

CHEM 212
Organic Chemistry II (with Lab)
Spring 2020
212-03 CRN 10365, 212-04 CRN 17967

Instructor: Dr. Janet A. Asper

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Student hours: M1:30-3:00 pm, W 9:00-10:00 in Jepson 435 F review 1:30-3:30 Jepson 217a

Course Information

Lecture: MWF 1:00-1:50 Jepson 219

Lab: 03 11:00-1:45 Jepson 213. 04 2:00-4:45 Jepson 213

Textbooks and Supplies (copies of all books are on reserve at Simpson Library)

Required:

- Klein, D. *Organic Chemistry Third edition*. John Wiley and Sons: New York, 2017
- Mohrig, J.R.; Hammond, C.N.; Schatz, P.F. *Techniques in Organic Chemistry Fourth Edition*; W. H. Freeman and Co: New York, 2014(978-1-4641-3422-7)
- Wiley Plus
- Laboratory notebook, goggles and labcoat (see lab syllabus for details)
- \$20 for printing on your Eagle One card, or access to a working printer
- Sharpie marker

Recommended:

- Model kit

Prerequisite: CHEM 211 (C or better required)

Course Objectives

After completing the course, a student should

- Know the molecular structure and nomenclature of several classes of organic compounds
- Understand the important reactions and reaction mechanisms for these classes of compounds
- Be able to interpret the infrared and nuclear magnetic resonance spectra of several classes of organic compounds and use them to identify unknown structures
- Have developed laboratory techniques for the preparation and analysis of organic compounds, including spectroscopic methods

Classroom Policies

Attendance: In lecture, attendance will not be taken and there is no attendance component of the grade, however my lecture will provide structure and focus to the text material and is essential to this course. Exercises (see below) will not always be announced and there will be no make-ups, so missing class may cost you. Tardiness is a distraction to your classmates. I discuss "class business" during the first 5 minutes of the class, therefore it is important that you arrive on time. If you are late, enter and get organized quietly. If you need to leave the room during class, please go and return quietly. Attendance in lab is required. Lab attendance is required. There are no make up sessions for lab. Missing more than two lab sessions will result in a grade of F for the course.

Electronic devices: Cell phones must be on silent during class sessions. If you choose to use a cell phone, laptop, or tablet, please do not distract yourself or your classmates with e-mail, texting, chatting, websurfing that is not related to the course. I strongly suggest putting those devices in "Airplane" mode. The use of laptops, iPads and smart phones in lab is discouraged

due to the safety hazards of being distracted and the potential for damage by reagents and solvents. They may ONLY be used in lab for purposes directly related to the work that you are doing. Please make sure that your devices are stored and used away from your work area to prevent damage by reagents or solvents. The University is not liable for damage to electronic devices in the lab. It is a policy of the chemistry department that headphones are not to be worn in the laboratory at any time.

Communication: I will make use of Canvas to communicate with you regularly. Please check Canvas often. You can set up Canvas to notify you of changes via email or text.

Printing: You will often need to print lab instructions and worksheets for lecture and lab. Please make sure that you have money on your Eagle One account and/or access to a working printer. If this is a challenge for you, please come talk to me so we can work out a solution.

Student hours: Student hours are time that I have set aside to answer questions from students in my classes. Please come with questions, alone or in small groups. If my student hours do not match well with your schedule, please make an appointment with me, preferably via e-mail. When my door is open, you may “stop by” my office or lab with questions, which I will make every effort to answer within 15 minutes of your arrival. Friday student hours will be structured as a “review session” with students working in groups and presenting problems on the board.

Grading

This course will be graded on a straight scale of 1000 points as outlined below. **There will be no “curves” in this course.**

Exams (4 @ 80-90points each)	350 pts
Final exam	200 pts
Laboratory	250 pts
Exercises	150 pt
Orion	50 pt
Total	1000 pts.

900-1000	A-/A	600-699	D
800-899	B-/B/B+		
700-799	C-/C/C+	0-599	F

Mid-semester grades will be calculated using the estimated grade formula above. Students with a grade of C (75%) or lower at that time will receive a grade of U.

