

CHEM 3381 Organic II Lab for Majors Syllabus, Fall 2017

Lab Director: Jacquie Richardson
Email: Jacqueline.richardson@colorado.edu

Office: Ekeley M1B30, 303-492-8256
Web Site: www.orgchemboulder.com

Experiment Schedule

Days	#	Experiment
Mon Aug 28 - Tue Aug 29		Check-in & NMR review
Wed Aug 30 - Thu Aug 31	31	Large-Scale Column Chromatography
Mon Sep 4 - Tue Sep 5		(no labs)
Wed Sep 6 - Thu Sep 7	32	Oxidation of a Diol
Mon Sep 11 - Tue Sep 12	23	Fischer Esterification
Wed Sep 13 - Thu Sep 14	20	Wittig Reaction (Preparation for frambinone)
Mon Sep 18 - Tue Sep 19	33	Coumarin Dyes
Wed Sep 20 - Thu Sep 21	34	Synthesis of Frambinone, day 1
Mon Sep 25 - Tue Sep 26	34	Synthesis of Frambinone, day 2
Wed Sep 27 - Thu Sep 28	14	Epoxidation of Cholesterol
Mon Oct 2 - Tue Oct 3	35	Nucleophilic Aromatic Substitution
Wed Oct 4 - Thu Oct 5	36	Substitution Kinetics
Mon Oct 9 - Tue Oct 10	37	Alkyne Formation (Preparation for projects)
Wed Oct 11 - Thu Oct 12	38	Aromatic Multistep Synthesis, day 1
Mon Oct 16 - Tue Oct 17	38	Aromatic Multistep Synthesis, day 2 (Project proposal & materials request due)
Wed Oct 18 - Thu Oct 19	38	Aromatic Multistep Synthesis, day 3
Mon Oct 23 - Tue Oct 24	15	Diels-Alder Reaction
Wed Oct 25 - Thu Oct 26	39	Halogenation of Alkanes
Mon Oct 30 - Tue Oct 31	40	Multistep Synthesis Project, day 1
Wed Nov 1 - Thu Nov 2	40	Multistep Synthesis Project, day 2
Mon Nov 6 - Tue Nov 7	40	Multistep Synthesis Project, day 3
Wed Nov 8 - Thu Nov 9	40	Multistep Synthesis Project, day 4
Mon Nov 13 - Tue Nov 14	40	Multistep Synthesis Project, day 5
Wed Nov 15 - Thu Nov 16	40	Multistep Synthesis Project, day 6
Mon Nov 20 - Fri Nov 24		(no labs)
Mon Nov 27 - Tue Nov 28	40	Multistep Synthesis Presentations
Wed Nov 29 - Thu Nov 30	40	Multistep Synthesis Presentations (Preparation for Grubbs)
Mon Dec 4 - Tue Dec 5	41	Grubbs Metathesis
Wed Dec 6 - Thu Dec 7		Checkout & final quiz

List of Sections

Lab	Days	Time	Location	TA	TA Email
410	MW	1:00 PM-3:50 PM	EKLC M1B35	Will Yi	Duk.Yi@colorado.edu
451	TR	9:00 AM-11:50 AM	EKLC M1B35	Eric Miller	Eric.Miller-2@colorado.edu
441	TR	1:00 PM-3:50 PM	EKLC M1B35	Thomas Carey	Thomas.Carey@colorado.edu

Grading

D2L: This course will use Desire2Learn or D2L, which can be accessed at learn.colorado.edu. Grades for course work will be posted here, as will a complete list of assignments and the points value for each. You can check the grades of individual items against your own records to make sure they're correct, but your course total might not reflect any excused absences or curves.

Lab Reports: For directions on how to write lab reports, see Chapter 4 in the Handbook and the example lab report on the course website. Lab reports will be graded according to the rubric which is posted on the course website and attached to the back of this syllabus. You should make sure to attach a copy of this rubric to the front of each lab report you turn in. During the spring and fall semesters, lab reports are due one week after you perform the experiment.

Quizzes: Quizzes cover assigned reading, procedures, and Experiment Manual study questions. They are given out during the first fifteen minutes of each lab; if you arrive late, you might not be given the full amount of time, or you might not be given the quiz at all. Study questions from the Experiment Manual have answers posted on the course website. You do not need to turn in the answers to the study questions in your lab reports but they are helpful for studying.

Regrades: Please keep all of the graded work that is returned to you so that it can be checked in the case of a discrepancy with your TA's grade records. If you notice a missing or erroneous grade on a quiz or lab, you must bring it to your TA's attention within two lab periods of the graded document being returned to the class, whether you are there to receive it or not. After this point, no regrades will be accepted.

Late work: If you turn in any item late, you will lose 10% of the maximum possible points per day or partial day. For instance, a 20-point assignment will have 2 points deducted for each day that it is late. This applies to each day, not just weekdays, since you still have extra time to work on the assignment that your classmates did not get. You can turn in late items to your TA's mailbox. If you need to turn in a late report during a time when you cannot access the mailboxes (for example, on weekends), you can email an electronic copy to your TA and then turn in a hard copy as soon as you have access to the building again. In this case, the assignment will be dated from the time you send the email. In order to submit final grades on time, no late work will be accepted after the final quiz for the course.

Curving: At the end of the semester, if the average grade for your lab section (excluding the students who have at least one unexcused absence) is below 85%, the average will be curved up to 85%. There is no guaranteed number of As, Bs, etc. per section. Your final letter grade will be based on the standard scale: 93% and up is an A, 90-92.99% is an A-, etc. Grades near a cutoff will not be bumped up except in extenuating circumstances, at the discretion of the lab director.

