COURSE: CHEM 110 - Introduction to Chemistry (Lecture and Lab)  
PROF: ALAN BEAMER, MA  
TERM: SPRING 2016

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<tr>
<td>M/W 08:00 – 09:15 ROOM 2210</td>
<td>M LAB SECTION 9:30 – 12:20 ROOM 1830</td>
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<td>W LAB SECTION 9:30 – 12:20 ROOM 1830</td>
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CONTACT INFORMATION/OFFICE HOURS:
EMAIL: abeamer@napavalley.edu
- This is the best method to reach me
- If you are going to be absent, let me know through email.

PHONE: N/A  
The phone is in a communal office; there is no guarantee that I will get your messages in a timely fashion.

WEBSITE:  
- [http://www.napavalley.edu/people/abeamer/pages/abwelcome.aspx](http://www.napavalley.edu/people/abeamer/pages/abwelcome.aspx)
- Check the website on a regular basis for due dates and changes in syllabus

OFFICE: ROOM 1843
OFFICE HOURS: T (10 AM – 1 PM); W (1 PM TO 3 PM)

COURSE DESCRIPTION:
CHEM 110 (Lecture/Lab) introduces basic chemical theory, principles, and calculations. Even though this course satisfies a general education course, the rigor of this course is geared toward preparing allied health majors and other majors that require CHEM 120 for their future coursework. Though a background in chemistry is not required, skills gained in previous mathematics courses (MATH 94 prerequisite) will be key in solving calculation-based problems designed to assess student understanding of the material. All problems can be solved using dimensional analysis (unit analysis or factor-label method), so algebra is optional. However, a calculator with an EXP and a LOG key is necessary.

COURSE PRE-REQUISITE:
- PRE-REQUISITE: MATH 94 Intermediate Algebra (with grade of C or higher).

COURSE MATERIALS:
- LAB: CHEM 110 Lab Manual (in-house), available in the NVC bookstore. The manual also serves as the laboratory notebook.
- The ancillary DVD is not required for this course. Do not purchase.
- CALCULATOR: **must** have the logarithmic [LOG] function and the exponential [EXP] function.
- Highly Recommended: Three-ring binder for organizing notes, assignments, tests, etc...
- Highly recommended, but not required: four-color “clicky” pen.
GRADES

PRIMARY BREAKDOWN

- Lecture: 60% of semester grade.
- Lab: 20% of semester grade.
- Final Exam: 20% of semester grade.
- Further explanation on the next few pages.

LECTURE COMPONENT: 60% OF COURSE GRADE

- Graded Assignments: 20% of lecture component
  - Homework
    - Only some homework assignments will be graded.
      - I will explain homework scoring in class.
    - All of the homework assignments in order to do well in this course
  - Quizzes are TBA; with one exception, they are always announced a minimum of three days (not “class days” or “weekdays”...three days) before they are administered.
    - Depending upon the difficulty of the quiz, quiz grades will be recorded once, twice, or (rarely) three times in this category.
    - Quizzes are timed. You will feel rushed.
  - Homework Assignment Zero (HW0) allows you to drop the lowest score from the “Graded Assignments” category.
    - Allows you to drop one score from the “Graded Assignment” category
    - The Diagnostic Quiz may not be dropped. If you are absent, this quiz may incur a penalty.
    - If the lowest “Graded Assignment” counts more than once, only one of the scores will be dropped.

- Exams: 80% of lecture component
  - There will be five (tentative) mid-term exams, each scaled to 100 points.
  - Exams are announced five days in advance. Again, changes may occur in the syllabus.
  - Even though each exam will focus on the current unit material, there will be some cumulative material on each exam.
  - Exams are timed. You will feel rushed.
  - Review questions (not for a grade) will be made available on the website.
LAB: 20% OF COURSE GRADE

- Each lab will be scaled to 100%.

- Pre-Labs
  - I will check pre-labs at the beginning of each lab period.
    - If prelabs are complete, you will get full credit.
    - If prelab is not complete, there will be a penalty on the entire lab report grade, about 20%.
    - When I check prelabs, I will give tell the class “pencils and pens away.” If you are still writing – even if it is “your name” – you will receive the 20% penalty. (Come on, we’re adults, here.)

- Labs are due at the end of the lab period. All information must be correct when it is turned in. (This is easier than it sounds.)

- If the lab is not turned in by the end of the period, then I will grade the lab the same way as the “Graded Assignments”

FINAL EXAM: 20% OF COURSE GRADE

- Final Exam Dates for Fall 2015:
  - M/W Section: Monday, May 23rd, 8 AM – 10 AM

- The Final Exam will be cumulative.

- The format of the Final Exam will be given a minimum of two weeks before the Final Exam date.