Exams

There will be four midterm exams. Three exams will be worth 90 points, one will be worth 80. You will have 50 minutes to take each exam. Exams will be given at the beginning of the class period. A review sheet will be posted on Canvas prior to each exam. Due to the building nature of organic chemistry they will be somewhat cumulative. **Exams must be taken during the class period on the date they are given.** There are no early exams. If you must miss an exam for a serious reason, you must contact Dr. Asper by phone email before the exam begins, telling her when you will return to campus and what documentation you will be providing to support the serious reason why you missed the exam. Dr. Asper will decide if you will be taking a make up exam (different exam, possibly different format) or if the grade will be replaced with the average of the other three exams. This decision will be sent to you by email. Any make up exams must be taken within 24 hours of your return to campus. Failure to abide by these policies will result in a grade of zero.

If you are missing an exam due to a conflicting University event (athletics, conference presentation, study abroad etc), Dr. Asper will work with the faculty sponsor of that event for you to take the exam during the scheduled time. Please notify Dr. Asper and the faculty sponsor of that conflict by the end of the first week of classes.

Exam 1: January 29, 2020 Chapters 10-11 and 211 (80 points)

Exam 2: Feb 24 Chapters 12-13 (90 pts)

Exam 3: March 30: 18-19 (90 pts)

Exam 4: April 22 Chapters: 16-18, & 22, (90 pts)

*Note that chapters 24 and 27 will be covered in lab and will be on the lab exam and final exam

The final exam is the American Chemical Society full year Organic Chemistry Exam. More info about that exam, including ordering information for the official study guide can be found at <http://chemexams.chem.iastate.edu/guides/index.cfm>.

It is University policy that missing a final exam will result in a grade of F for the course. **The final exam will be held on Wednesday April 29, 8:30-11:00 am.**

Grading:

Some grades may be posted to Canvas for your information, but the Canvas grade book is NOT the official grade book for the course. I recommend that you keep track of your grade on your own. I have posted an excel spreadsheet that you may find helpful for keeping track of your grades.

I will make every effort to return graded papers no later than two weeks after the assignment was turned in. Exam grading and scores will not be discussed until the graded exams have been returned. Exams will always be returned at the end of the class or laboratory session. Grading rubrics for exams, lab reports and graded quizzes will be posted on Canvas. After an assignment has been returned, you will have one week to look over the grading key, your notes and your textbook. Any grading disputes will be submitted IN WRITING, within one week of the return of the exam or graded work. Disputes will be addressed in writing and returned to you within two weeks.

Exercises include announced and pop quizzes, Canvas activities, individual and group classroom activities, writing assignments, and anything else that I think of!! They are designed to encourage you to engage with the material in a timely fashion and prepare for class. They may be completed in class or assigned to be completed at home. These activities will not always be announced. There are no make-ups for quizzes or exercises. Exercise grades will be scaled to 150 points, if necessary.

Wiley Plus is a web based platform that works with the Klein text. **DOING ONLY THE Wiley Plus PROBLEMS WILL NOT EARN YOU A PASSING GRADE IN THIS COURSE.** Wiley plus assignments will be scaled to 50 points, if necessary. Please see me if you are unable to purchase Wiley Plus.

Recommended problems: Solving organic chemistry problems with pencil and paper, then checking/correcting your work using a solutions manual, is essential to learning the material. The recommended problem list is posted on Canvas.

Academic Dishonesty: The honor system, as outlined on the UMW Fredericksburg Honor Council Website will be strictly enforced in this course. Students are reminded of their obligation to abide by the code, including reporting observed violations to the Honor Council. The honor pledge will be written on all graded work. Books, notes, cell phones, PDAs and other

electronic devices are not allowed during exams. A calculator may be used, but it must not contain any chemical information that could be used during an exam. Honor violations include using the internet for assignments where that is not allowed, failing to cite outside sources, copying answers from another student on paper or electronic assignments, cheating during exams or quizzes etc. <http://www.umw.edu/honor/fredericksburg/default.php>

ADA: Students requiring accommodation for disabilities must discuss their needs with the Director of Disability Services (654-1266), and provide appropriate documentation. In order for me to best meet your need, I must receive documentation and discuss your needs by January 28, 2019. I will hold any information you share with me in the strictest confidence unless you give me permission to do otherwise. The University's disability policy is outlined at <http://www.umw.edu/disability/>

Title IX

University of Mary Washington faculty are committed to supporting students and upholding the University's *Policy on Sexual and Gender Based Harassment and Other Forms of Interpersonal Violence*. Under Title IX and this Policy, discrimination based upon sex or gender is prohibited. If you experience an incident of sex or gender-based discrimination, we encourage you to report it. **While you may talk to me, understand that as a "Responsible Employee" of the University, I MUST report to UMW's Title IX Coordinator what you share.** If you wish to speak to someone confidentially, please contact the below confidential resources. Also see <https://diversity.umw.edu/title-ix/report/> for reporting information.

