failure to maintain an orderly laboratory may result in a deduction of points from the entire class.

Laboratory Policies and Grading:

1. Prior to experiments in which a notebook writeup is required, a short quiz will be given at the beginning of the laboratory period (see schedule on page 7). The prelab quizzes are designed to make sure that you do the required reading before the lab. Each prelab quiz is worth 5 points. Since each experiment is worth 25 points, it is important that you do well on the prelab quizzes to get a good grade in the laboratory portion of the course. Prelab quizzes cover the material in the lab modules and/or supplementary materials you may be provided with. Both the background/theory sections and the procedure sections need to be read. Chemical safety information may also be covered. The prelab quiz will start promptly at the scheduled start time of the lab and will only take about 5 minutes. Quizzes cannot be made up, so arriving to laboratory late will result in a grade of “0” for the quiz.

2. Note that some sections of the laboratory notebook write up (purpose, chemical reaction/structures, chemical information) must be completed prior to lab. The yellow sheet(s) containing these sections must be turned in at the beginning of the laboratory period. Failure to turn this section in will result in a deduction of 5 points (out of the possible 25). This section must be turned in immediately after you arrive. Late papers will not be accepted.

3. The remaining yellow notebook pages (containing your procedure, observations, postlab questions, etc.) are due at the beginning of the lab period one week after the experiment is carried out.

4. Part of your lab grade will be based on technique. During lab, the instructor will evaluate how well each student is prepared for the lab, follows safety rules, maintains a neat workspace, sets up and uses the apparatus properly, works efficiently, is able to perform the experiments correctly, and isolates pure product in a reasonable yield. Points will be deducted for poor technique.

This is not intended to make you paranoid during lab. You can ask your professor how to do a new procedure and not be penalized by losing technique points. You are here to learn to do organic chemistry lab techniques, and you cannot do this if you don't ask questions. You may remember most of the things to set up from your reading, but it is expected that you will not remember everything. However, if you continually forget to clamp down glassware and it breaks, you are using bad technique. If you are told to run an IR and go stand in front of the GC, you aren't paying attention. If you plug a heating mantle directly into the wall and not into a regulator, you are not paying attention and working in a dangerous manner. If you take off your goggles, you are not following safety rules. If you constantly ask your instructor what to do next, you are not able to perform the experiments. If you are standing around while your lab partner does all the work, you are being lazy. If you do something that signals to your instructor that you are being unsafe, working inefficiently, or not paying attention, points may be deducted from your lab report.

5. The table on the following page provides detailed information regarding the contents of your lab notebook.

**Approximate
point values**

Page Headers	The title of the experiment is shown on every page.	~ 1 point
	Your lab day/time is written on every page.	
	The correct date is written on every page.	
	The full name of your lab partner is written on every page.	
	Your name is written on every page.	

These sections must be completed prior to laboratory and turned in at the beginning of the lab period. Failure to complete these sections will result in a deduction of 5 points.

Purpose	A purpose for the experiment is written as the first item. What is the overall goal of the experiment? How will you accomplish this goal? Briefly (several sentences) summarize this in your own words.	~ 1 point
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Chemical Information	If you are doing a separation or characterization, show the structures of the compounds you are separating.	~ 3 points
	If you are doing a reaction, the ACTUAL reaction should be shown. Don't show a generic or unrelated example of the reaction.	
	Safety concerns should be summarized in your notebook.	
	Physical constants (molar mass, bps, mps, etc) provided in the lab module should be copied into your notebook.	

Procedure	Write on the left side of the center dividing line in your notebook. Double space your entries. The procedure should be written as a summary of steps taken. You do not need to write in complete sentences.	~ 5 points
	Write down the steps as you perform them. Your procedure should be detailed enough that another person could repeat your experiment without referring to a lab manual. Write in past tense.	

These sections must be completed during the experiment. All information should be recorded directly into the notebook, not elsewhere then transferred to the notebook later.

Observations	Record observations on the right side of the center dividing line in your notebook. Write down what you see: color changes, bubbling, precipitate formation, product color and texture, etc. Another person repeating your work would want to know this information.	~ 5 points
	Use correct spellings ("percipitant" and "yeild" are not words).	
	Do not use nonstandard abbreviations.	
	Record the units of all measurements. Clearly identify what all quantities refer to (e.g., don't just write 10g, write 10g of NaCl).	

