

**Chemistry 2085, Sections XXX - XXX**  
**Chemistry for the Life Sciences, Semester 3 Lab**  
**Fall 2017**

**Instructor:** Dr. Angela Perkins

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**Website:** All class information will be posted on the course website - access through <https://moodle2.umn.edu/>

**Office Hours:** See Moodle Site, as dates/times will be set after the first week of the semester. If office hours don't work for you or you want to be sure to chat one-on-one, please email to set up an appointment.

**General Course Information:** CHEM XXXX is the accompanying lab for CHEM XXXX, which is the third semester in a three-semester sequence of courses designed to provide a strong chemistry background for students pursuing degrees and careers in the life sciences. Upon completion of this course, the desired outcome is that the student (1) can identify, define and solve problems; (2) can locate and critically evaluate information; (3) has mastered a body of knowledge and mode of inquiry; (4) can communicate effectively; and (5) has acquired the skills for effective and life-long learning.

**Required Materials:**

- Internet capable laptop or tablet\*
- Course content provided through the class Moodle site and LabArchives
- Jerry R. Mohrig, David G. Alberg, Gretchen E. Hofmeister, Paul F. Schatz, and Christina Noring Hammond, "Laboratory *Techniques in Organic Chemistry*", 4<sup>th</sup> Ed.; W.H Freeman and Company, New York, **2014**.
- Splash proof goggles. Goggles will be available for purchase the first day of lab during check-in (standard quality \$X.XX or Univex higher quality for \$XX.XX) or you may use a pair that you retained from another U of MN course. Your TA must inspect all other goggles before use.

**Optional Materials:** Though not required, it is recommended that a laboratory coat be worn to protect both you and your clothing while doing experimental work. The laboratory coat should be 100% cotton (NOT a polyester blend – check the label carefully) and of the appropriate size so that sleeves do not extend beyond wrists. Laboratory coats are available for purchase in the medical section of the Coffman bookstore for \$22-25. Try on the coats hanging on the racks to be sure to purchase the correct size.

**Emails:** My email is the primary source of contacting me outside of lecture and lab. If you are ill or have an emergency situation, email me as soon as possible to let me know what the circumstances are so that I can best address the situation with you and your TA. Please copy or include the name of your TA on all relevant correspondences. Please be respectful of my email and look at the course Moodle site for answers to common questions.

**Dress Code:** You must be wearing approved safety goggles and have all skin covered from the chest down in order to participate in the laboratory. If you do not come to lab dressed appropriately, with goggles, you will be asked to leave and will not have the opportunity to make-up the experiment. Please see the full dress code and safety goggles information posted on the lab website.

**Safety:** Each student is expected to follow all safety protocols/information found in the class LabArchives and on the Moodle site. In addition, a contract confirming your understanding of the safety rules, waste handling and other important protocols of the course will be given and your signature is required before any laboratory work can be performed.

Any student found performing unauthorized experiments or behaving in an unsafe manner in the laboratory may be removed from the laboratory at any time. Whether or not behavior is unsafe is at the discretion of the instructors, and this includes failure to properly respond to instructions in a timely manner. Removal from this laboratory may be for a period of time as short as the remainder of the current lab period or as long as the remainder of the course itself, depending on the circumstances.

**Waste Disposal:** It is extremely important that each and every student disposes of their chemicals in the proper manner according to the Waste Disposal instructions given at the end of each experiment and summarized on the Moodle site. Improper handling of waste will initially be reflected in a low technique grade and repeated offenses will warrant removal from lab and a zero for that day's experiment.

**Website:** All course information, including the syllabus will be posted on the course Moodle website. You can access this site through <http://myu.umn.edu>. You will find many useful links and information here.

**Grading:** Your grade for this course will be based on the sum of the points earned from the following assignments and quizzes.

