Chemistry 104
Lecture 1, Spring 2005

General Chemistry: 5 credit hours
Lecture Section 1 8:50 a.m. MW(F), 1351 Chemistry
Lecturer: Professor Fleming Crim
Room and Phone Number: 4319 Chemistry, 263-7364
E-mail: fcrim@chem.wisc.edu
Office Hours: M, 3:30-5 p.m.; W, 10 - 11 a.m.; or by appt
Website: http://www.chem.wisc.edu/courses/spring2005/104-1

Chemistry 104 is the second semester course in a two-semester sequence. Chemistry 103 and 104 provide a general survey of chemical principles and facts and are prerequisites for advanced courses such as Organic Chemistry (341 or 343) and Analytical Chemistry (327 or 329).

The prerequisite for Chemistry 104 is Chemistry 103. Most students took Chemistry 103 last semester. If your situation is different, you may need to put in extra effort at the beginning of the semester to refresh yourself on that material.

REQUIRED MATERIALS

Textbook: Chemistry & Chemical Reactivity, 5th edition by Kotz and Treichel; available at local bookstores

Lab Book: Laboratory Experiments for Chemistry 103/104, Fall 2004, Department of Chemistry, UW-Madison, sold in Chemistry Building by Alpha Chi Sigma (during the first two weeks of class) or in General Chemistry office (1328)

Lab Notebook: 100 page carbonless lab notebook, available at local bookstores and in the Chemistry Building

Safety Goggles: Industrial quality eye protection is required at all times that you are in the lab. Safety goggles that fit over regular glasses are available at local bookstores. Contact lenses are not permitted in the laboratory because fumes or splashes could catch between them and your eye. Safety rules are on your laboratory door.

Calculator: You need an inexpensive calculator having capabilities for square roots, logarithms and exponentiation (antilogarithms), exponential (scientific) notation operations for homework assignments, quizzes, exams, and laboratory work.
LECTURE AND DISCUSSION

Lecture. Lectures organize the material, outline goals, cover the basic principles of each topic, and present illustrations and demonstrations. The lecture is not designed to describe or explain everything you will learn in the course. It will indicate important topics to study and will give you an opportunity to think about these topics, test your understanding, and ask questions. You should take notes during lecture to capture your understanding of what you heard and saw. Attending lecture is important. Experience shows that students who attend lecture regularly do better in the course.

Lecture Notes. A set of lecture notes is available on the course website http://www.chem.wisc.edu/courses/spring2005/104-1. These are Professor Crim’s notes from the lecture and, while relatively complete, do not replace your notes or the text.

Demonstrations. Demonstrations illustrate the principles described in lectures. You should observe carefully and make certain that you understand the principles the demonstration illustrates. Demonstrations are important and questions about demonstrations may appear on exams.

Optional Meetings. Optional meetings will occur at 8:50 a.m. on some Fridays as announced and posted on the course website. These meetings are for review of recent lecture material and presentation of additional examples. One of the main purposes is to answer questions about recent lectures. The Friday session contains no new material and is not a formal lecture. The questions students ask largely determine the content of these optional meetings.

Discussion Section. A group of about 22 students constitutes a discussion and laboratory section supervised by a teaching assistant. Discussion sections are for discussion, review, and problem solving related to recent lectures, for preparation and review of laboratory experiments, and for quizzes. Be prepared when you come to the discussion. You should work out the homework problems for a given week, and you should expect your TA to ask you to discuss solutions to these problems. Ask specific questions of your TA and of other students. Make sure you understand the questions asked and the answers given. If you do not, then ask for a further explanation. Do not expect your TA to lecture but rather to lead discussion and encourage interaction among all students present.

Quizzes. You will take fifteen-minute quizzes during a discussion period most weeks. There will be eleven (11) quizzes. Your ten (10) highest scores will count in your final grade.

Homework and Suggested Problems. Most weeks there will be homework problems and exercises to do using Learn@UW. There are also problems in the text that will help you master the material. Doing problems and exercises is an important part of understanding the material. The commentary on each lecture on the assignments page of the website suggests problems from the text.
LABORATORY

Before the Laboratory Period. Read the relevant sections of the textbook and think about how the reading relates to the scheduled experiment. Review the material in the laboratory book and on the web about the laboratory. You must take the Learn@UW prelab quiz before coming to the laboratory.

Safety in the Laboratory. Read the ‘For Your Safety’ section in the lab manual before you come to lab. It describes safety information specific to that experiment. Safety goggles are required for every experiment. No contact lenses! No sandals! Wear reasonable clothing! Failure to wear safety goggles in the laboratory is grounds for dismissal from lab with no provision to make up the work you miss.

Attendance. You must attend all laboratory sessions. There are no procedures to make-up laboratories if you miss. Unexcused absences earn a grade of zero. If you have a reason for missing lab, notify your Teaching Assistant as soon as possible. It is much better if you contact your TA before missing a laboratory.

Reports. Your TA will specify when lab reports are due. Points may be deducted if reports are turned in late.