- You will be given the following resources for the Final Exam:
  - A review topics sheet, approximately two weeks before the Final Exam.
  - A list of all materials in the “Reference Packet” that will be given to you at the beginning of the Final Exam.
    - Reference Packet contents: Periodic Table, Activity Series List for Metals, Solubility Chart...
  - Several review topics (concepts only). Answer key will not contain answers to review topics.
  - Several review calculations questions. An Answer key will be provided.
  - Answer keys will be provided through the website.

- The Final Exam grade can also be used to substitute the lowest test grade, including a zero.

MAKE UP LECTURES, ASSIGNMENTS, AND TESTS

- As a rule, there are NO make up sessions, labs, assignments, or evaluations.

- The lowest test grade can be replaced with the grade you earn on the Final Exam.

- If you know in advance that you will be absent on an assessment or lab day, let the professor know. Alternate arrangements may be made in the event of “life circumstances.”
**ONLINE PRACTICE/REVIEW QUESTIONS**

- Homework and review questions (for tests and quizzes) will be posted to the course website.
- These assignments are not due for grading.
- Completing the review questions before Q&A lecture is highly recommended.
- We will not always have review sessions before an exam. So, you must keep up with the work.

**EXTRA CREDIT**

- I do *not* give extra credit assignments/projects to help you bring up your grade. Please don’t ask.
- Minor extra credit problems will be available on some assessments.

**ACCOMMODATIONS FOR LEARNING DISABILITIES**

- 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.
- Even if you have a learning disability already documented, you must re-register with DSPS at the beginning of every new semester.
- 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.

**TUTORING**

- Please remember that I am available during my office hours (see p. 1 of this Syllabus).
- Napa Valley College offers a tremendous number of services designed to help students succeed. Seeking out these services BEFORE you need them to pass the course is in your best interest.

**ELECTRONIC DEVICES:**

- Be sure all cell phones and pagers are turned OFF before lecture and/or lab begins.
- Recording lectures using electronic audio and/or video devices is not permitted.
- Additionally, laptop computers should be stored during lectures; take notes the old-fashioned way: with paper and pen(cil).
- Cell phones are NOT to be used as calculators during assessments. I do *not* have spares, in case you forget yours. You will simply have to do as much as the assessment as possible without it.
- Ipods, MP3 players, etc...also need to be turned off during the lecture and labs.
**Obligatory Statement of “Academic Fraud”**

- All work must be of your own original composition.
- Plagiarism from any source (books, papers, fellow classmates, Internet, etc...) will not be tolerated.
- Unethical behavior during exams (unauthorized crib notes; a neighboring exam; communication: verbal, written, electronic, semaphore, etc...) will similarly not be tolerated.
- Lab Reports: Fabricated (fudged) data and/or the use of any other data than your own academic fraud.
- In cases of Academic Fraud, a failing grade for the course will be assigned, and drop forms will not be permitted. 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.

**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:

- You have completed the pre-laboratory assignment from the lab manual.
- Attending the pre-lab lecture is highly suggested. Arriving after the pre-lab lecture will result in loss of points.
- You must be wearing appropriate lab attire: safety goggles, closed-toe shoes, clothing that covers you from your shoulders to your knees.

Failure to meet these minimum requirements will prevent you from participating in that lab session. Arriving after the START of a pre-lab lecture is tantamount to “missing the pre-lab lecture,” and points will be deducted from the lab component. *This is not advised.* Failure to wear safety glasses while the instructors is wearing his will result in being immediately ejected from that day’s session without the possibility of being readmitted.

**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 the techniques clearly in written lab reports.
**Course Objectives/Expectations**

Upon completion of this course, the student should be able to:

- Perform basic chemistry-related mathematical computations, including: dimensional analysis; proportions; metric system conversions; English-to-Metric (and vice versa) conversions; density calculations; temperature conversion; gas laws calculations; mole-related calculations; and concentration calculations.

- 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.

- Be able to draw illustrations to explain ionic bonding, covalent bonding, and coordinate covalent bonding.

- Explain the organization and structure of the Periodic Table of Elements.

- Nomenclature: Write the chemical formula of a substance (simple ionic compound, simple covalent compound, or acid) when given its name.

- Nomenclature: Write the name of a substance (simple ionic compound, simple covalent compound, or acid) when given its corresponding chemical formula.

- Be able to draw Lewis (electron dot and dash) structures of simple covalent compounds, including skeletal structures.

- Use polarity to determine the nature of a chemical bond.

- Classify chemical equations, and write balanced chemical equation when only given the reactants.

- Oxidation and Reduction (redox):
  - Determine the oxidation number of each element within a substance.
  - Identify oxidation-reduction (redox) processes, sometimes incorporating polarity concepts.
  - Identify oxidizing agents and reducing agents within redox processes.