Lab Reports (13)	875 points (70%)
Preparation and Notebook	150 points (12%)
Technique	100 points (8%)
Discussion	<u>125 points (10%)</u>
<b>Total:</b>	<b>1250 points</b>

In this course, it is expected that 30% of the students will earn an A or A- (evenly divided), ~40% B's (B+/B/B-), and ~20% C's (C+/C/C-). **The overall class average for this course will be a grade of a B.**

Lab Reports: The results of the 13 experiments will be reported in the format of a laboratory report. All reports are to be turned in at the beginning of the designated lab period. Formal lab reports must be turned in to the TurnItIn link found on the course Moodle site. Late points will be docked for failure to submit your report before the due date.

All written work should represent your own original data (from your experimental notebook) and scientific interpretations, whether the experiment was done individually, in pairs or in a group. On the Moodle site you may find any extra directions given for specific lab reports. For lab reports, it is preferred that chemical structures be drawn using ChemBioDraw available through a University of Minnesota site license or another drawing program. Instructions for downloading this software are posted on the Moodle site. This program is also available on the computers that are available for use in 103 Walter Library for your convenience. Optionally, chemical structures may be drawn by hand.

Preparation and Notebook: It is extremely important to come to lab prepared for each experiment. You can then work safely and efficiently and with understanding of the chemical principles or techniques being studied. Notebook preparation is described on the course Moodle site. For random experiments, your TA will evaluate your preparedness and grade your notebook pages. Additionally, the notebook is not only essential for preparation but also for recording all data and observations during an experiment. The course Moodle site also offers suggestions on how to organize your notebook for recording data such as properties, reaction times, color changes etc. during lab work. At the completion of lab on random days, notebook pages will be turned in for grading and checked for accuracy.

Technique: TA's will observe and grade your technique when working in the lab. This includes safety, the proper handling of waste, the ability to setup apparatus correctly, perform the required techniques and the ability to make/react to scientific observations. Students who do not follow procedures, are irresponsible with their waste

handling, or are unsafe will earn lower technique grades for each experiment. Additionally, repeated tardiness to lab will also be reflected in the technique grade.

*Discussion:* On multiple occasions during the semester, time will be devoted in lab for sharing data and discussing results. You will be graded on your participation and contribution to the discussions.

**Attendance:** Attendance in lab, for the entire lab period, is required. Missing more than 15 minutes of a lab period will be considered an absence. In the case of a true emergency, serious illness, or university-related trip that prevents a student from attending a lab meeting, an **excused absence may be granted**. To obtain an excused absence, students must contact the Instructor, as soon as circumstances allow, to discuss the nature of the emergency, and eventually to provide documentation. **ONLY ONE** excused absence will be granted during the course of the semester. If extenuating circumstances prevent a student from attending more than one lab period, a meeting must be scheduled immediately with the Instructor to discuss any options available.

If you are more than 15 minutes late to lab, you will be asked to leave. This will be considered an unexcused absence and you will receive a zero for that day's experiment.

**Makeup Policy:** Missed experiments can be made-up only for valid reasons with instructor approval. There is one makeup day scheduled at the end of the semester, which can be used to complete any experiment missed for valid reason. **You may not simply choose to miss a lab and plan to make it up on the makeup day. You must have a valid excuse for missing the regularly scheduled experiment time.** Work completed on makeup days is due on the final lab day. See TA for specific due date.

**Late Work:** All assignments are to be turned in at the beginning of the designated lab period or points will be deducted. Your assignment will be deducted 10% of the total points per day (including weekends). If an assignment is turned in late it should be given directly to your TA or placed in the lock box outside of 115 Smith Hall, designated for this class. You are responsible for contacting your TA to let them know that your assignment is located here. *Failure to send this email means that your assignment will continue to rack up late point deductions.*

**Scholastic Dishonesty** – “The College of Science and Engineering assumes that all students who enroll in its programs are serious about their education and expects them to be responsible individuals who demand of themselves high standards of honesty and good personal conduct.” – College of Science and Technology ([http://cse.umn.edu/services/advising/CSE\\_CONTENT\\_188716.php](http://cse.umn.edu/services/advising/CSE_CONTENT_188716.php))

Any act of scholastic dishonest is regarded as a serious offence and is not tolerated. As applied to CHEM XXXX, this means that copying lab reports or falsifying data will not be tolerated. Altering a report and then submitting it for a re-grade is also an act of scholastic dishonesty.

