

Organic Chemistry

Carol Libby 213 Collier Hall of Science 610-861-1629 (ext. 1629) cllibby@cs.moravian.edu	Class Hours MWF 9:10-10:00 Tues. 9:10-10:00 PPHAC 117	Office Hours Mon. 10:15AM -> 11:15 AM Tues. 10:15AM -> 11:15 AM Wed. 11:30AM -> 12:30 PM Fri. 11:30AM -> 12:30 AM And by appointment
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Required Materials

- *Organic Chemistry: A Guided Inquiry*, Andrei Straumanis, 2004, Houghton Mifflin [workbook]
 - *Organic Chemistry*, 8th edition, Solomons & Fryhle, 2004, Wiley [S&F]
 - *Operational Organic Chemistry: A Problem-Solving Approach to the Laboratory Course*, 3rd edition, Lehman, 1999, Pearson/Prentice Hall [Lehman, long]
- or
- Student Companion: Laboratory Techniques for Organic Chemistry*, Lehman, 2003, Pearson/Prentice Hall [Lehman, short]
- Molecular model kit for building organic molecules such as the Orbit Foundation Molecular Model Set sold in the bookstore
 - 3-ring binder to serve as “Concepts Notebook”
 - 1.5 inch, 3-ring binder with hard cover and inside pocket fitted with at least 6 tab dividers to serve as laboratory “data binder” [You must have two 3-ring binders—one for concepts, the other for lab data.]
 - Lab notebook, which must be hard cover, permanent (not spiral) bound and fit in the inside pocket of data binder
 - Goggles will be available in the lab, but if you wish to purchase your own, they must be similar to those provided—i. e. fit tightly against the face all around to provide protection from splashes and fumes

Goals of the Course

The goals of Chemistry 211 are for students to:

- Identify bonding patterns and structural features that are responsible for reactivity and physical properties of organic compounds
- Learn details of reactions of organic compounds, specifically acid-base, substitution, addition, elimination, and free radical
- Name organic compounds
- View data, analyze trends, draw conclusions from data and apply these conclusions in different contexts
- Learn lab procedures to purify organic compounds and separate them from a mixture
- Use instruments to identify and characterize organic compounds
- Acquire accurate and timely record-keeping practices in the lab
- Learn best practices for safeguarding the health and well-being of self, lab mates and the environment by properly handling lab materials
- Develop effective personal strategies for working productively in teams to accomplish a common goal
- Be able to organize and present lab data, both verbally and in writing, to support conclusions of experimental findings
- Become proficient in the use of reference materials and on-line databases to find technical information about chemicals

Format and Philosophy

The purpose of a science class should be to teach students how to be scientists. So, what is a scientist? A scientist is a person who can look closely at a new situation, construct logical conclusions based on observations, and communicate the basis of those conclusions with peers. Notice that interaction with others is crucial to making forward progress in science. Furthermore, research scientists very rarely make major discoveries on their own; rather they function as part of a collaborative group where communication skills and teamwork are essential. Chemistry 211 is designed so that you learn organic chemistry like a scientist: during class you will work in a group examining data, draw conclusions based on this information, and test your conclusions in new situations, that is by completing workbook and textbook exercises.

The approach we will use to learn organic chemistry is called “process oriented guided inquiry learning (POGIL)” and is based on the constructivist theory of learning developed by cognitive psychologists. If you are interested in learning more about this pedagogy, read pages viii (bottom half)-x in workbook, the “Philosophy” file posted on our class Blackboard site, and information found at <http://www.pogil.org/>.

Perhaps you can understand why this student-centered active-learning approach makes sense by considering a sports analogy. Imagine a coach who spends the entire lesson demonstrating good techniques but never lets her students try out their skills on the court. Would you want that person for a coach? We learn by *doing*. This class is about *doing* organic chemistry yourself. We will be working on problems each day in class. If you don't get something right the first time, your classmates and I will be there to critique your form and help fix what's going wrong. Research has found that at its best, organic chemistry is like a team sport. Like real organic chemists, you will be working in groups. The better your team works together, the more successful each individual will be.

Lab

You will be provided with a “Chem 211L Organic Laboratory Techniques” manual that includes laboratory exercises, lab policies, and the lab calendar of activities and deadlines. The Tuesday 9:10-10:00 AM class will serve as the “lab lecture” for the week's lab work.

