Elementary Organic Chemistry - Chemistry 8
Fall 2004  Dr. R. L. Marhenke

Office: Science 380  Email: ronaldm@csufresno.edu
Office Hours: MW 1400-1500 or by appointment
Telephone: 278-2103

This section of Elementary Organic Chemistry meets on Tuesday and Thursday from 0930-1045 in McL 221. This three-unit course is often a prerequisite for courses in biology, agriculture, food science and other applied areas. It is not the appropriate organic chemistry course for chemistry majors or for most students preparing to enter professional schools in medicine, dentistry, or pharmacy. A prerequisite for the course is at least one semester of General Chemistry. Although most students who take this course will not have careers as professional chemists, many of you will use organic chemicals extensively in your chosen careers and will derive both personal and professional rewards from a good understanding of their chemistry.

Chemistry 8 is a survey of the properties and behavior of organic compounds. Building upon the principles learned in general chemistry, you are expected to become familiar with the structures of organic compounds, their properties and reactions. This study is facilitated by generalizations about behavior of functional groups and by reaction mechanisms. The correlation of structure with both physical and chemical properties is a major theme of the course.

You will need to purchase a textbook for the course: Fundamentals of Organic Chemistry, fifth edition by John McMurry. This is the most complete set of "lecture notes" available to you. Virtually every principle, every type of reaction and most applications that I discuss in lecture are discussed and tested in the textbook. A study guide is also available for purchase. Many students feel that the study guide is very useful and use it diligently. There are also molecular modeling kits available that help you visualize the three-dimensional nature of the compounds we study.

As soon as you buy the text, browse through it. It is quite different from the general chemistry text you have used before. Instead of material on atomic structure, properties of various elements and lots and lots of calculations, you find that most chapters focus on the structure of rather complex molecules and on reactions (and more reactions). And there is a rather large amount of text material that seeks to explain the material using terms with which you may not be familiar. Of course, there are a lot of in-chapter and end-of-chapter problems that you will need to be able to solve. And there are even a few pictures associated with the "interludes". These "interludes" and many of my classroom examples try to show you that organic chemistry is everywhere around (and within) you. You will also find many applications of the material in courses that require Chemistry 8 as a prerequisite. But this course is not primarily about the applications of organic chemistry - it is mainly about the organic chemistry itself. Therefore we have to start our study with
some key topics of general chemistry about bonding, structure, acids and bases; move on to relatively simple organic molecules and gradually build our understanding until we can address the chemistry of the more complex compounds that are found in living systems.

The primary learning outcomes of this class center about the theme listed above: you should be able to look at the structure of an organic compound and make predictions about its properties. For example, you should be able to address questions about the three dimensional shape of the molecule, how readily it would evaporate at room temperature, how readily it would dissolve in water and how it would be expected to react with a variety of reagents. In most cases you should be able to name the molecule (or deduce its structure from its name), classify it according to functional group and determine other compounds that display similar properties. Ultimately, you should be able to apply the principles learned in this course to situations that you come across in your other course work.

Each chapter of the text concludes with a set of problems. Many of the quiz and examination questions are identical or very similar to these text problems. Additional quiz and examination questions will be based upon the material discussed in class. Each quiz and exam is based upon a limited set of chapters, but because organic chemistry is inherently cumulative, later exams will retest your understanding of material first introduced in earlier units. The final examination is comprehensive over the material from the entire semester.

Attendance is not mandatory at the lectures in this course, but if you are absent from class, it is your responsibility to check on announcements made while you were away. You must be present for all examinations, and arriving late will reduce the time that you have available to work on the examination. If for some reason it is impossible for you to be present at an exam, I must be notified in advance if you expect to have the opportunity to earn credit for the missed work. I prefer to have you talk to me directly in such a case, although if I am not available you may leave a message at the departmental office.

