Chem 110 - Introduction to Chemistry - Summer 2016

Joshua Hanson -- jhanson@napavalley.edu

Lecture: MTWR 3:30 – 5:35 PM  Room 2240  Lab: MTWR 6:00 – 8:10 PM  Room 1844

Office Hours:  By Appointment, Room 1843

Course Description: This lecture-laboratory course is designed to give the student an introduction to the basic principles of chemistry. It is primarily designed for general education as well as majors in the allied health sciences. A background in chemistry is not required, however, reliance upon skills gained in previous mathematics courses (MATH 94 prerequisite) will be the key to solving problems designed to test for the student’s understanding of the material. A scientific calculator with an EXP and a LOG function is necessary.

Text: Corwin, C. H.; Introductory Chemistry 7th Edition; Pearson Prentice Hall, 2007; and in-house Chem 110 Lab Manual available in the NVC bookstore. Goggles are also required and can be purchased at the bookstore.

Exams: There will be 5 mid-term exams; each will be worth 100 points. These will test only the material covered since the previous exam (i.e. non-cumulative). Additionally, there is a cumulative final on the last day of lecture. The score on the Final will count as a separate exam grade and will also replace the lowest Exam score regardless of its relation to other Exams. All exams require you to bring something to write with, something to erase with, and a calculator.

Grading: The lowest Exam grade will be replaced by the Final. Letter grades are based on the performance of the individual with the standard division of letters. The course grade will follow the same divisions, after a course-wide, total accumulated points based curve: (note: the total points listed are a rough outline)

90-100% = A  80-89% = B  70-79% = C  60-69% = D  <60% = F

Exams:  5 @ 100pts each; Final Exam 200 pts (and replaces lowest exam)

In Class Exercises: TBD @ 1 pts each  Nomenclature Quizzes:  2 @ 15 pts each
Labs:  13 @ 15 pts each  HW:  6 @ 5pts each

Attendance Policy: (taken from the Napa Valley College Catalog): Regular attendance in all classes is important for satisfactory academic progress. The Napa Valley College attendance regulations make provisions for a limited number of unavoidable absences. However, a student who is absent for as many times as a class meets each week (for this class, this means twice) will have exhausted this provision. An instructor may request verification of those absences. Further absences may cause the instructor to drop the student from the class. Students who do not attend the first class meeting may be dropped or lose priority on the waiting list.

Make-up Lectures, Assignments, and Exams: As a rule, there are NO make-up sessions, assignments, or evaluations. You must complete all labs or you will fail the course regardless of your total point accumulation. If you can anticipate an absence, please make arrangements well in advance with the instructor to potentially avoid such penalties. Missed exams and quizzes will receive a score of zero points. Also, the instructor reserves the right to have additional quizzes as necessary.
Homework: Homework assignments are posted on my website and are worth 5 points each. They will cover related material to the lectures and are an excellent way to prepare for taking the exams. *It is in your best interest to do the homework fully, and with great fervor, as it will directly aid you in succeeding in this course.*

Electronic Devices: Be sure all cell phones and pagers are turned **OFF** before lecture and/or lab begins. Electronic means of recording the lectures are not permitted (this includes both audio and video recording) unless express permission is given by the instructor. Additionally, laptop computers should be stored during lectures; take notes the old-fashioned way (with paper and pen). Cell phones are NOT to be used as calculators: period. Additionally, ipods, and the like, are also banned from lectures and labs.

Laboratory Requirements: You are expected to be prepared for lab BEFORE starting the experiment. You may not begin the experiment unless you have met a set of minimum, but mandatory, requirements. These requirements include that you 1) have a completed pre-laboratory assignment from the lab manual, 2) attend the pre-lab lecture, and 3) be properly protected by wearing safety glasses, close-toed shoes, and clothing that completely covers from the shoulders to the knees. Failure to meet these minimum requirements may prevent you from participating in that lab session. If you arrive after the START of the pre-lab lecture, you have missed it and points will be deducted, as well as not gaining the wisdom of lab hints and techniques. *This is not advised.* Failure to wear safety glasses while the instructor is wearing his will result in being immediately ejected from that day’s session without the possibility of being readmitted. All labs are to be turned in at the end of lab on the same day that they are performed unless otherwise stated. Labs will be performed individually and all work must be your own. You must complete all labs.

Letters of Accommodation:

Any student who feels s/he may need an accommodation based on the impact of a learning disability should contact Learning Services in the Library and Learning Resource Center (LLRC), room 1766, phone (707) 256-7442. A Learning Disability Specialist will review your needs and determine appropriate accommodations.

If you need accommodations for physical or other types of disabilities, schedule an appointment with DSPS Counselor, Sheryl Fernandez, in the Counseling Department located in the 1300 building, phone (707) 256-7220 for appointment.

All information and documentation is confidential. Please feel encouraged to make an appointment with me privately to discuss your specific learning needs in my class.

