

CHM 130: Fundamental Chemistry

Fall 2008

Instructor: Dr. Tony Hascall

Office: Bldg 20 (Chemistry), Room 301
Phone: 523-7088

email: antony.hascall@nau.edu
webpage: <http://jan.ucc.nau.edu/~ah476>

Section 1: Mon-Thurs, 8:00 – 8:50 a.m. (except 9/1, 11/11, 11/27)
Building 20, Room 106

Recitation (optional): Tues, 3:00-3:50 p.m., Building 20, Room 224

Office Hours:

Mon 12-1 p.m.; Weds 10-11 a.m. and 3:30-4:30 pm; Thurs 10-11 a.m. (or by appointment)

Course description:

This is a principles of chemistry course for students requiring only one semester of chemistry and for those proceeding to the one-semester organic (CHM 230) course. As a liberal studies course, CHM 130 provides a foundation of chemistry – the science of matter and change. The structure, properties, and transformations of matter are the key focal points of the course. These concepts are presented in a way that challenges students to consider how chemistry affects the surrounding world and their everyday life. The course addresses NAU's Liberal Studies theme of "Environmental Consciousness" and the essential skills of quantitative analysis and critical thinking. This is *not* a writing-intensive class.

Course prerequisites:

High school chemistry or CHM 100 plus intermediate algebra (MAT 102X or higher)

Required Course Materials

Textbook – Introductory Chemistry, Nivaldo J. Tro; Prentice Hall, 3rd edition (2009).

A scientific calculator – Needed for homework, and should be brought to all tests. You **may not** borrow a calculator from another student during testing.

Time Expectations: The typical student will need to spend at least two hours studying for every hour of class. This corresponds to at least **8 hours of studying per week** for this 4-credit hour class. Preparation for exams will require more study time. Try to study in small blocks of time (approximately 1 hour) as soon after the lecture as possible, and before the following lecture, by reviewing lecture material and completing assigned homework. Studying in groups is highly recommended. Waiting to "cram" shortly before an exam or an assignment due-date is not an efficient means of learning the material.

If you are struggling with the material in the class, please come and see me or the SI for assistance, I will try as much as I can to help you succeed, but remember; ultimately **you are responsible for your own education.**

Reading: The lectures will generally follow the same order as the textbook. The sections to be read each week will be announced in class and posted on the class webpage. It is very important that you read the sections that are assigned. The lectures alone will not suffice. We will cover Chapters 1-16, and parts of 17-19 as time allows.

Student Learning Expectations/Outcomes for this Course:

Following successful completion of this course, students will be able to:

1. Based on empirical observations, distinguish between chemical and physical processes and the chemical and physical properties of matter (Critical Thinking)
2. Utilize scientific notation and dimensional analysis to solve chemical problems in mass relationships and stoichiometry (Quantitative Analysis)
3. Determine concentration, solubility and other properties of ionic compounds in solution (Quantitative Analysis)
4. Use standardized symbols to represent atoms and molecules, and predict outcomes of inorganic, organic and nuclear reactions (Critical Thinking)
5. Predict atomic structure, bonding or geometry based on theoretical models and results of empirical studies (Critical Thinking)
6. Describe the intermolecular forces, which influence the properties of gases, liquids and solids (Critical Thinking, Environmental Consciousness)
7. Apply chemical principles to the understanding of the natural world and/or environmental problems (acid rain, global warming, nuclear energy) (Critical Thinking, Environmental Consciousness)

Assessment of Student Learning Outcomes:

1. Homework Success in this class requires skill at problem solving. To practice this, suggested homework problems from the textbook will be posted on the class schedule web page. It is strongly recommended that you do the problems. *These will not be collected or graded*, but the quizzes may contain questions taken directly from the assigned homework. I will go over certain homework problems during the recitation.

2. Midterm Exams There will be three 50-minute, in-class exams given on the dates given in the table below. Exceptions to these dates will only be given for extenuating circumstances (institutional excuse, medical or family emergencies), which must be certified in writing in advance, and then adjustments may be made on a case-by-case basis. The format of the exams will vary, but could include multiple choice, short answer, calculations, and essay types of questions.

3. Quizzes To encourage you to keep up with the material, there will be weekly in-class quizzes. The quizzes will be given during the last 15-20 minutes of class every Thursday beginning the second week, except when there is an exam that week. There will be ten quizzes in total; for determining your final grade, **your two lowest quiz scores will be dropped**. There will be no early or make-up quizzes; if you must miss a quiz, then that will be one of the scores that is dropped.

4. Final Exam The final will be comprehensive (*i.e.* it will cover material from throughout the semester). It must be taken at the scheduled time (10:00 a.m. to 12:00 p.m. on **Tuesday, December 9th**).

Grading Policies

We will be following a traditional grading system (*i.e.* no curve). The following grade scale is guaranteed: > 90% for an A, 80-89% for a B, 65-79% for a C, 50-64% for a D. These are the *maximum* cutoffs for the each letter grade; you are guaranteed at least the

appropriate grade for your total points, possibly with a plus or minus. The cutoffs may be lowered (but not raised) when the final grades are calculated, if appropriate.

The grading in the class will be broken down as follows:

Item	Points	% of Grade
Three midterm exams	3 x 100	45.5
Eight best quizzes	8 x 20	24.2
Final Exam	200	30.3
TOTAL	660 points	

Electronic Devices

Please turn off your cellphone before coming to class. Please do not listen to iPods or other devices with headphones in class. Wearing headphones or using any electronic device besides a scientific calculator during a test will be considered cheating.

Class Schedule

Note the important dates given here. Please see the class webpage for a more detailed schedule. Any updates to the schedule will be posted online.

Week	Dates	Tests (always Thursday)	Notes
1	8/25-28	None	
2	9/2-4	Quiz 1	No class Mon
3	9/8-11	Quiz 2	
4	9/15-18	Quiz 3	Fri: Last day to drop
5	9/22-25	Exam 1	
6	9/29-10/2	Quiz 4	
7	10/6-9	Quiz 5	
8	10/13-16	Quiz 6	
9	10/20-23	Exam 2	Fri: Last day to withdraw
10	10/27-30	Quiz 7	
11	11/3-6	Quiz 8	
12	11/10-13	Quiz 9	No class Tues
13	11/17-20	Exam 3	
14	11/24-26	None	No class Thurs
15	12/1-4	Quiz 10	
Final Exam: Tuesday December 9th, 10:00 a.m. – 12:00 noon			