

Course Information Sheet

Instructor: Brian Edelbach
Office: Room 8-238 Phone 292-2391
Electronic mail: bedelbach@monroecc.edu – please feel free to contact me via email if you will miss class or lab. *Unless previously arranged, no assignments will be accepted via email.*

Office Hours: Mon. 11-12, Tues. 10-11, Wed. 9-10, Wed. 5-6, Fri. 11-12.

I am in my office a great deal of time. *Please feel free to come by and see me*, I will help you then or arrange another time to meet with you.

Many of the course handouts can be found on the course web site. The course web site can be found at <http://web.monroecc.edu/bedelbach/>

2. Course Materials:

1. **Organic Chemistry** (5th edition) by Paula Bruice (Prentice Hall)
2. **Solutions Manual and Study Guide** for Bruice's text
3. Molecular Model Kit for organic chemistry (recommended)
4. **Techniques in Organic Chemistry** (2nd edition) by Mohrig, Hammond, and Schatz
5. **Organic Chemistry Laboratory Manual** by B. Edelbach & J. Cullen
6. Approved **safety goggles**

3. Course Description:

CHE 251 is the first semester of a two semester sequence in organic chemistry. The principles of bonding, molecular structure (with an emphasis on the three-dimensional aspects of structure and stereochemistry), polarities and acid-base properties are reviewed in CHE 251. These principles are extended to organic compounds and their reactions. The course concentrates on organic reactions and their mechanisms. The relationship between molecular structure, properties and reactivity is emphasized throughout the course. Topics discussed include classes of organic compounds and nomenclature, thermodynamics and kinetics, addition reactions of alkenes and alkynes, stereochemistry, resonance and electron delocalization, aromaticity, and electrophilic aromatic substitution reactions.

The laboratory introduces the basic separation, purification, reaction and structure determination techniques of organic chemistry on the microscale level. Spectroscopic methods of analysis are emphasized. In CHE 251 ultraviolet/visible, infrared and proton NMR spectroscopy are discussed and used in the laboratory.

4. Course Learning Outcomes:

Upon successful completion of CHE 251 the student will be able to:

- Assign IUPAC names to simple alkanes, alkenes, alkynes, alkyl halides, and alcohols. Draw the structure of an alkane, alkene, alkyne, or alkyl halide from an IUPAC name.
- Demonstrate an understanding of the key principles of atomic and molecular structure, chemical bonding, molecular geometry, conformational analysis, and stereochemistry.
- Predict reaction products of an organic reaction from given starting materials and reagents.
- Provide the necessary starting material and/or reagents required to produce a given organic product.
- Design multistep (3 or 4 steps) synthesis for organic compounds using retrosynthetic analysis.
- Propose reasonable reaction mechanisms for a given reaction using curved arrow notation.
- Generate the complete structure of simple unknown organic compounds using UV/Vis, IR and proton NMR spectroscopy.
- Perform microscale organic reactions and determine product identity, purity and percent yield.
- Purify products from a chemical reaction using extraction, recrystallization, and sublimation.
- Write formal lab reports to convey results of experiments in a clear, logical manner.

5. Prerequisites:

The prerequisite for CHE 251 is a grade of **C or better in CHE 152** (or the equivalent course at another college). Please see me if you are not sure if you meet the prerequisite.

6. Attendance and Withdrawal Policy

Attendance will be taken at all classes and laboratories. *Three or more absences* may result in your being withdrawn from the course. *Please contact me if you are absent or anticipate being absent* for several classes. If you decide to drop the course, please obtain a Student Initiated Course Withdrawal Form from Records and Registration and bring it to me to sign. The withdrawal deadline is approximately four weeks before the end of classes. Please see the MCC Student Handbook and Course Catalog for the exact dates and additional information on academic regulations at MCC.

7. Academic Honesty

Written work (exams, lab reports and quizzes) turned in should be entirely your own work *unless specified otherwise*. You should cite material taken from other sources used in writing your lab reports. Instances of plagiarism or cheating will be dealt with as directed by the MCC Code of Conduct as indicated in the MCC Student Handbook and Course Catalog

8. Emergency Closings and Class Cancellation

All Rochester area radio and television stations will be notified no later than 5:30 a.m if the College is closed due to an emergency or inclement weather. In addition, the homepage on the MCC

website (www.monroecc.edu) will display a message indicating the College is closed. Please do not call the College to avoid overloading the telephone lines.