Excused Absences and Make-up Labs: All make-up labs and excused absences must be arranged through the Makeup Lab Scheduler at www.orgchemboulder.com/Labs/Makeup.shtml. Further information is included on this page. Note that your TA cannot excuse absences! If your absence is not input into the Makeup Lab Scheduler, then it will count as unexcused and you will be given a grade of zero for the lab you missed.

Cleanup Points: In the organic chemistry teaching labs you are expected to take care of the equipment and lab space that you use. Each lab period that involves a wet lab (using chemicals, not just model kits or paperwork) has 5 cleanup points associated with it, and lab checkout has 10 cleanup points associated with it.

Those points are awarded to the whole class as a group. If the lab is left in disarray after your lab section, you and everyone else in your section will lose points for each violation of the cleanup requirements. These requirements are posted at www.orgchemboulder.com/Labs/Cleanup.shtml. Each section's cleanup points will be posted on this page on a regular basis. Although it is not required, you can greatly increase your chance of getting full points by assigning cleanup to two or three students per class meeting. A sheet will be passed around during the first week to help you organize this.

Course Policies

Lab Safety Rules: You are required to follow the lab safety rules at all times or risk being expelled from the lab for the day and taking an unexcused absence. These rules are given in Chapter 1 of the Lab Handbook.

Lab Drawers: You are accountable for the contents of your lab drawer throughout the semester. Further information is given on the lab drawer check-in sheet you will use during the first lab session.

Pregnancy and Chemical Exposure Notice: Pregnant students should be aware that there are risks associated with the development of the embryo and fetus from exposure to certain chemicals. Likewise, students with certain medical conditions could also experience an adverse effect from exposure to chemicals. The Department of Chemistry recommends that you discuss the Organic Chemistry chemical list, procedures, and required safety precautions with your physician. The Department of Chemistry will work with you to discuss possible options regarding meeting the requirements of the course. Please contact the instructor of your course to discuss these options and any questions you may have.

Required Texts and Supplies:

- *Experiments for Organic Chemistry 2 Lab for Majors (CHEM 3381), Fall 2017*
- *Handbook for Organic Chemistry Lab, 11th Edition*
- Carbon or carbonless laboratory notebook (OK to reuse a notebook from previous courses)
- Approved safety goggles or glasses
- Organic chemistry model set

All of these items are available at the campus bookstore, and the handbook is also on reserve at the library. Please note that due to the large number of recent changes to the organic labs, **older versions of the handbook and experiment manual are not acceptable substitutes.**

Organic modeling kits from various different manufacturers are available for lower cost online, but whichever kit you purchase, you should make sure it has at least 10-15 carbon atoms (they are usually the ones made of black plastic).

The website for this course is www.orgchemboulder.com. This website also contains a large amount of supporting information including photos and videos of lab techniques being performed, and is a useful supplement to the Handbook.

Prerequisites and Corequisites: Students enrolled in CHEM 3381 must also be enrolled in CHEM 3471 or 3491, unless they have already passed one of these courses. They must also have passed CHEM 3451 and 3361, with a grade of C- or better in both courses. Failure to meet this requirement will result in being administratively dropped from the course. Exceptions will be determined by the Lab Director.

Add/Drop: Students who do not attend the first laboratory session may be automatically dropped from the lab or the lecture to make room for people on the wait list. It is your responsibility to know your schedule and

to make changes accordingly. Information regarding drop/add deadlines can be found at <http://www.colorado.edu/registrar/students/academic-calendar/registration-calendar>.

Email Policy: Announcements from your TA or Lab Director will occasionally be sent to your official CU email address, via the roster emailing system. It is your responsibility to check your CU email account frequently. You may set up email forwarding from your CU account to another email address if you prefer, but you do so at your own risk. If you suspect your email account is not working properly, you must contact CU's tech support at help@colorado.edu and make sure it is in order. Missed email will not be considered a valid excuse for missing or incorrect assignments. See full details at <http://www.colorado.edu/policies/student-e-mail-policy>.

Disability Accommodations: If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website (www.colorado.edu/disabilityservices/students). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website and discuss your needs with your professor. This course requires the use of two chemistry-specific software packages, ChemDraw and MestreNova, which are currently not accessible to users using assistive technology or have not yet been reviewed fully for accessibility. If you use assistive technology to access the course material, please contact your faculty member and Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu as soon as possible to discuss other effective means for providing equal alternate access.

Religious Observances: Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, absences for religious reasons will be handled the same way as any other excused absence. See the campus policy regarding religious observances (<http://www.colorado.edu/policies/observance-religious-holidays-and-absences-classes-andor-exams>) for full details.

Classroom behavior: Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on classroom behavior (<http://www.colorado.edu/policies/student-classroom-and-course-related-behavior>) and the Student Code of Conduct (<http://www.colorado.edu/osccr>).

Discrimination and Harassment: The University of Colorado Boulder (CU Boulder) is committed to maintaining a positive learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct, discrimination, harassment or related retaliation against or by any employee or student. CU's Sexual Misconduct Policy prohibits sexual assault, sexual exploitation, sexual harassment, intimate partner abuse (dating or domestic violence), stalking or related retaliation. CU Boulder's Discrimination and Harassment Policy prohibits discrimination, harassment or related retaliation based on race, color, national

origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been subject to misconduct under either policy should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127. Information about the OIEC, the above referenced policies, and the campus resources available to assist individuals regarding sexual misconduct, discrimination, harassment or related retaliation can be found at the OIEC website (<http://www.colorado.edu/institutionalequity>).

Honor Code: All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the academic integrity policy (<http://www.colorado.edu/policies/academic-integrity-policy>). Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, resubmission, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code Council as well as academic sanctions from the faculty member. Additional information regarding the academic integrity policy can be found at the Honor Code Office website (<http://www.colorado.edu/honorcode>).