- Explain hydrogen bonding and the process of solvation.

- Use the following terms correctly: salts, strong and weak bases, strong and weak acids, hydronium ion, ionization, dissociation, and neutralization.

- Define/identify acids and bases, using the Arrhenius system and/or the Brönsted-Lowry system.

- The mole and mole-related calculations: mole-equation calculations for gas-volume and non-gas-volume problems; calculate molar amounts, molar volumes, and molar masses; determine gas densities from formula masses; molarity; and normality.

- Contrast meanings of “concentrated vs dilute” and “strong vs weak” for acids, bases, and solutions.

- Apply the concept of pH and the factors that influence it.

- Work in a laboratory setting, utilizing appropriate technique and standard laboratory equipment.

- Work in the laboratory setting with proper lab safety and lab etiquette.

- Perform a variety of experiments, following laboratory directions.

- Develop and test hypotheses, gather and weigh evidence, and make appropriate conclusions.
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 this 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.

**Note:** 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 while experiments are in progress.** You must purchase your own goggles.
- You may store them in your locker. You will be advised of the appropriate time to purchase your goggles.
- **Absolutely no horseplay in the lab.** You will be immediately ejected from the lab session for horseplay.
- 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 your instructor immediately if you are injured (even slightly) in the laboratory.
- *Never* pipette by mouth. *Never* taste chemicals.
- Check odors cautiously (i.e. wafting).
- Closed-toe shoes must always be worn in the lab environment.
- Loose hair should be tied in a bun in the lab environment.
- Eating and drinking are prohibited in the lab. (No water bottles. No coffee!)
- Do not drink from the taps in the lab.
- Wash your hands before and after working in the lab environment.
- Turn off the Bunsen Burner when you are not using it.
- If any reagents are spilled, notify your instructor at once.
- Follow the instructor’s directions for chemical disposal.
- Only perform the assigned experiment. No unauthorized experiments are allowed.
- Every chemical in a laboratory must be properly labeled. If a label is unclear, notify your instructor.
- 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 two different reagents. (Don’t use the mustard knife for the mayonnaise jar.)
- Material Safety Data Sheets (MSDS’s) and SDS’s (Safety Data Sheets, an updated version of MSDS’s) are available for your reference. These documents 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.
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*Note: Weekly Syllabi will be posted to the website. Check the website regularly!
CLASSROOM ETIQUETTE AND DROP/ADD POLICY

CLASSROOM ETIQUETTE

• Be mindful that – even though there will be levity in the classroom – I expect students to treat each other with dignity and respect. Every student should feel safe in the learning environment.

• Remember that this course is a chemistry course. This is one of the few disciplines on campus in which you can receive burns, chemical burns, cuts, and electrical shocks. This is also one of the few disciplines in which you can be potentially blinded and/or poisoned. Yes, I may be overly cautious, but I these hazards exist. I want you to approach the lab environment with confidence and competence, but also with caution and maturity.

BEGINNING OF SEMESTER DROP/ADD POLICY

• You must be present on the first lab period of the semester. You must be on time. If you are late, you will lose your spot in the class if there are other students on the waiting list. You will lose your spot, even if you have been to more than one class period. Be on time!
HW0 (Homework Zero): Class Policies and Syllabus Signature Page

• This assignment is due on Wednesday, January 27th, at the beginning of the class period.
• This homework assignment will replace one “Graded Assignment” score.
• Turn in only this page. Keep pages 1 – 9 for your records.
• Note: If the lowest graded assignment score counts more than once, only one of the scores will be replaced.

I, __________________________________________, certify that I have read and understood the guidelines set forth in the syllabus. I understand that I may ask the professor for clarification about any of these policies at any time. I understand that failure or refusal to adhere to the academic and behavioral guidelines may have an adverse effect on my grade. Furthermore, failure or refusal to adhere to the academic and behavioral guidelines in this syllabus and in the Student Handbook may result in suspension or dismissal from this course. I also agree to read and abide by the guidelines set forth in the Napa Valley College Catalogue (especially read the sections listed below), and I understand that these policies inform me of my own rights as a student. Thus, reading and understanding these policies serve my best interests as well.

SIGNATURE __________________________ DATE __________

NAPA VALLEY COLLEGE CATALOG

• The Napa Valley College Catalog (2014 – 2015) should be your “go-to” place to learn your rights and responsibilities as member of the Napa Valley College Community.

• In particular, you should read the following policies:
  ■ Academic Honesty (p. 27)
  ■ Drug-Free Workplace (p. 10)
  ■ Non-Smoking Areas (p. 10)
  ■ Sexual Harassment (p. 11)