Chemistry 112  
Chemistry for Citizens  
Fall 2013

Instructor:
Julie T. Millard, Dorros Professor of Life Sciences  
Keyes 304, x5757; jtmillar@colby.edu

Office Hours:
Professor Millard will announce her office hours weekly. Please do not hesitate to make an appointment if you cannot make the scheduled times. Email is also a very convenient way to receive a quick answer to a question.

Course Goals:
Students will develop an appreciation of basic chemical principles and their applications to topics of current concern to society, such as health and consumerism. Learning goals include obtaining a base of knowledge about chemistry and the ability to relate this knowledge to everyday life while improving problem-solving, critical-thinking, quantitative analysis, and communication skills.

Readings:
- Crucial information about the course, including sample exam questions and supplemental material, can be found at the CH112 Web page, accessed either through the CH112 link on the Chemistry Courses Web page or directly at http://www.colby.edu/chemistry/CH112/CH112.html

Lecture Topics:
The order of topics with the appropriate reading assignments is given below:

<table>
<thead>
<tr>
<th>Lecture Topic</th>
<th>Reading in Adventures in Chemistry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matter, Atoms, and Compounds</td>
<td>CH 1, Appendix</td>
</tr>
<tr>
<td>Chemical Bonds</td>
<td>CH 2</td>
</tr>
<tr>
<td>Chemical Reactions</td>
<td>CH 3</td>
</tr>
<tr>
<td>Properties of Solutions</td>
<td>CH 4</td>
</tr>
<tr>
<td>Energy and Chemical Reactions</td>
<td>CH 5</td>
</tr>
<tr>
<td>Molecules of Life</td>
<td>CH 8</td>
</tr>
<tr>
<td>Chemistry and Crime</td>
<td>CH 16</td>
</tr>
<tr>
<td>Chemistry and Food</td>
<td>CH 9</td>
</tr>
<tr>
<td>Chemistry and the Gym</td>
<td>CH 10</td>
</tr>
<tr>
<td>Special Topics</td>
<td>To be selected by the class</td>
</tr>
</tbody>
</table>
Attendance:
Attendance at every class meeting is expected. Excessive unexcused absences may result in a reduction of your grade. Please note that only your instructor can determine what is an excused absence. The Chemistry Department policy on attendance is available on the Chemistry Web pages.

Grading:
Your grade for CH 112 will be based on the following components.

• **Hour Exam 1 (20% of final grade)** - The first in-class hour exam will be on Monday, October 7.

• **Hour Exam 2 (22% of final grade)** - The second in-class hour exam will be on Monday, November 11.

There are no make-up exams. Please note these dates and plan accordingly. If you miss an exam for a medical/psychological reason, you must ask your health care professional to communicate with Prof. Millard. Some students may have approval from the Dean of Students’ Office for time extensions on exams, in which case you must make arrangements with Prof. Millard for an appropriate time extension well before the first exam.

• **Final Exam (24% of final grade)** - The final exam has been scheduled by the Registrar for 6:00 on December 12. Note that the CH112 final exam is cumulative.

• **Quizzes (24% of final grade)** - There will normally be a weekly quiz each Friday. The quizzes are intended only to encourage “keeping up” and are not representative of the difficulty of the exams. There are no make-up quizzes. In the event of an excused absence (such as an illness confirmed by the Health Center prior to class time), you will not be penalized for the missed quiz. Furthermore, the lowest quiz grade will be dropped.

• **In-Class Presentation (5% of final grade)** - The last few class meetings will be dedicated to student presentations on molecules of your choice pertinent to our class discussions. Pairs of students will choose a molecule and prepare a **10-minute** Powerpoint presentation on its chemistry, use, and importance. You may choose your partner as soon as you’d like, or Professor Millard can assign you to a partner if you’d prefer. These talks should have about ten slides and contain: a) an introduction to the molecule (structure and historical overview); b) how the chemistry of the molecule relates to its function; c) the importance of this molecule to everyday life. You must load your presentation onto the lecture-hall computer before class. Groups that do not have their presentations loaded onto the computer ahead of time and ready to go at the start of class may be penalized. Please be aware that you must be careful not to exceed the time limit; if you do so, you may be cut off prematurely so that we have time for all scheduled presentations.

• **Class Participation (5% of final grade)** - You are expected to come to class each day prepared, engaged, and ready to participate.
Tips for Success in CH112:

Just because this is a course designed for non-scientists, don’t expect it to require little effort. Even if you had prior experience with chemistry (which is not required or expected), we will be covering many unique topics that you have not had before. Furthermore, we emphasize an integrated approach to chemistry very different from other chemistry courses. We have designed CH112 to be fun and interesting, but also challenging. In order to be successful, you will need to do more that simply show up for class. Chemistry is similar to playing a musical instrument, learning a foreign language, or playing a sport. The more you practice, the better you will be.

According to a recent scholarly article, the best way to succeed in a college-level chemistry course is to follow a cycle of Preview-Learn-Review-Study-Assess, as follows:

• **Preview** before class by skimming the chapter so that you know what’s coming.
• **Learn** the material by attending class, taking meaningful notes, and asking questions in class.
• **Review** after class, reading the chapter and your notes, filling in any gaps, and noting any questions.
• **Study**, interacting with the material by organizing, making and using flashcards to memorize key facts, solving textbook problems, re-writing your notes, and getting help with your questions from your instructor.
• **Assess** your learning, doing practice problems and on-line sample exam questions without help from the text or your notes and working in study groups to quiz each other.

Before each exam, you should re-read the relevant chapters, review your notes and quizzes, and ask questions about anything you don’t understand. Sample exam questions can be found on the course Webpage, and you should complete these under exam conditions (limited time, no books or notes) for optimal practice.

Extra Help

Please see Professor Millard as soon as possible if you have any questions about the course material. Help is also available at the Chemistry Help Center, staffed by experienced and knowledgeable chemistry majors, which is open four evenings per week in Keyes 104 (M-Th, 7:30-9:30). These students will be happy to answer questions and help with problems. If you feel the need for further help, tutors are available through Lisa Miller (lmmiller@colby.edu).

Intellectual Responsibility:

Any work that you submit for CH112 is to be your work alone. For more information about the College’s policy on academic honesty see the Student Handbook. The Chemistry Department’s policy is available at [http://www.colby.edu/chemistry/Attend_Exam.html](http://www.colby.edu/chemistry/Attend_Exam.html). Cell phones and other portable electronic devices may not be used during quizzes and exams for any reason. A calculator will be provided to you when necessary for exams and quizzes.

---