*Partner Work* – Throughout the semester you are asked to work in groups or pairs. It is expected that you will share the data, but all interpretations should be your own. Be sure to reference any source material that you used to answer questions, such as textbooks or Mohrig, and be careful to either rephrase in your own words or to correctly use quotation marks when appropriate.

*Turnitin.com* – It is required that all lab reports for this course be submitted to the Turnitin plagiarism prevention program on our Moodle site. This program analyzes each report for content matching with data and reports from students currently in the course, those from previous semesters, and Internet sources. Please note that the software not only recognizes text that is copied from another report but also the ChemDraw files or graphics; which is not permitted.

**A student guilty of scholastic dishonesty will be awarded a grade of zero (0) for the assignment involved and the incident will be reported to the Office for Student Academic Integrity. In the case of serious or repeated offenses an “F” will be given for the course.**

**Disability Resource Center:** Students with special needs should contact the Disability Resource Center (<https://diversity.umn.edu/disability/>), which will provide a letter to share with the instructor on how those needs shall be accommodated. If you have a University documented disability that requires accommodation, you must notify the instructor in writing (email is preferred) during the first week of lab. At that point a meeting between the instructor and student will be held to determine the implementation of reasonable accommodations.

**Problems:** Your TA will be happy to discuss questions and concerns with you. However, if there is an issue that you do not feel you can discuss with your TA, please contact the instructor and they will help resolve the issue.

**Policy Statements:**

**Overlapping and Back-to-Back Courses:** Enrolling in overlapping or back-to-back courses that do not allow for enough travel time to arrive at our class meetings on time is prohibited. For more information see: <http://policy.umn.edu/Policies/Education/Education/Overlappingclasses.html>

**Student Conduct Code:** As a student at the University you are expected to adhere to the Board of Regents Policy: Student Conduct Code. To review this policy see: [http://regents.umn.edu/sites/regents.umn.edu/files/policies/Code\\_of\\_Conduct.pdf](http://regents.umn.edu/sites/regents.umn.edu/files/policies/Code_of_Conduct.pdf)

**Student Mental Health and Stress Management:** As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student’s ability to participate in daily activities. University of Minnesota services are available to assist you with addressing these and other concerns you may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via <http://www.mentalhealth.umn.edu/>.

**Teaching and Learning:** The materials provided in this course are intended only for the students officially enrolled in this section and are to be used to learn and practice the course material. Disseminating class notes, videos, exams, etc.... beyond the classroom community or accepting compensation (in the form of cash or trade, such as access to study website) undermines instructor interests in their intellectual property while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community and are not allowed. For additional information please see <http://policy.umn.edu/Policies/Education/Education/Studentresp.html>

**Sexual Harassment:**

<http://regents.umn.edu/sites/regents.umn.edu/files/policies/SexHarassment.pdf>

**Equity, Diversity, and Equal Opportunity:**

[http://regents.umn.edu/sites/regents.umn.edu/files/policies/Equity\\_Diversity\\_EO\\_AA.pdf](http://regents.umn.edu/sites/regents.umn.edu/files/policies/Equity_Diversity_EO_AA.pdf)

## Lab Schedule:

<b>Week</b>	<b>Experiment</b>
1	Lab Syllabus, Check-In
2	IR & NMR Tutorial
3	UV-Vis – Spectrophotometric Analysis of a Fluorescent Compound  Synthesis of a Fluorescent Compound
4	Isolation of Essential Oils from Plants
5 & 6	Synthesis of $\alpha$ or $\beta$ -D-Glucose Pentacetate to Investigate Kinetic and Thermodynamic Control
7	Green Oxidation of Borneol to Camphor
8	Size Exclusion Chromatography – Identification of an Unknown Protein
9	Biodiesel
10	Enzymatic Reduction: A Chiral Alcohol from a Ketone
11	Electrophilic Aromatic Substitution
12 & 13	Combinatorial Chemistry: Antibiotic Drug Discovery
14	Makeup Lab  Checkout