CHEM 30A Course Syllabus

Fall 2009

CHEM 30A Inorganic Chemistry for Health Occupations

Chemistry 30A is an introduction to general inorganic chemistry and consists of both lecture and laboratory components. It is the first term of a two-term chemistry series designed for health science and related majors. Topics include measurements, atomic structure of matter, chemical bonding, chemical reactions, acid-base chemistry, salts, buffer systems, electrolyte systems, and nuclear chemistry. Discussions include applications of chemistry to everyday life, as well as to the health professions.

Instructor

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Schedule

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<th>Section</th>
<th>Lectures</th>
<th>Laboratory</th>
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<td>63018</td>
<td>TTh 12:40 pm – 2:00 pm (Room 612)</td>
<td>T 9:30 am – 12:35 pm (Room 607)</td>
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<tr>
<td>63019</td>
<td>TTh 12:40 pm – 2:00 pm (Room 612)</td>
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Final Exam: TTh lecture: Thursday, December 17 10:00 am – 12:50 pm (Room 612)

Materials


Cabrillo College, CHEM 30A Laboratory Manual, 2009. (Available at the Cabrillo College Hawkshop Bookstore)

Safety Glasses. (Available in lab)

CHEM 30A Laboratory Kit. (Available in lab)

Online Resources

Assignment schedules, course handouts, review topics, and practice problems will be available online at the following web address:

http://www.cabrillo.edu/~aromero
Prerequisite

MATH 154

Student Learner Outcomes

1. Investigate the properties of matter through measurement and mathematical relationships and describe those properties using the language of chemistry.
2. Compare and contrast the macroscopic behavior of solids, liquids and gases in terms of kinetic molecular theory.
3. Synthesize conclusions from observations.
4. Predict the products, and explain observed results, of common chemical reactions including nuclear, acid-base, combustion, and double displacement.
5. Evaluate common chemical names and measurements found in allied health and consumer applications in a meaningful and accurate way.

Course Content

1. Properties of matter
2. Classification of matter
3. Measurements, metric units, scientific notation, and significant figures
4. Conversions using Dimensional Analysis (also known as the Factor Label Method)
5. Atomic theory
6. The periodic table and trends in the properties of elements
7. Chemical bonding
8. Nomenclature (naming compounds)
9. Properties of compounds
10. Lewis dot structures
11. VSEPR theory (predicting the shapes of molecules)
12. Moles and molar masses
13. Chemical formulas and chemical changes
14. Balancing chemical equations
15. Stoichiometry (calculating the amount of material consumed or produced in a reaction)
16. Energy in chemical reactions
17. Kinetics
18. Equilibrium
19. Gases
20. Liquids
21. Solids
22. Solutions and concentration
23. Electrolytes
24. Acids, bases, and pH
25. Buffers
26. Nuclear chemistry and radioactive decay
27. Medical applications and biological effects of radiation
Assessment and Grading Policies

Your grade will be based on your ability to demonstrate your command of the course material at home, in the classroom, and in the laboratory. Your overall grade will be a weighted average of the following categories.

Exams (30% of overall grade)
You will be given several multiple choice exams during the semester, including a cumulative final exam. You will be notified of an upcoming exam at least one week prior to the exam, and review topics are available to assist you in your studying. If you are late to an exam, you will only have the remaining allotted time to complete the exam. Make-up exams will be proctored outside of class, and will be curved with a less generous amount of extra credit.

Quizzes (30% of overall grade)
You will be given a quiz after the completion of most chapters covered in the text (Chapters 1 – 10). Quizzes vary in length and point value based on the amount and complexity of material in each chapter. Quizzes typically consist of a mixture of problem types, including numerical calculations (partial credit will be given), matching, fill in the blank, and short answer. Most quizzes are 30 minutes in length and start at the beginning of the class period. If you are late to a quiz, you will only have the remaining allotted time to complete the quiz. If you must be absent the day a quiz is scheduled, arrange with your instructor to take the quiz in advance. Make-up quizzes will not be given.

Laboratory (25% of overall grade)
The laboratory component of this course will consist of 24 lab activities and 1 extra credit activity. Each laboratory assignment will be worth 20 points, and pre-laboratory quizzes (when given) will be worth 5 points.
Pre-Lab Quizzes: You will be required to read all lab activities in advance of the lab. Please bring a Scantron® (form #882-E) to lab on the assigned day at the beginning of the semester. The instructor will keep your Scantron® on your behalf, and distribute it back to you as needed. Multiple choice pre-laboratory quizzes will be given at the beginning of select lab periods. Make-up quizzes will not be given.
Lab Activities: The laboratory assignment will be due at the beginning of the next lab meeting, however, it is to your advantage to stay and finish the assignment during the lab period so that the instructor can check your work and make suggestions. The late penalty for lab assignments is 5 points per lab meeting, up to a maximum of 10 points. In the event of an absence during lab, it is the student’s responsibility to ensure that the instructor has received their work, and to obtain any laboratory lecture notes that were missed. No formal make-up labs will be available, but arrangements can be made to sit in on another lab section or to obtain enough data to complete the assignment.