Class cancellation information is available daily on the web or through the telephone. Simply go to the MCC website (www.monroecc.edu) and under the “Quick Links” window on the homepage, click on “Class Cancellations”. Additionally, class cancellation information is available by dialing 292-2066, press “1” for the Brighton Campus and “2” for the Damon Campus. If possible, please use the web as there could be delays in the voice recordings based on the number of cancellations.

9. Learning Centers

MCC has a number of learning centers which are staffed with instructional personnel and may be equipped with computers. Additional information on learning centers is available in the Brighton Learning Center in Room 11-106 and the Damon Learning Center in Room 4071.

The Natural Sciences Education Center is in Room 9-129 and is staffed by tutors and faculty volunteers (hours are posted outside 9-129 about the second week of the semester).

10. Workshops:

There will be weekly problem-solving workshops lasting about 90 minutes that will be scheduled the first week of the semester and will start meeting the second week of the semester. You will be working in a group of approximately 6-8 students (size may vary according to the number in each lab section) on a set of problems designed by your instructor. The workshop problems will often be challenging problems that will require you to use higher-order thinking skills including reasoning by analogy, synthesis, data analysis, etc. The workshops will be led by a peer leader, usually a student who has taken the course previously and done well. The purpose of the peer leader is **not** to supply the answers to questions (in many cases the questions are open-ended and do not have just one correct answer), but to help guide the group in arriving at a better understanding of organic chemistry. It would behoove you to participate in the workshops since similar problems may appear on exams.

You will be given a sheet on which you will be asked to list your preference of times for workshop sections. Every effort will be made to give you your first choice, but it may not be possible depending on the choices of other students and availability of peer leaders. If you can't attend your assigned workshop one week, you should try to go to another workshop. Times and locations of workshops will be posted outside the organic lab (7-115) and Prof. Edelbach's office (8-238).

11. Grading Policies:

Course grades will be assigned at the end of the course based on the weighting scheme below. There may be minor changes in the grading scheme which will be announced in class.

a. **Exams (500 pts)** – There will be *four* hour exams, one approximately every 3-4 weeks, each worth 100 points and a *cumulative final exam* which will count twice at the end of the course. In determining your course grade one exam grade will be dropped. If your lowest exam grade is an

hour exam, it will be dropped. If your lowest exam grade is the final exam, it will count only once (i.e. 100 points rather than 200 points).

The dates of the exams and material to be covered will be announced in class a week or more ahead of time. Many of the hour exams will have 2-5 bonus points or extra credit which you can earn.

Make-up Policy: *No make-up exams will be given.* Since one exam grade will be dropped, a missed exam will count as your dropped grade.

b. **Quizzes (ca. 100 pts.)** – Take-home quizzes will be given approximately once a week, each of which will be worth approximately 10 points. The due date for each quiz will be announced in class. The quiz must be handed in at the **beginning of the period** on the due date. If a quiz is handed in at any other time on the due date, a maximum of ½ credit can be earned. No credit will be given for quizzes received after the due date. *You may work with other people on the quizzes.* No make-up quizzes will be given, but it is expected that there will be about 13 quizzes during the course of the semester and only the highest 10 will be counted.

c. **Laboratory Grade (ca. 200 pts)** – Lab grades are based mainly the pre-lab questions and on the quality of written lab reports and your experimental results. Lab reports are to be written up in a manner that will be discussed during the second lab meeting and is outlined in the Organic Chemistry Laboratory Manual. Unless otherwise stated, laboratory reports are due at the **beginning of the lab period following** completion of the experiment. Lab reports that are *late are assessed a penalty of one point per day.* No credit will be given if a lab is more than *seven* days late. Lab reports are worth 10 to 30 points depending on the length and complexity of the lab, you must arrange with your instructor a time to make up the lab (usually another regularly scheduled CHE 251 lab). Pre-lab questions will also be distributed; they are due at the **beginning of the lab period** on which the lab is performed. *No credit will be given for late pre-lab questions.*

NOTE: You must successfully complete the laboratory to receive a passing grade in CHE 251. *Consequently, if you miss more than two labs you cannot expect to pass this class.*

In determining the final grades I will total the number of points you have earned in each of the three categories above and divide the total by the maximum possible. Your course grade is then assigned as follows:

<u>Grade</u>	<u>Percent</u>
A	93.0 and above
A-	90.0-92.9
B+	87.0-89.9
B	83.0-86.9
B-	80.0-82.9
C+	77.0-79.9
C	73.0-76.9
C-	70.0-72.9
D+	67.0-69.9
D	63.0-66.9
D-	60.0-62.9
F	below 60.0