Obligatory Statement of “Academic Fraud”: All work must be of your own original composition. Plagiarism from any source (books, papers, fellow classmates, Internet, etc.) or unethical behavior during exams (unauthorized crib notes, a neighboring exam, communication (verbal, written, electronic, or otherwise), etc.) will not be tolerated. The fabrication or use of data other than your own in the laboratory reports is considered fraud. A failing grade will be assigned for the course and drop forms will not be permitted. In addition, the matter will be turned over to the College and your home department for further judiciary and disciplinary actions. Consult your student handbook for additional information on this and other Honor Code stipulations. Consider this statement as your first, last, and only warning regarding this matter.

Instructor: The best way to get in touch with the instructor is by email (fquinlan@napavalley.edu). Because the office is shared, email is the only way that is guaranteed to get your message delivered. The office is located in room 1843.
**Student Learning Outcomes:**

Describe chemical and physical processes at the molecular level and how they relate to the macroscopic environment.

Solve both qualitative and quantitative chemistry problems while demonstrating the reasoning clearly and completely.

Implement laboratory techniques correctly using appropriate safety procedures and express them clearly in written laboratory reports.

**Course Objectives:** Upon completion of this course, the student will be able to:

- Perform basic chemically-related mathematical computations, including conversions within the metric system, conversions between English and metric systems, density, temperature conversion, gas laws, exponents, dimensional analysis and proportions, and mole-related problems, including concentration of solutions.
- Define and appropriately use the terms atom, ion, charge, atomic number, mass number, atomic mass, isotope, energy states, element, compound, mixture, solution, molecule, and formula unit.
- Create drawings to explain ionic bonding and covalent bonding, including coordinate covalent bonding.
- Explain the organization and structure of the Periodic Table.
- Write ionic and covalent formulas, and name simple ionic and covalent compounds and acids; draw the Lewis (electron dot and dash) structures of simple covalent compounds, including skeletal structures.
- Explain polar using the concept of electronegativity to covalent bonds; determine oxidation numbers and identify oxidation and reduction processes and their agents.
- Explain hydrogen bonding and dissolving.
- Use the terms salts, strong and weak bases, strong and weak acids, hydronium ion, ionize and dissociate.
- Explain neutralization and bases as proton acceptors.
- Classify chemical equations, and write balanced chemical equations given only the reactants.
- Apply the mole concept, and perform mole-equation computations for gas-volume and non-gas-volume problems; calculate mole amounts, molar volumes, and molar masses; determine gas densities from formula masses.
- Contrast the meanings of "concentrated and dilute" with "strong and weak;" calculate molar concentrations (molarity) and normality.
- Apply the concept of pH and the factors that influence it.
- Work in a laboratory setting utilizing appropriate safety and technique procedures and standard laboratory equipment.
- Perform a variety of experiments following laboratory directions.
- Develop and test hypotheses, gather and weigh evidence, and make appropriate conclusions.
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LABORATORY SAFETY RULES

Your participation in this laboratory requires that you follow safe laboratory practices. You are required to adhere to the safety guidelines listed below, as well as any other safety procedures given by your instructor(s) in charge of the course. You will be asked to sign a form certifying that you were informed of the safety guidelines and emergency procedures for this laboratory. Violations of these rules are grounds for expulsion from the laboratory.

You have the right to ask questions regarding your safety in this laboratory, either directly or anonymously, without fear of reprisal.

**Goggles must be worn at all times while in lab.** You must purchase a pair of goggle for yourself and you may store them in your locker.

**Long hair must be tied up in a bun during lab work.** Loose long sleeves should be avoided in the lab.

**Shoes must be worn in the laboratory.** These shoes must fully enclose your foot.

Locate the emergency evacuation plan posted by the door. Know your exit routes!

Locate emergency shower, eyewash station, fire extinguisher, fire alarm, and fire blanket.

Dispose of all broken glassware in the proper receptacle. Never put broken glass in the trashcan.

Notify you instructor immediately if you are injured in the laboratory; no matter how slight.

If any reagents are spilled, notify your instructor at once.

Never pipette fluids by mouth. Check odors cautiously (i.e. wafting). Never taste a chemical.

Eating or drinking in the lab is prohibited. Do not drink from the laboratory taps.

Children and pets are not allowed in the laboratory.

Wash your hands before and after working in the lab.

Turn off the Bunsen burner when you are not using it.

Every chemical in a laboratory must be properly labeled. If a label is unclear, notify your instructor.

Follow the instructor’s directions for disposal of chemicals.

Only perform the assigned experiment. No unauthorized experiments are allowed.

Use the proper instrument (eye-dropper, scoopula, etc.) to remove reagents from bottles. Never return unused chemicals to the original container. Do not cross contaminate reagents by using the same instrument for 2 different reagents. **Never obtain reagents directly from stock solutions.**

Material Safety Data Sheets (MSDS) are available for your reference. These contain all known health hazards of the chemicals used in this course. In addition, there is information concerning protocols for accidental exposure to the chemical. You are advised to inspect this binder.
## Homework - 7th Edition Book

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