CHEM 111
General Chemistry II
Spring 2010

Dr. Todd Morris, Heim 213 (adjacent to the secretary's office)
Office Hours: M:2:00-3:00; R:9:00-12:00, 2:00-4:00, by appointment, or anytime door is open.
Office Telephone: 570-321-4029
Email: morrist@lycoming.edu
textbook URL: http://wps.prenhall.com/esm_tro_chemistry_1/

CLASS: MWF from 11:30-12:20 in Heim G09
LAB: T: 8:45-11:35 am (M/MT), R: 8:45-11:35 am (Q/QT), or R: 2:00-4:50 pm (R/RT) in Heim 241
RECITATION: R: 7:45-8:35 am or 1:00-1:50 pm in Heim G09

Course Description:

A continuation of CHEM 110, with emphasis placed on the foundations of analytical, inorganic, and physical chemistry. Topics include kinetics, equilibria, acid-base theory, electrochemistry, thermodynamics, nuclear chemistry, and descriptive inorganic chemistry of selected elements. The laboratory treats aspects of quantitative and qualitative inorganic analysis.

Texts:
CHEM 111L lab manual (available at campus bookstore)

Supplies:
Calculator with logarithmic and exponential functions
Safety Glasses or Goggles (available at campus bookstore)
Bound Laboratory Notebook with carbonless duplication pages

Student Learning Objectives:
Upon successful completion of this course, a student will:

• understand the importance of intermolecular forces on molecular behavior.
• be able to explain solution formation and solve solution concentrations problems.
• be able to predict the kinetics of a reaction and calculate reaction rates.
• perform equilibrium calculations and understand and apply Le Châtelier's Principle.
• be able to solve acid/base problems and relate acid strength to molecular structure.
• be able to explain the effects of buffers and solve acid/base titration problems.
• understand the 1st and 2nd Laws of Thermodynamics and be able to predict whether a process is spontaneous.
• be able to balance redox reactions and explain how chemical reactions can produce electricity.
• be able to explain the origin of different types of radiation and solve radioactive decay and radiometric dating problems.
Assignments, Evaluations Procedures, and Grading Policy:

1. Attendance: Attendance and participation at all class meetings is expected.

2. Examinations: Three unit exams and a final exam will be given on the dates below. The unit exams will generally consist of a mixture of true/false, multiple choice, short answer and calculation-based problems. The final is written by the American Chemical Society. It consists of multiple-choice questions on material from CHEM 110 and CHEM 111.

   Exam 1: Friday, February 12
   Exam 2: Friday, March 19
   Exam 3: Friday, April 16
   Final Exam: Thursday, April 29 at 8:30 am (during Finals Week)

3. Quizzes: With the exception of the exam dates of February 12, March 19, and April 16, quizzes will be administered at the beginning of every Friday class. Quizzes will be short (~5 minutes) and consist almost exclusively of quick answer questions on material covered in class that week. Each quiz is worth 5 points. You receive 1 free pulse point for taking the quiz. Quizzes can not be made up. I will drop your lowest quiz grade.

4. Homework: Homework will be assigned but not collected for each chapter (see class schedule below). Detailed answer keys to the homework will be posted on Moodle. Some of the exam questions will be inspired by assigned homework questions.

5. Moodle: This course has a Moodle page. The enrollment key for the course is “chem111” (no quotes). On Moodle, I will post course materials (e.g., syllabus, handouts), answer keys (for quizzes, homework, and exams), and keep an updated calendar to remind you of important dates (e.g., assignment due dates, exams).

6. Recitation: Attendance at recitation is not required, but strongly encouraged. Because your recitation section consists of approximately half as many students as the lecture portion, it is easier for me to address course needs on an individual basis, as needed. We will use this time to further practice calculation problems and engage in “hands-on” activities/demonstrations to reinforce recent lecture material.

7. Laboratory: Attendance at your regularly scheduled lab period is mandatory. Please see Dr. Ramsey with any questions regarding lab attendance or scheduling.