Reading Assignments and Homework Problems (15% of overall grade)
Reading: Reading will be assigned prior to each chapter and should be completed before the relevant lecture in order to gain the maximum benefit from the lesson. It is your responsibility to keep up with the reading. Although you will not be graded directly for reading, failing to read the required material will have an adverse effect on your ability to perform well in the course.
Homework problems: Homework problems will be assigned and collected for each chapter. Each homework assignment will be graded on a 0 – 5 point scale based both on how thoroughly the assignment is completed and the correctness of your answers (see Homework Grading Rubric). I often teach beyond what is in the textbook, therefore I may expect more than what is found in the back of the book or a solutions manual. Use your lecture notes. You will have at least one week to complete a homework assignment and you are strongly encouraged to come to office hours for help. Homework is due at the beginning of lecture, and any homework not submitted at that time will be considered late. Late homework will be accepted at a penalty of 1 point per calendar day, down to a minimum of 1 point out of 5.
Disabilities

The Disabled Students Program and Services (DSP&S) offer a variety of services to enable students with disabilities to function independently in the educational environment. Accommodations will gladly be made in order to help students with disabilities succeed. Please come to office hours with DSP&S verification of your disability and a specialist’s recommendations for accommodating your needs. Students with extended time will complete their exams at the Proctoring Center. Arrangements for this should be made with the instructor and the Proctoring Center several days prior to each exam, and your appointment at the Proctoring Center should be scheduled so that you take your exam at the same time as (or before) your peers.

Behavioral Expectations

All Cabrillo College rules*, U.S. & international laws, and laws of physics apply in the classroom. In addition to these, there are a few classroom rules that I will zealously enforce.

Attendance, Tardiness‡, and Being Prepared
I will only take attendance the first few days of class for enrollment purposes. After this time, it is your responsibility to come to class in order to learn, submit work, and perform well in the course. I ask that you be on time and ready to work. If you are tardy, please be as considerate as possible to your fellow students and quietly take the closest available seat to the door. The following items are required during lecture and lab:

** Lecture **  
- notebook/paper (class lecture notes)  
- #2 pencils  
- pens (multicolor recommended)  
- scientific calculator  
- Scantron® form #882-E (exam days only)  
- work to submit (stapled with your name and lab day)

** Laboratory **  
- notebook/paper (class lecture notes)  
- #2 pencils  
- pens (multicolor recommended)  
- scientific calculator  
- Scantron® form #882-E (assigned day)  
- laboratory manual  
- textbook (recommended)  
- appropriate attire  
- CHEM 30A lab kit and safety glasses  
- work to submit (stapled with your name and lab day)

Cellular Phones and other Portable Electronic Devices
Please turn off all audible devices or set them to a silent mode. If you anticipate an emergency call, please use a vibrating mode, sit near the door, and exit the room before answering your phone.

Grade Disputes
All inquiries concerning a student’s grade must be made by e-mail or during office hours. I will not use class time to answer questions that do not pertain to the class as a whole, and I am not able to devote my full attention to you between classes.

* Please refer to the Students Rights and Responsibilities Handbook available at the Student Affairs Office (SAC East) or on-line at: [http://www.cabrillo.edu/services/studentaffairs/documents/studentrightsresponsibilities09.pdf](http://www.cabrillo.edu/services/studentaffairs/documents/studentrightsresponsibilities09.pdf)

‡ The Official U.S. Time can be found on-line at: [http://www.time.gov/](http://www.time.gov/)
**Cheating and Plagiarism**

It is your responsibility not to give an instructor or proctor any cause to think that you might be cheating. Do not rummage through your bag or glance around the room during tests. Be sure that any work that you turn in is solely your own, and that any sources of information are clearly cited. If cheating is suspected, all parties will receive a zero on the assignment and will not be given an opportunity to make up the work.

**Disruptive Behavior**

Any behavior that is a distraction to the instructor or your fellow students is considered disruptive. This includes the use of cell phones, changing seats, and side conversations. A three strikes policy will be used for disruptive behavior. The first strike is a verbal warning, the second a Disruptive Student Report to the Dean of Student Services, and the third is removal from the course. Extremely disruptive behavior may count as more than one strike.

**Laboratory Behavior**

**Stockroom**: You are NOT allowed inside the chemical stockroom for any reason. If you need supplies please ask your instructor or a Laboratory Technician (Eric or Cathy).

**Unauthorized Experiments**: Unauthorized experiments are dangerous and strictly forbidden. You will be removed from the class for the day, receive a zero on the entire assignment, and have a Disruptive Student Report filed with the Dean of Student Services.

**Horseplay**: Although horseplay and practical jokes may be innocent in intent, in a dangerous environment such as a chemistry lab, the results may be a serious accident or injury. Therefore, unsafe behavior will not be tolerated and will be subject to a three strikes policy. The first strike is a verbal warning, the second a Disruptive Student Report to the Dean of Student Services, and the third is removal from the course.

**Lab Materials and Equipment**: All lab equipment, resources, and chemicals are the property of Cabrillo College and may not be removed from the classroom or mistreated in any way. If materials are taken, the student will have a Disruptive Student Report filed with the Dean of Student Services and have their overall course grade lowered by one full letter grade. A second or serious offense will result in the student being removed from the course with a failing letter grade, and Cabrillo College may take further legal or punitive action against the student. Mistreatment of equipment will be subject to a three strikes policy. The first strike is a verbal warning, the second a Disruptive Student Report to the Dean of Student Services, and the third is removal from the course. Deliberately damaging equipment may count as more than one strike.

**Waste Disposal**: You are responsible for the proper disposal of all laboratory materials. General instructions will be given at the beginning of the semester and specific instructions will be given for each lab. If you are unsure of how or where to dispose of an item, please ask your instructor or a lab technician instead of making a mistake. Improper waste disposal will be subject to the three strikes policy. The first strike is a verbal warning, the second a Disruptive Student Report to the Dean of Student Services, and the third is removal from the course.

**Accidents/Injuries**: Please report all spills, broken glassware, and injuries immediately. Failure to report chemical exposure or unsafe conditions could result in serious injury to you, other students, or the staff. In the event of an accident, please follow the safety procedures outlined at the beginning of the course and alert the instructor before leaving the room.