Class meeting times: two 1 hour 15 minutes meetings per week

Course overview: The emphasis of this course is the development of critical thinking and problem-solving skills in the context of the basic principles of chemistry. Many topics are presented in the format of word-problems that require multi-step calculations using appropriate equations and formulas. This course provides the basis for success in upper-level chemistry courses and on standardized exams.

Course objectives:
At the end of this course, you should be able to
1) Discuss the factors that affect the rates of chemical reactions, determine rate laws, and perform relevant calculations.
2) Write equilibrium expressions and perform calculations for various equilibria. Describe how changes in concentration and temperature affect equilibrium reactions.
3) Characterize acids, bases, and salts by Arrhenius or Bronsted-Lowry definitions. Carry out pH calculations. Relate the properties of acids to their structure.
4) Identify and describe the properties of buffer solutions. Carry out calculations involving buffer solutions.
5) Discuss the relationship between enthalpy, entropy, and free energy and their relationship to spontaneity. Perform calculations to determine enthalpy, entropy, and free energy.
6) Describe voltaic and electrolytic cells. Write equations for oxidation-reduction reactions and calculate cell potentials for these reactions.
7) Describe nuclear reactions, the uses of radioisotopes, and the properties of alpha, beta, and gamma radiation.
8) Compare and contrast the properties of the common metals and nonmetals.
9) Distinguish among the general classes of organic compounds in terms of functional groups and chemical behavior.

Required textbook and resources:
*Internet access for blackboard9.mville.edu
*Scientific calculator  (You may not use your cell phone as your calculator.)
*OWL access code for General Chemistry (not Quick Prep)

Highly recommended supplements:
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<th>TOPIC</th>
<th>CHAPTER</th>
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<tr>
<td>Chemistry of the Metals &amp; Nonmetals</td>
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<tr>
<td>Organic Chemistry</td>
<td>22, 23</td>
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**CHM 1002 Grades** will be based on the following:

- OWL Assignments (5 pts each) **50 pts**
- 2 out of 3 Exams (100 pts each) **200 pts**
- ACS Final Exam **150 pts**

**Letter grades are assigned at the end of the semester based on the following:**

\[
\text{\%} \quad \text{grade} \\
95-100 \quad A \\
90-95 \quad A- \\
87-90 \quad B+ \\
82-87 \quad B \\
80-82 \quad B- \\
77-80 \quad C+ \\
72-77 \quad C \\
68-72 \quad C- \\
58-68 \quad D \\
0-58 \quad F
\]

**Attendance:** You are expected to attend each lecture period. Attendance will be taken. If you must be absent because of an illness, injury, family emergency, or religious holy day, please notify your instructor. Perfect attendance may earn bonus points. Class participation is strongly encouraged.

**Courtesy Request:** If you bring a cell phone to class, please silence it during class. Absolutely no text messaging or talking on the phone will be permitted during class. If you are caught texting during class, you may be asked to leave.
**Blackboard:** You must enroll in the course site on blackboard9.mville.edu, where course information and updates will be posted throughout the semester.

**Homework:** Problem solving is an integral part of this course. Problems will be assigned during each lecture class. You will be expected to complete the problems as homework for the next lecture class, during which the solutions will be reviewed, as necessary. Solving extra practice problems from the textbook, workbook, and textbook’s companion website are highly recommended. However, class time devoted to problem review must focus on assigned textbook problems. Extra problems can be reviewed during office hours.

You will also be assigned problems for each chapter from the Online Web-Based Learning (OWL) site, http://owl.cengage.com/. These assignments will be due on the dates outlined below. If you purchase your textbook in the campus bookstore, your textbook should come with an access code for the OWL site. If you purchase your textbook elsewhere, you must purchase a code separately (http://owl.cengage.com/partners/thomson/epinThomson.html).

Each OWL assignment will be worth five points, even though most chapters will include more than five questions. Your percent correct for each chapter will be scaled out of five points.

Solving extra practice problems from the textbook, workbook, and textbook’s companion website is highly recommended.

**Exams:** Chemistry cannot be learned in only one night, particularly not the night before an exam. You must study every night to be prepared. Three 100-point exams will be given on the dates indicated in this syllabus, unless otherwise announced by your instructor. However, the lowest exam score will not be included in the calculation of your final semester grade, provided that you are present for all exams. You must take all three exams in order to drop the lowest score. If you miss one exam without doctor's excuse, dean's excuse, or prior permission from your instructor, a zero will be included in calculation of your semester grade.

The final exam for this course is the American Chemical Society (ACS) standardized exam for second term general chemistry. This exam allows your instructor to gauge your performance in the course relative to students across the nation. Note: The final exam score may not be dropped even if it is your lowest test score.

To officially question your grade on an exam, submit the queried exam to your instructor with a short written note. Make sure the exam is exactly as it was when handed back to you. Be aware that even if your instructor agrees, she may find answers to other questions that were originally overgraded. No grades will be changed other than via this procedure. Registering for this course implies acceptance of the rules.

No make-up exams will be given. If you are absent (with a dean’s or doctor’s excuse) for one exam it will be counted as your lowest exam grade and will not be included in the calculation of your semester grade. Any subsequent exam absences will earn you a score of zero toward your semester total. The final exam must be taken, even if you took all other exams during the semester.

Individuals will not be permitted to submit extra credit assignments.

**Academic Dishonesty:** Academic Dishonesty will not be tolerated. If you are caught cheating on any assignment or test for this course, you will fail the course and be reported for possible disciplinary
probation, suspension, or expulsion from the college. Please refer to the *Manhattanville College Student Handbook* for a description of the official Manhattanville College policy. **Please note:** If you are caught sending or receiving text messages during a test, your instructor will assume that you are cheating.

**Disabilities:** Any student requiring special accommodations (note-taking, test-taking, etc.) must notify the instructor at the beginning of the semester. He/she must be registered with the campus ADA Coordinator in order to make special arrangements. All information and documentation will be treated as confidential.