Evaluation

Hour Exams	300 points	100 points each on 9/27, 10/25, and 11/29
Quizzes	198 points	most class days
Final Exam	175 points	
Lab	250 points	
Group work & participation	<u>77 points</u>	
	Total = 1000 points	

Your final grade in the course will be based on the number of points you earn, >900 points=A-, >800 points=B-, >700 points=C-, >600 points=D-, < 600 points=F. The points required for a letter grade *may* be adjusted downward. Final grades will include +'s and -'s. The approximate points earned - letter grade correlation will be announced after each hour exam.

Hour exams will be given during class period on these Wednesdays: September 27, October 25, and November 29. Mark your calendars now. I do not intend to change the exam dates. Each exam will specifically test class material covered since the previous exam. However, since the nature of chemistry is cumulative I will assume that you have mastered past material. Concepts covered in labs will also be tested. No make-up exams will be administered. If an exam is missed without a valid excuse, verified by the Health Center or student services, the exam grade will be zero. The grade for an excused exam will be determined by the grades earned on the remaining exams (including the final); i. e. more value will be added to subsequent exams.

There will be about 36 quizzes, each worth 6 points, given at the beginning of class on days marked in the “Important Dates Calendar.” The three lowest quiz grades will be dropped. Quizzes will be on material covered in the ChemActivity worked on in the previous class. Quizzes will be 5.0 minutes long. You will not be excused from any quizzes; there are no make-up quizzes. A quiz missed for any reason will count as one of your “dropped” quizzes.

The final exam will be held during finals week (Dec. 13-19) at the time and place scheduled by the registrar. The exam will be comprehensive, but material covered since the last hour exam will be more heavily emphasized.

The basis for lab evaluation is given in the “Chem 211L Organic Laboratory Techniques” manual.

The 77 points for group work and participation will be based on: your group’s responses to questions and presentations in class, your group’s daily Recorder’s and reflector’s reports, your individual contributions to class discussions, your “Concepts” notebook, and your individual contribution to the overall positive learning environment of your group and the course as a whole. Group work and participation points will be distributed 4 times during the semester, after each exam.

Attendance

- Attendance at M, T, W, and F *class meetings* is *expected*. If you are absent from class, you will not receive any group work points earned by your group that day and you will get a zero on the quiz, if there was one given. Tuesday absence will negatively affect your lab grade.
- Attendance at *lab* is *mandatory*. If an emergency or illness occurs and you must miss lab, inform me *as soon as possible* (email or phone/voice mail), preferably before lab. If you are excused from a lab, *you* are responsible for arranging a make-up with me at the time the excuse is granted. Make-up labs are during regularly scheduled lab times (T, Th, F). Student athletes who will miss lab to travel to away events must arrange their lab make-up *before* they are absent.
- Attendance at *exams* is *required*. If you must miss an exam because of illness or emergency, inform me ahead of time (preferably by email or phone/voice mail). Failure to do so may result in a grade of zero for the missed exam.
- Travel schedules for weekends or breaks are not valid excuses for class, lab, exam, or quiz absence.

Course Outline

See attached “Class and ChemActivity Schedule” and “Important Dates Calendar”

Academic Honesty Policy

Progress in science requires ethical integrity among its practitioners and you are expected to meet that standard in this course. Evidence of plagiarism and cheating will be dealt with in accordance with the college policy on academic honesty found in the Student Handbook (<http://www.moravian.edu/studentLife/handbook/academic2.htm>). You are expected to be familiar with and follow the rules spelled out in the Student Handbook. In the event of a suspected infraction – in fairness to your peers and the standards of the college – it is my job to send the materials in question to the Academic Dean’s Office at which time you are given the chance to provide your perspective on the matter.

Cheating occurs when you receive unauthorized verbal or written help from others, including from other students who have completed the course; however, Chemistry 211 does require you to work productively with peers, both in the classroom, where daily group reports are required, and in the laboratory, where collaborative work is necessary. You are also strongly encouraged to work with classmates outside of class—keeping up on a daily basis, as well as studying for quizzes and exams. You are also allowed to discuss lab reports and pre-lab assignments with class peers. But in any case where you submit work as an individual, it must reflect your data and your understanding of how to solve the problem or answer the question. Any work you turn in (including quizzes, exams, prelab assignments and lab reports) must be written in your own words; merely copying from others is not acceptable. In cases where submission of group data is required, you must reference classmates’ lab records. If you are uncertain about whether something is considered cheating or not, ask me for clarification.

