Chemistry 242
Organic Chemistry II

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Required Materials: Organic Chemistry, 9th edition by Francis A. Carey and Robert M. Giuliano; Safety Goggles; Laboratory Notebook; Calculator

Office Hours: MWF 1-3 pm. You are welcome to see me at other times, and may schedule an appointment if you are unable to see me during office hours.

Class Web Site: follow the link at http://swathen.sienaheights.edu

Course Description: A continuation in the study of the structure of organic molecules, their stereochemical and spectral properties, and their reactions. Special attention is given to the mechanisms of reactions. The major groups of biological molecules will also be studied, focusing on their structure, reactions and biological roles.

Course Objectives:
Be able to describe structures, systematic names, and physical properties of organic compounds.
Be able to demonstrate a knowledge of the different reaction mechanisms and how they take place.
Be able to predict the products of reactions, and use your knowledge of these reactions to design the synthesis of new molecules.
Demonstrate both theoretical and practical knowledge of laboratory techniques for synthesis, purification and identification of organic compounds.

Learning Outcomes in Chemistry
The Chemistry faculty of Siena Heights University expects students taking classes in chemistry to:

1. have a general knowledge of the language of chemistry.
2. be able to communicate orally and in writing about chemistry.
3. know, understand and apply the scientific method (including laboratory skills necessary to the task.)
4. be able to solve problems, both theoretical and practical.
5. to understand the organization of the scientific literature and be able to use it effectively.
6. to have an understanding of the role and impact of science in modern society, as well as the functions and responsibilities of scientists.

While you are not expected to have mastered these outcomes until you are finished with the major, this course is geared toward helping you to achieve these goals eventually. In this course we will make progress towards all of these criteria. You will be communicating what you know about chemistry when you ask questions and complete exams and assignments. You will be demonstrating your knowledge, understanding and application of science in lab, realizing of course that science is empirical as well as experimental.

Throughout the course you will be faced with solving problems, both theoretically and practically. In order to better understand chemistry you will be reading selected articles from scientific journals.

The learning outcomes of the Chemistry Program are linked to the following Liberal Arts Learning Outcomes: Liberal Arts Learning, Critical Thinking, and Communication.

Academic Engagement Policy
In response to federal regulations governing financial aid, faculty will report students who are absent from class for one week without explanation. These students will be contacted to determine their current status. Students who are disengaged from a class for two weeks will be administratively withdrawn from that class and given a withdrawal grade equivalent to an E in grade point calculations. In order to avoid an administrative withdrawal, students can initiate a withdrawal themselves before the deadline (March 21) and avoid negative consequences to their grade points.
**Students Seeking Teacher Certification**
At Siena Heights University, the training of future teachers is a collaborative effort between the Teacher Education Program and the Specialty Area Programs (your majors and minors). The content in this course is designed to assist you in preparing to teach chemistry to K-12 students. It addresses the following standards set forth by the Michigan Department of Education: this course aligns with the Michigan InTASC Standards 4a, b, c, d, e, f, g, h and 5a, d, f, g, i, l, m, n, p, q.

**Accommodation for Students with Disabilities**
Section 504 of the Rehabilitation Act of 1973 (Section 504), prohibits discrimination on the basis of physical or mental disability (29 U.S.C. Section 794). Siena Heights University is committed to furnishing appropriate auxiliary aids and services where necessary to afford any student with a disability an equal opportunity to participate in, and enjoy the benefits of, a service, program, or activity conducted by a public entity.

An academically qualified (has met admission standards) student with a disability who is in need of auxiliary aids/services is obligated to provide detailed documentation of the nature of the disabling condition to the Office of Disability Resources (303 Sacred Heart Hall/ 517 264-7683). The student will discuss with the coordinator of the ODR how the disability impacts performance in the academic setting. The student should initiate this process at the beginning of the semester, so that accommodations may be arranged before the student experiences difficulty. This process is not retroactive—a student may not disclose a disability in order to retake a failed test. Once appropriate accommodations/services have been determined, the student presents a Letter of Accommodation (provided after consultation with the coordinator of the ODR) to his/her course teaching staff and discusses a plan for implementing the accommodation/service.

**Learning Strategies and Assessment Criteria**

**Daily Work:** In addition to attending and participating in class each day, you are expected to read the textbook and work practice problems on your own. EACH day you should spend some time reviewing, quizzing yourself, working problems and reading new material.

**Quizzes and Homework:** Quizzes and Homework assignments will be given on roughly a weekly basis. The best way to prepare for the quizzes is to stay caught up on the reading, do problems in the book and know how to USE the information discussed.

**The “Chemistry” Question**
As a requirement for completion of this class, each student will turn in their response to the “Chemistry” question. A handout for this will be supplied near the end of the semester.

**Exams:** There will be four comprehensive midterm exams. The final exam will be comprehensive over the whole CHE 241-242 sequence.

**Missed or late work:** It is the student's responsibility to contact the instructor and arrange for make-up times, preferably before the next class meeting.

**Academic Dishonesty Policy:** See student handbook. Note: all work turned-in should be your own. Even though you will work with partners on lab experiments, your lab notebooks and reports should your work alone. Plagiarism will not be tolerated.

**Grades:** Your total grade will be calculated as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm exams</td>
<td>400 pts (100 each)</td>
</tr>
<tr>
<td>Quizzes and Homework</td>
<td>200 pts</td>
</tr>
<tr>
<td>Laboratory</td>
<td>200 pts</td>
</tr>
<tr>
<td>Final exam</td>
<td>200 pts</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1000 pts</td>
</tr>
</tbody>
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The letter grades will be assigned based on the scale below:

A  900 to 1000;  B 800 to 899;  C 700 to 799;  D 600 to 699
Schedule:
note: Chapter 13 will be covered out of order.
Chapter 14  Organometallic Compounds
Chapter 15  Alcohols, Diols and Thiols
Chapter 13  Spectroscopy

Exam 1
Chapter 16  Ethers, Epoxides and Sulfides
Chapter 17  Aldehydes and Ketones: Nucleophilic Additions to the Carbonyl Group
Chapter 18  Carboxylic Acids

Exam 2
Chapter 19  Carboxylic Acid Derivatives
Chapter 20  Enols and Enolates
Chapter 21  Amines

Exam 3
Chapter 23  Carbohydrates
Chapter 24  Lipids
Chapter 25  Amino Acids, Peptides, and Proteins

Exam 4
Final Exam:  Comprehensive Final Exam

Some Dates to be aware of:
Jan 18  no class: MLK holiday
Mar 7-13  no class: Spring Break
Mar 24-25  no class: Easter Break
Apr 20  Scholarship Symposium

Tentative Lab topics
Review Exercise
Extraction
Spectroscopy Exercise
Esterification
Aldol Reaction
Molecular Modeling
QSAR Exercise
Protein Exercise
Iodine Values of Oils
Homemade Soap (Saponification)
Others TBA