8. Extra Credit: Extra credit can be earned by attending departmental colloquia (3 points per colloquium). Extra credit by attending colloquia is capped at 15 points. If you legitimately can not attend the colloquia, see me before the first colloquium. You will have the opportunity to write a short term paper for up to 15 points extra credit.
9. Grading: The maximum number of points is 610, as described below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Exams (3)</td>
<td>300 pts</td>
</tr>
<tr>
<td>Final Exam</td>
<td>150 pts</td>
</tr>
<tr>
<td>Laboratory</td>
<td>120 pts</td>
</tr>
<tr>
<td>Quizzes (8)</td>
<td>40 pts</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>610 pts</strong></td>
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Your final course grade is determined from the percentage of points earned:

- A = 92.0%+
- A- = 90.0-91.9%
- B+ = 88.0-89.9%
- B = 82.0-87.9%, B- = 80.0-81.9%
- C+ = 78.0-79.9%
- C = 72.0-77.9%; C- = 70.0-71.9%
- D+ = 68.0-69.9%
- D = 62.0-67.9%; D- = 60.0-61.9%
- F = 0-59.9%

10. Tentative Class Schedule:

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Coverage</th>
<th>Recommended Homework Assignment</th>
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</thead>
<tbody>
<tr>
<td>January 11</td>
<td>Intro to Class/Syllabus</td>
<td>-</td>
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<tr>
<td>January 13-22</td>
<td>Chapter 11</td>
<td>50,52,54,56,58,70,72,76,84,92</td>
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<tr>
<td>January 25-Feb. 1</td>
<td>Chapter 12</td>
<td>34,40,42,46,52,54,56,72,76,118</td>
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<tr>
<td>February 3-10</td>
<td>Chapter 13</td>
<td>26,36,38,44,50,52,58,66,72,94</td>
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<tr>
<td>February 12</td>
<td><strong>EXAM 1</strong></td>
<td>-</td>
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<tr>
<td>February 15-22</td>
<td>Chapter 14</td>
<td>24,28,32,40,48,52,60,62,66,78</td>
</tr>
<tr>
<td>Feb. 24-March 10</td>
<td>Chapter 15</td>
<td>34,36,48,52,54,56,66,86,96,108</td>
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<tr>
<td>March 12-March 19</td>
<td>Chapter 16</td>
<td>38,44,48,52,58,62,64,84,94,102</td>
</tr>
<tr>
<td>March 26</td>
<td><strong>EXAM 2</strong></td>
<td>-</td>
</tr>
<tr>
<td>March 22-31</td>
<td>Chapter 17</td>
<td>28,32,34,42,44,48,58,66,72,78</td>
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<tr>
<td>April 5-12</td>
<td>Chapter 18</td>
<td>38,42,46,50,56,60,66,74,84,100</td>
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<tr>
<td>April 14-23</td>
<td>Chapter 19</td>
<td>34,36,38,50,52,58,60,62,68,100</td>
</tr>
<tr>
<td>April 16</td>
<td><strong>EXAM 3</strong></td>
<td>-</td>
</tr>
<tr>
<td>April 29 at 8:30 am</td>
<td><strong>Final Exam</strong></td>
<td>-</td>
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11. Miscellaneous:

Departmental and ACS policies:
The following are not allowed to be used during quizzes and exams: programmable calculators (unless the memory is cleared by the instructor), cell phones, PDAs, headphones, or other personal electronic devices. Personal electronic devices (except calculators) are not to be used in the laboratory.
College Policies:
*Administrative procedures* (withdrawals, etc.) will follow the published guidelines and rules of the college and department. As reminders, Friday, January 15 is the last day to **Drop/Add** a course and Monday, March 22 is the deadline for **Withdrawals**.

Disabilities:
If you have a specific disability and choose to request academic accommodations to meet your needs, please consult with Mr. Dan Hartsock, Coordinator of Services for Students with Disabilities. His office is in the Academic Resource Center on the third floor of Snowden Library.

Academic Honesty:
On all assignments, quizzes, exams, and lab reports, copying work or allowing another to copy your work and submit it as his/her own is academic dishonesty and can lead to penalties from failing the assignment to dismissal from the college. Properly cite all sources for your writing assignments to avoid plagiarism. See the Pathfinder or Student Handbook for further information on the college policy on academic dishonesty.