CHEMISTRY 110G
PRINCIPLES & APPLICATIONS OF CHEMISTRY

Instructor: Stan Carlson, Associate Professor
MH 110B, 287-6661
E-mail: WebCT *only* please

Office Hrs: WebCT (primarily) *and* TBA (see the instructor's schedule)

Text: Eubanks et al., 2006. Chemistry in Context: Applying Chemistry to Society, 5/e. McGraw-Hill.

Class: *Lecture*: Online using WebCT
Practicum: Thursdays, 8:30–11:10 AM
Room MH 110
January 18–May 10, 2007

Overview: Chemistry 110G is a 4-credit lecture/discussion/lab course that provides a survey of the properties and uses of elements and their compounds. Along with classical chemistry, attention is paid to environmental considerations: air, water, energy production, and the impacts of pollution. The student will gain an understanding of the major principles and applications of chemistry and appreciate the importance of chemistry in our everyday lives. WebCT will be used to deliver the lecture portion of the course. Weekly meetings (Thursdays) will be used for problem solving, grading homework, and lab exercises. A research paper and an oral report are required. The laboratory component provides practical experiences in each sub-discipline.

Expected Outcome: Students will understand major principles and applications of chemistry and appreciate the importance of chemistry in our everyday lives.

Learning Assessment: An evaluation of learning based on classroom techniques and activities (lectures, discussions, videos, tests, reports, labs, etc.) will be integrated into the learning objectives (see below). The assessment outcome will provide feedback to help in the ongoing development of teaching techniques and will not be used for grading purposes.

Learning Objectives:

1. *Knowledge*: Students will be able to define key terms in the field of chemistry. The assessment will consist of defining terms and answering recognition questions on major tests (10–15% of grade).
2. *Comprehension*: Students will be able to describe, explain, and interpret major concepts in chemistry as presented in the course notes and text. The assessment will consist of multiple choice and short answer questions on major tests (10–15% of grade).
3. *Application*: Students will be able solve fundamental chemistry problems similar to the *Your Turn* questions and homework assignments in the text. The assessment will consist of multiple choice, homework, simple word problems on major tests, and some components of lab assignments (15–20% of grade).
4. *Analysis*: Students will be able to work lab exercises and solve word problems similar to the more difficult *Your Turn*, *Consider This*, and homework *Questions* in the text. The

assessment will consist of lab assignments, homework, and word problems on the major tests (15–20% of grade).

5. *Synthesis*: Students will be able to consolidate chemistry-related research findings from several sources into a coherent whole. The assessment will consist of a written research paper and an oral presentation of the paper (20–25% of grade).
6. *Evaluation*: Students will be able to critique issues related to chemistry based on available objective data. The assessment will consist of online discussions and essay questions on major tests (5–10% of grade).

Students are expected to:

Attend all scheduled lab/practicum sessions
Login and use the web-based course materials on a regular basis
Be well prepared for all scheduled activities
Participate appropriately in problem-solving and lab activities
Complete all assignments on time
Show interest, have fun, and work hard!

The instructor will:

Prepare online materials in a timely and clear manner
Be on time and well prepared for each lab/practicum session
Facilitate activities to enhance the students' understanding and appreciation of chemistry
Provide opportunities in class and online for questions and clarification
Be available during office hours and online on a dependable basis
Be fair and clear in grading practices and treatment of all students

Evaluation and Grading:

Major Tests	50%
Research Paper & Oral Report	20%
Lab Exercises & Homework	30%
Total	100%

A = 90–100% B = 80–89% C = 70–79% D = 60–69%
F = below 60%

Plus/minus modifiers will likely be used for final scores within one percentage point of the nearest letter grade.

The 6 major tests (available in the Student Success Center) will be a mixture of recognition questions (multiple choice, etc.), definitions, problem solving, and short discussion/essay questions. Except under *extreme* circumstances (verified illness or death in the immediate family), there will be *no* make-up of major tests. Test dates are given in the tentative class calendar.

Each student will prepare a research paper on any topic of interest in chemistry. It must be based on at least 5 reference sources, at least 3 of which should come from an online magazine database (e.g., ProQuest). The paper should be 1200 to 1500 words (5–6 pages) long and it must be typed and written in your own words. There must be separate Title, Abstract, and References pages. The format will follow APA style with respect to general formatting, citations, and

references (links will be provided). An outline of the paper is due Friday March 2. A draft of the paper (worth 5%), which must be submitted before the final paper, is due March 16. The final paper (worth 10%) is due Friday, April 13. Late papers will be penalized up to one letter grade. Also, papers may be submitted as a WebCT email attachment. Each student will present a 6–8 minute oral report (worth 5%) based on the research paper; these will take place during finals week. A more detailed handout will be available on the course web site.

Lab exercises, which will be handed out prior to each lab session, will be due at the beginning of the next class after the scheduled completion (unless announced otherwise). There will be *no* make-up of lab exercises.

Homework assignments must be worked in pencil on 8.5"×11" notebook paper; the instructor will announce the due dates. Homework will be *self-graded* during practicum sessions using a colored ink pen *other than* black or red. Come prepared to work homework problems on the board.