During quizzes and exams, spread out in the classroom as much as the desk set-up allows. When students are too close, unintentional glances are hard to avoid. Time that I have to spend policing this policy will be taken from the time allotted for the quiz or exam.

If you believe that there are situations in the course that foster academic dishonesty, please bring them to my attention. Likewise, if you have observed cheating, bring the details to my attention as soon as practical. Insofar as it is possible, your anonymity will be protected.

Communications

- The Chem 211 Blackboard site is where all class announcements will be posted. You must check it daily for changes and updates to assignments. The course syllabus and other documents will also be posted there. You are required to log in to the Blackboard site after the first class.
- From time to time I will want to communicate with you individually by email, so following the first class period, you must send me an email with the email address you want me to use, the one you will check regularly; this should be the same one you use on the class Blackboard site. If this address changes during the semester, it is your responsibility to inform me.
- All email communications must follow this format for the header "Subject" line: Chem 211-your last name-few words indicating reason for email, for example, **Chem 211-Smith-9/23 lab**. If your name is not on the subject line, I will return the message unread. Also don't forget to sign each email with your name. Knowing that the message comes from stfwm02 is not helpful.
- I look forward to working with you during office hours. Bring your "Concepts Notebook" with you if you are looking for general or specific help, as it will give me a view of your study strategies. Sometimes I work in our lab during office hours. Please look for me there if I'm not at my desk.
- I work hard to evaluate each student fairly. If you have a question or concern about a grading issue, see me during office hours or make an appointment to talk to me about it. Immediately before or after class are not good times for these discussions.

Classroom and Outside-of-classroom Patterns

- The majority of class time will be spent working in self-managed groups of four or five students. I will assign group membership and reshuffle groups on a regular basis. Group member roles and responsibilities are described in the "Group Work" handout.
- Each class will begin with a 5.0-minute quiz, individually taken, covering material from the previous class. When you enter class, sit at your group table and be ready to start the quiz at 9:10. If you are late, you will not get extra time for the quiz.
- The quiz is followed by group work on a ChemActivity. During this time I will walk around class, observe, ask and answer questions. You must bring your workbook to class every day. If you don't have it and are not writing in it during class, your group work & participation grade will suffer. During class periods, group work may be interrupted for group reports, brief whole-class discussions, or mini-lectures. You must pause group work for these discussions.
- Between 9:50 and 9:55, I will stop group work to give you time to prepare your group's recorder's and reflector's reports as well as your personal "Concepts" summaries.
- You must complete each day's ChemActivity sheet, including the exercises at the end of the activity and the assigned readings and problems in S&F before the next class period, as they will form the basis of the 5.0-minute quiz. Specific quiz coverage will be posted on Blackboard by 12 hours after class.
- You are strongly encouraged to work outside of class in groups. Studies show that most successful students do much of their homework in a productive group environment and that most students who fail are working alone.
- You should spend outside of class time maintaining your "Concepts Notebook," which will be spot-checked or randomly collected several times during the semester. The minimal requirement for this document is a completed "Today's Main Concepts" sheet for each class

period. It is highly suggested that you use this binder to store and organize all classroom-related materials. A suggested organization might be to group each day's work as follows: "Today's Main Concepts" sheet, any notes taken during class, worked out ChemActivity exercises, worked out problems from Solomons & Fryhle. These might be ordered in chronological or reverse chronological order.

Additional Information

- Turn off cell phones during class.
- This syllabus outlines the policies for the course. You are responsible for understanding them. Any changes in course policy will be announced in class or on the class Blackboard site.
- Any student who wishes to disclose a disability and request accommodations under the Americans with Disabilities Act, (ADA) for this course MUST first meet with either Mrs. Laurie Roth in the Office of Learning Services (for learning disabilities and/or ADD/ADHD) or Dr. Ronald Kline in the counseling Center (for other disabilities).