Examinations will be given on the following dates:

<table>
<thead>
<tr>
<th>Exam</th>
<th>Date</th>
<th>Chapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>Sept 23</td>
<td>Chapters 1-4</td>
</tr>
<tr>
<td>Exam 2</td>
<td>Oct 21</td>
<td>Chapters 5-8</td>
</tr>
<tr>
<td>Exam 3</td>
<td>Nov 18</td>
<td>Chapters 9, 10, 12</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Dec 16</td>
<td>Cumulative including special topics from Ch. 14-16</td>
</tr>
</tbody>
</table>

[The final exam will be given from 0845-1045 on Dec 16]

The exam scores are generally "curved", although there are no fixed percentages of each letter grade. Rather, I compare the overall class performance to that of classes in previous semesters before I assign letter grades to each point total. Each exam, including the final, counts as 25% of the semester grade.
some key topics of general chemistry about bonding, structure, acids and bases; move on to relatively simple organic molecules and gradually build our understanding until we can address the chemistry of the more complex compounds that are found in living systems.

The primary learning outcomes of this class center about the theme listed above: you should be able to look at the structure of an organic compound and make predictions about its properties. For example, you should be able to address questions about the three dimensional shape of the molecule, how readily it would evaporate at room temperature, how readily it would dissolve in water and how it would be expected to react with a variety of reagents. In most cases you should be able to name the molecule (or deduce its structure from its name), classify it according to functional group and determine other compounds that display similar properties. Ultimately, you should be able to apply the principles learned in this course to situations that you come across in your other course work.

Each chapter of the text concludes with a set of problems. Many of the quiz and examination questions are identical or very similar to these text problems. Additional quiz and examination questions will be based upon the material discussed in class. Each quiz and exam is based upon a limited set of chapters, but because organic chemistry is inherently cumulative, later exams will retest your understanding of material first introduced in earlier units. The final examination is comprehensive over the material from the entire semester.

Attendance is not mandatory at the lectures in this course, but if you are absent from class, it is your responsibility to check on announcements made while you were away. You must be present for all examinations, and arriving late will reduce the time that you have available to work on the examination. If for some reason it is impossible for you to be present at an exam, I must be notified in advance if you expect to have the opportunity to earn credit for the missed work. I prefer to have you talk to me directly in such a case, although if I am not available you may leave a message at the departmental office.

Examinations will be given on the following dates:

Exam 1 Sept 23 Chapters 1-4
Exam 2 Oct 21 Chapters 5-8
Exam 3 Nov 18 Chapters 9, 10, 12
Final Exam Dec 16 Cumulative including special topics from Ch. 14-16

[The final exam will be given from 0845-1045 on Dec 16]

The exam scores are generally “curved”, although there are no fixed percentages of each letter grade. Rather, I compare the overall class performance to that of classes in previous semesters before I assign letter grades to each point total. Each exam, including the final, counts as 25% of the semester grade.
This syllabus and schedule are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent.

The University’s policy of Disruptive Classroom Behavior, reproduced below, includes a good description of a desired classroom environment. Read it carefully. There are a few specific items to mention: I do allow recording of lectures, you may bring a visitor if they are not disruptive, but do not bring a cell phone to class unless you are absolutely positive that it is turned off. Please arrive on time for lectures as well as for exams.

University Policies and Regulations are printed in the University Catalogue. Please refer to them if you are not familiar with them. Among those policies are the following:

Students with Disabilities: Upon identifying themselves to the instructor and the university, students with disabilities will receive reasonable accommodation for learning and evaluation. For more information, contact Services to Students with Disabilities in Madden Library 1049 (278-2811).

Cheating and Plagiarism: "Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work." Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the university. For more information on the University's policy regarding cheating and plagiarism, refer to the Schedule of Courses (Legal Notices on Cheating and Plagiarism) or the University Catalog (Policies and Regulations).

Disruptive Classroom Behavior: "The classroom is a special environment in which students and faculty come together to promote learning and growth. It is essential to this learning environment that respect for the rights of others seeking to learn, respect for the professionalism of the instructor, and the general goals of academic freedom are maintained. Differences of viewpoint or concerns should be expressed in terms which are supportive of the learning process, creating an environment in which students and faculty may learn to reason with clarity and compassion, to share of themselves without losing their identities, and to develop an understanding of the community in which they live . . . Student conduct which disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class."