Stephanie Lucas-Waverly	Title IX Coordinator (UMW)	540-654-5656	slucaswa@umw.edu
Crystal Rawls	Title IX Deputy for Students (UMW)	540-654-1801	crawls@umw.edu
Talley Center	Lee Hall (UMW)	540-654-1053	
Empowerhouse	Off campus	540-373-9373	
RCASA	Off campus	540-371-1666	

UMW Policy on Recording Class Materials

Classroom activities in this course may be recorded by students enrolled in the course for the personal, educational use of that student or for all students presently enrolled in the class only, and may not be further copied, distributed, published or otherwise used for any other purpose without the express written consent of the course instructor. All students are advised that classroom activities may be taped by students for this purpose. Distribution or sale of class recordings is prohibited without the written permission of the instructor and other students who are recorded. Distribution without permission is a violation of copyright law. This policy is consistent with UMW's Policy on Recording Class and Distribution of Course Materials.

Suggestions for success

Most of you have already realized that organic chemistry is different than most of your other courses, and you've needed to adjust your study habits to be successful. If you've found tricks that worked for you in 211, great! Keep using them. If you were unhappy with your grades in 211, you need to continue looking for a set of study skills that will work for you. This course will HEAVILY rely on the concepts from Chem 211, especially the concepts that were applied in chapters 7, 8 and 9.

As in the past, I encourage you to devote enough time to the course. We will be covering one chapter per week in class. Most students will require at least 12 hours per week outside of class to sufficiently grasp the material and receive a grade of B. This breaks down to 3 hours on lab assignments and 9 hours on lecture work. If your skills from Chem 211 are weak, you may need more time than that until you catch up. Take a very honest look at your class and work schedules and personal obligations, and make any necessary adjustments. How you spend your 9-12 hours is another very important factor. I find organic chemistry to be most like learning a foreign language. To become fluent, there are things you need to memorize and things you need to learn.

Please see the documents on Canvas that I have posted from former students who earned grades of A/A- in Chem 212.

Some strategies that I've seen work

1. Read (or at least scan) the chapter before class
2. Take good notes in class
3. Re-read your notes within 24 hours of lecture. Review all reactions and examples covered in class. Use your book to fill in any gaps. Work the skill builders as you review each section.
4. Work the end of chapter problems. Work 2 or 3, then check them using the solutions manual. If you miss a problem, read the solutions manual, then re-work the problem. Write the problem number on a "miss list". If you still don't get it, get help from a fellow student or come to student hours
5. As the exam comes closer, re-work all of the problems on the miss list.
6. By the time the exam information is posted, you should have completed all of the available problems for the chapters on the exam. Begin the review problems. Come for help with those questions and discuss them with your classmates.
7. Come to student hours as soon as you realize that you are not understanding, falling behind or getting confused.
8. Index cards can help with memorization, if they are kept short and used correctly. Contrary to popular rumor, you cannot do well in this course with just index cards.

Chem 212 Spring 2020 Tentative Course Calendar (carbonyls first)

CHEM 212
Organic Chemistry I (with Lab) Spring 2020
Laboratory Policies and Procedures

Required Textbooks and Supplies:

- Mohrig, J.R.; Hammond, C.N.; Schatz, P.F. *Techniques in Organic Chemistry 4rd Edition*. W.H. Freeman Company, New York. 2014 (Bring to lab EVERY WEEK)
- Laboratory Notebook with duplicating pages
- Lab handouts printed from Canvas
- \$20 on your EagleOne card for printing or access to a working printer
- Safety Goggles (Uvex or approved by instructor)
- Lab coat
- Closed toe shoes
- Sharpie laboratory marker, small stapler

Course Focus:

Our work this semester will focus on the safe, careful and correct application of the organic laboratory techniques learned in Chem 211 to prepare and identify organic compounds. Your weekly lab work should take you 3-4 hours of time outside of class. We will make extensive use of spectroscopic methods to identify organic compounds.