LABORATORY ASSIGNMENTS

<table>
<thead>
<tr>
<th>In-Lab Assignments</th>
<th>Week Performed</th>
<th>Chapter in Lab Manual</th>
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<tbody>
<tr>
<td>Molecular Structure</td>
<td>Jan. 24</td>
<td>12</td>
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<tr>
<td>Aspirin &amp; Some Flavoring Esters</td>
<td>Jan. 31</td>
<td>13</td>
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<tr>
<td>Structures of Biomolecules</td>
<td>Feb. 7</td>
<td>Handout</td>
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<tr>
<td>No Lab (Exam Week)</td>
<td>Feb. 14</td>
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<tr>
<td>Redox Titrations</td>
<td>Feb. 21</td>
<td>22</td>
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<tr>
<td>Integrated Rate Law</td>
<td>Feb. 28</td>
<td>16</td>
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<tr>
<td>Crystal Violet Kinetics</td>
<td>Mar. 7</td>
<td>17</td>
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<tr>
<td>Equilibrium &amp; LeChatelier’s Principle</td>
<td>Mar. 14</td>
<td>18</td>
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Spring Break, Week of March 21

<table>
<thead>
<tr>
<th>In-Lab Assignments</th>
<th>Week Performed</th>
<th>Chapter in Lab Manual</th>
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</thead>
<tbody>
<tr>
<td>No Lab (Exam Week)</td>
<td>Mar. 28</td>
<td></td>
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<tr>
<td>Equilibrium Exercises</td>
<td>Apr. 4</td>
<td>19</td>
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<tr>
<td>Copper Ammine Complexes</td>
<td>Apr. 11</td>
<td>23</td>
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<tr>
<td>Discovering Electrochemistry &amp; Check-Out</td>
<td>Apr. 18</td>
<td>Handout</td>
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<tr>
<td>No Lab (Exam Week)</td>
<td>Apr. 25</td>
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<td>No Lab</td>
<td>May 2</td>
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Students with Disabilities
Students with disabilities should contact Professor Crim as soon as possible at the beginning of the semester to arrange accommodations. This applies to lecture, discussion, and laboratory, and to special accommodations for exams.

Study Skills
Help with self-assessment, test anxiety, problem solving, time scheduling, note taking, exam preparation/taking, reading efficiency, memory, concentration, and procrastination is available through a one-credit course titled Educational Effectiveness in the School of Education, Department of Counseling Psychology. Interested students should contact the department at 262-0461 to speak with an instructor.

Individual counseling is also available at University Counseling and Consultation Services. For more information, call 262-1744 or stop by 905 University Avenue, Room 401. Hours are Monday and Tuesday 8:00 am - 6:00 pm, Wednesday and Thursday 8:00 am - 5:00 pm, and Friday 8:00 am - 4:30 pm.

Electronic Mail. Contact me via e-mail if you have questions or comments about the course or the work you are doing or to make an appointment. I will try to respond to all messages, either directly via e-mail or, when appropriate, in the next lecture.

My email address is: fcrim@chem.wisc.edu

Course Website: Resource material for this lecture section (and the other sections of general chemistry as well) is available on the web. The homepage for my lecture section will contain current information on the course. The assignments page will tell you what topics and sections are covered in the next lecture. The address to access this material is http://www.chem.wisc.edu/courses/spring2005/104-1. You can also navigate to it through the general chemistry webpage.

Friday: Another resource available to you is the optional session on Fridays.

Study Groups. You may collaborate with other students on homework assignments and laboratory discussion questions. For many students, study groups are very helpful. Unless informed to the contrary, you must turn in your own write-up (not a copy of the study group’s work) for assignments.

Using Learn@UW. Learn@UW is a tool that allows instructors to provide web-based materials for courses. You will use Learn@UW to take prelab quizzes, do homework, and to keep track of your grades. Consult the website for instructions and tips to help you use Learn@UW at https://uwmad.courses.wisconsin.edu/. The course website contains links to the activities requiring Learn@UW.
Exams. There will be three exams in the evening and a two-hour final exam. If you have a conflict with the exam time, please contact Professor Crim during the first week of class. There are no make-up exams. The final exam will cover topics from the entire semester. The exam schedule is:

- Exam 1: Thursday, February 17, 7:15 - 8:45 p.m.
- Exam 2: Thursday, March 31, 7:15 - 8:45 p.m.
- Exam 3: Thursday, April 28, 7:15 - 8:45 p.m.
- Final Exam: Tuesday, May 10, 2:45 - 4:45 p.m.

Grades. There are a maximum of 900 points available in the course:

- 3 hour exams @ 100 pts. each = 300 points
- 10 quizzes @ 15 pts. each (use highest 10 of 11) = 150 points
- Homework (10 assignments @ 5 pts ea.) = 50 points
- Laboratory = 200 points
- Final Exam = 200 points

Final grades are on absolute scale. If you earn 900 points, you are guaranteed an A. Likewise for the other point totals. You are competing against this scale, not against other students.

A: 810 - 900 points (90%)
AB: 790 - 809 points (87.7%)
B: 720 - 787 points (80%)
BC: 700 - 719 points (77.7%)
C: 585 - 699 points (65%)
D: 450 - 584 points (50%)

Every point is equivalent. One point earned on a quiz is the same as one point on an exam. The final grade thresholds may be lower, but the numbers above are guarantees.