Students are expected to be *on time* and attend all scheduled lab/practicum sessions. Students are expected to participate in problem solving sessions; these will provide an opportunity to ask questions and explore your understanding of the material in an informal setting. Come prepared to work problems and discuss the assigned material.

THE LAST DAY TO DROP A 16-WEEK CLASS IS MONDAY, MARCH 12. THE LAST DAY TO WITHDRAW FROM THE COLLEGE IS FRIDAY, APRIL 20. OTHER IMPORTANT DATES ARE LISTED IN THE SPRING 2007 SCHEDULE OF CLASSES.

TENTATIVE CLASS SCHEDULE*

WEEK	*DATE*	*ASSIGNMENT/TOPIC/ACTIVITY*
1	January 18	Chapter 1 (the air we breathe) *Lab #1:* Lab safety, equipment, & the Bunsen burner *Assign Homework #1*
2	January 25	*Lab #2*: Properties of gases in a breath
3	February 1	*Grade Homework #1* **Test #1 (2/1–2/6)** *Assign Homework #2*
4	February 8	Chapter 2 (protecting the ozone layer) *Lab #3:* The metric system
5	February 15	*Lab #4:* A graphical experience *Lab #5:* UV light protection
6	February 22	*Grade Homework #2* **Test #2 (2/22–2/27)** *Assign Homework #3*
7	March 1	Chapter 3 (chemistry of global warming) *Lab #6:* Chemical bonds & molecules *Lab #7 (optional):* Chemical moles **Paper Outline due** (Friday, 3/2)
8	March 8	*Grade Homework #3* **Test #3 (3/8–3/13)** *Assign Homework #4*
9	March 15	Chapter 4 (energy, chemistry, & society) *Lab #8:* An energy conservation problem **Draft Paper Due** (Friday, 3/16)
10	March 19–25	*SPRING BREAK!*
11	March 29	*Grade Homework #4* **Test #4 (3/29–4/3)** *Assign Homework #5*
12	April 5	Chapter 5 (safe drinking water) *Lab #9:* Water hardness
13	April 12	*Lab #10:* Chloride in freshwater **Final Paper Due** (Friday, 4/13)
14	April 19	*Grade Homework #5* **Test #5 (4/19–4/24)** *Assign Homework #6*
15	April 26	Chapter 6 (neutralizing acid rain) *Lab #11:* Reactions of acids with common substances *Lab #12 (optional):* pH measurements
16	May 3	*Grade Homework #6* **Test #6 (5/3–5/8)**
17	May 10	**Oral Reports (Thursday, 5/10)**

***Schedule changes and more detailed information will be provided during class meetings.**

Statement Regarding Academic Misconduct:

Any student found guilty of academic misconduct shall be subject to disciplinary action. Academic misconduct includes, but is not limited to, the following actions. CHEATING, PLAGIARISM, UNAUTHORIZED POSSESSION OF EXAMINATIONS, RESERVE LIBRARY MATERIALS OR LABORATORY MATERIALS, UNAUTHORIZED CHANGING OF GRADES ON AN EXAMINATION, INSTRUCTOR'S GRADE BOOK OR GRADE REPORT, NONDISCLOSURE OR MISREPRESENTATION IN FILLING OUT APPLICATIONS OR OTHER COLLEGE RECORDS. The following disciplinary actions and sanctions may be imposed for any of the above infractions of regulations, disciplinary probation, disciplinary suspension, dismissal, expulsion.

Americans with Disabilities Act (ADA):

If you have, or believe you have, a disability and would benefit from any accommodation(s), you may wish to register with the Student Services Office on the first floor of Martinez Hall. All medical information will be treated confidentially.

After you have registered, please make sure that your instructors receive a copy of the accommodation memorandum from Student Services within the first two weeks of class. It will be your responsibility to inform your instructors or the office of Student Services (in a timely manner) if the services/accommodations provided are not meeting your needs.

If you have a condition that may affect your ability to exit safely from the premises in an emergency or that may cause an emergency during class, you are encouraged to discuss any concerns with Ms. Irene Lutz, Campus Student Services Officer at 287-6629, or with your instructor(s).

Feel free to call Ms. Lutz at the number above or the NMSU Director of Institutional Equity, at 505/646-3635 with any questions about the Americans with Disabilities Act (ADA), and/or Section 504 of the Rehabilitation Act of 1973.

Disclaimer:

The instructor, at his/her discretion, may modify this syllabus to meet the needs of a particular class of students. Adequate notice will be given should any change to the syllabus be needed.

Attendance and Student Performance:

Students are expected to attend regularly all classes for which they are registered. When the number of absences is excessive and hinders and student's progress – normally, for a standard term, that would mean **more than three consecutive absences or five cumulative absences*** – the instructor may recommend termination from the class.

Based upon the recommendation of the instructor, and with the concurrence of the Campus Academic Officer and the Campus Student Services Officer, a student will be dropped for persistent absences or for persistent failure to complete class assignments. Similarly, a student may be dropped for behavior that interferes with the educational environment of the class. Any student who has been dropped has the right to appeal through the Student Academic Grievance Policy (see the *Student Handbook*).

*** The number of absences will be adjusted proportionally to the number of class meetings.**