Attendance:

Attendance for the laboratory component of this course is required. Missed labs will result in a grade of zero. The student is responsible for gaining an understanding of the material. It is essential that you arrive to class on time. During the first 5 minutes of class important instructions for the experiments will be given. If you miss the safety briefing, you will not be permitted to complete the lab.

Missing more than two laboratory sessions or not turning in two lab reports will result in a grade of F for the course.

Safety

Safety in the chemistry laboratory is of primary importance. Safe laboratory practices are outlined in your lab packet and textbook. You will participate in a safety briefing and sign a safety agreement with the school. Violations of safety procedures will result in removal from the lab and a grade of zero for that day's work. Repeated violations will result in a meeting with the Chemistry Department Safety Officer and Chair.

Safety goggles, a lab coat and closed toed shoes are required for this course, and will be worn whenever you are in the lab. It is your responsibility to select prudent and appropriate attire for your work in the lab.

For some experiments you will need to return to the laboratory to obtain the final data for your experiment (melting points, masses, IR etc.). Permitted lab hours

will be posted on the doors. It is the policy of the Chemistry Department at the University of Mary Washington that no student is to work alone in the laboratory. When you come to the lab to finish your work, you must have a “buddy” with you, who stays in the room while you are working. In addition, you must check in with me to let me know that you are in the lab and that you are finished. You may check in person, by phone (x1143) or by leaving. You may ONLY do the work that is described in your procedure. You may not do any additional procedures of experiments. Failure to abide by these policies will result in a grade of zero for that experiment and a meeting with the Chemistry Department Safety Officer and Chair.

Lab materials

You will be assigned a drawer with glassware and other needed equipment. Two students will share each drawer. You are responsible to return all equipment to the drawer, and the equipment must be clean and ready for another student to use. You must also be respectful of any chemical samples that are being stored in the drawer. A messy drawer, missing equipment or ruined samples will result in a reduction of your notebook grade for that experiment, and may result in a reduction of your lab grade.

Removing glassware or equipment from any drawer, location or cabinet except your own drawer or the “orphan glassware cabinet” is an Honor Violation, and will be reported to the UMW Honor Council for adjudication.

Grading

The laboratory grade will be determined as follows

Prelab notebooks	15%
Lab reports (abstracts and notebooks or worksheets)	40%
Identification of unknowns	30%
Lab exam	15%

Once calculated, the lab grade will be converted to 250 points and used to determine your course grade.

Prelab notebooks are prepared to encourage preparation for the lab and ensure that you are aware of the safety hazards of the lab. Duplicate copies of your lab pages will be turned in before the lab begins. If you do not prepare a prelab notebook you will not be permitted to attend the lab.

Notebooks are used to record what happens in the lab, record and interpret laboratory data. Abstracts are used to summarize an experiment. The notebook pages and abstract for each lab are due at the

beginning of the next lab period. Details on these assignments will be described in lab and posted on Canvas. I will drop one abstract score.

Lab exam: During finals week will complete a lab exam. Details will be posted on Canvas.

Identification of unknowns is an independent, multi week experiment. Information about this assignment is posted on Canvas.

Preparation for Lab:

Your preparation for each lab should include

- Reading over the experimental procedure
- Reading the assigned sections of the Mohrig and Klein texts
- Viewing the information on Canvas
- Preparing your notebook

Honor Code: The UMW honor code applies in the normal ways to your laboratory quizzes, reports, notebook and exams. Laboratory notebook entries, reports and exams must have an honor pledge written on them. Fabrication of data (running a dry lab or “tweaking” numbers), or removing glassware from unauthorized locations is an honor offense. You may discuss how to do the calculations with other students or get help from an instructor, but your final report must be your own. When writing your laboratory notebook and abstracts, be very careful to write “in your own words” and to summarize material, not plagiarize it. You may not use any materials from other sections of Organic Chemistry taught at UMW, including lab notebooks, worksheets, exams and other materials from previous years of the course, taken by yourself or anyone else.