Postlab Questions	All postlab questions should be completely answered on the sheets provided in the lab module. Do not write answers in your notebook. If no postlab questions are assigned you may be asked to write a summary of your experimental results in which you address the yield, purity, and identity of your product. More details will be provided at the time of the experiment.	~ 5 points
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This section should be completed after the experiment.

Miscellaneous	Use correct spelling and grammar and legible handwriting.	point deductions vary
	Your notebook should be neat and organized.	
	Staple the report in the correct sequence.	
	Do not write directly on the yellow sheets.	
	You should use proper lab technique and follow all safety rules.	
	Your product should be pure and isolated in a reasonable yield.	
	Staple all spectra (NMR, IR, etc.) to your notebook pages.	

Blackboard:

Class materials such as lab procedures, suggested problems, and exams from previous semesters will be posted on the Blackboard page for this course.

How to Register Your Response Pad (aka “clicker”):

Your response pad will not work until it has been registered. To register, go to <http://legacy.einstruction.com/Login/index.cfm>

You will activate your response pad using CPSONline. Select UCA from the drop down list of institutions and create a new account to register your response pad. You will need to either pay a registration fee or purchase a registration code from the bookstore. **You will need two pieces of information to register your clicker:**

1. **The class key: F77287F713**
2. **Clicker serial number**- this number is displayed when the pad is switched on. If your serial number begins with a letter be sure to include it. An incorrectly entered serial number is the most common cause of clicker problems.

Tentative Lecture and Lab Schedule

Week	Lecture	Lab
8/20-8/21	Ch. 1 Structure and Bonding	No Lab
8/24-8/28	Ch. 1 cont., Ch. 2 Acids and Bases	Check In, General Chemistry Review (No prelab quiz, notebook not required)
8/31-9/4	Ch. 2 cont.	Natural Dyes
9/8-9/11	Ch. 3 Intro to Organic Molecules	¹³ C NMR Spectroscopy (No prelab quiz, notebook not required)
9/14-9/18	Ch. 4 Alkanes	Thin Layer Chromatography
9/14	Exam 1 (Ch. 1-3)	
9/21-9/25	Ch. 4 cont., Ch. 5 Stereochemistry	Infrared Spectroscopy (No prelab quiz, notebook not required)
9/28-10/2	Ch. 5 cont., Ch. 6 Organic Reactions	Melting Points
10/5-10/9	Ch. 6 cont., Ch. 7 Alkyl halides & Nucleophilic Substitution	Stereochemistry (No prelab quiz, notebook not required, model set required)
10/7	Exam 2 (Ch. 4-6)	
10/12-10/16	Ch. 7 cont.	Nucleophilic Substitution: S _N 1 and S _N 2
10/19-10/21	Ch. 8 Elimination Reactions	No Lab (Fall Break)
10/26-10/30	Ch. 8 cont.	Green Chemistry (No prelab quiz, notebook not required)
10/28	Exam 3 (Ch. 7-8)	
11/2-11/6	Ch. 9 Alcohols, Ethers, & Epoxides	Dehydration of 2-Methyl-2-butanol
11/9-11/13	Ch. 9 cont., Ch. 10 Alkenes	Epoxidation of Carvone
11/16-11/20	Ch. 10 cont.	Brominating Alkenes
11/20	Exam 4 (Ch. 9, 10)	
11/23,11/24	Ch. 11 Alkynes	No Lab (Thanksgiving)
11/30-12/3	Ch. 11 cont.	No Lab
12/4	Study Day	
12/7	Final Exam (Ch. 1-11) 2:00-4:00 PM	

Note that this schedule is tentative; exam dates are likely to change

Unless otherwise noted in the schedule the lab notebook is required and each laboratory period will begin with a prelab quiz

Drop Deadlines: **10/30** Last day to drop with a "W"
 11/30 Last day to drop with a "WP" or "WF"

Name _____ (let me know if you don't go by your first name)

**CHEM 2401 Organic Chemistry I
Class Survey Fall 2015**

1. What is your major?
2. What are your career plans?
3. When did you take CHEM 1451 (College Chemistry II)?
4. Who was your instructor for CHEM 1451?
5. What was your grade in CHEM 1451?
6. Have you previously taken Organic Chemistry I?
7. Are you planning on taking Organic Chemistry II next semester?
8. What are your concerns (if any) about the course?
9. Is there anything you would like to tell me about yourself?