

CHEMISTRY 1A GENERAL CHEMISTRY COURSE SYLLABUS AND SCHEDULE

Introduction: Chemistry 1A is a general chemistry course for students who have a reasonable background in high school chemistry. Proficiency in high school algebra (including solving for unknown variables, manipulating exponentials and logarithms, operating a calculator, etc.) is expected. Topics covered include: stoichiometry, gas laws, chemical equilibrium, acids and bases, acid and base equilibrium, and aqueous solution equilibrium (including solubility product constants, complex ion formation, etc.). These correspond to chapters 2 – 8 and appendices 1 and 2 in the text. Please note that this reflects the revised Introductory General Chemistry series; Chem 1A is not a review class and is quite rigorous. The syllabus/schedule are subject to updates; please check for revisions.

Instructor:

Dr. Randa Roland Thimann 317 randaro@ucsc.edu (831)459-5486
course website is available through <http://tinyurl.com/1asummer16>

Text/Required Materials:

Title: HOPEFULLY Chemical Principles w/ OWLv2 access code; 8th edition HOPEULLY FREE TRIAL; Author: Zumdahl & DeCoste

Lectures and Reading Assignments: The class schedule includes reading assignments and suggested problems from the textbook. You should read the material before coming to lecture. Lecture attendance is 10% of your grade.

Discussion Sections: Sections are designed to help you understand and master the material, and they begin the first full week of instruction. Each section has a maximum size (no exceptions). Attending section is good preparation for exams, and you should plan to attend (even though they are technically optional).

Knowledge Demonstrations: In-class exercises in which you show me what you know, and you must be present for these on time and at the appointed times. This grade breakdown is tentative and may be subject to modification – changes will be announced in class. **Below C grades on any or all of your knowledge demonstrations, including the final, may result in a failing grade in the course.**

If you are absent one or more of these days because of illness or other extenuating circumstance (travel for family matters is not considered an emergency circumstance), you must contact me to discuss your situation prior to the absence. Make-ups will probably not be offered but other mitigating measures may be taken to compensate for a properly justified absence. Your final grade will depend on your overall performance (note: if you do not earn 'C' grades on the knowledge demonstrations, it is unlikely that you will be able to pass the course).

Homework: OWLv2 is a new homework system we are trying out. Participation and survey completion will be 5% of your grade. You will not pass the class if you do not provide meaningful feedback/survey responses. We will discuss this more in class.

Grades: I want to talk about this with you the first day.

Electronics in the classroom: These are a no. Please turn off cell phones, etc. Active learning means taking notes and solving problems, and active learning leads to HIGHER TEST SCORES. Please DO bring a calculator that can handle exponents/scientific notation.

Office Hours: The TA and/or I will hold office hours weekly (times will be announced in class). This time is for you to clarify course material rather than to solve personal problems or grievances on grading. If you do need clarification on scores, we can arrange a special appointment to discuss the situation further.

Disability Resources: If you have a disability (visible or invisible), you are encouraged to talk with the instructor and your TA about it on a confidential basis so that we might collectively devise a strategy to overcome any barriers to ensure your success. You should also consult with the Disability Resource Center, 459-2089.

Course Materials, Notes, Copyright and Intellectual Property:

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Just so you know: I love chemistry and I want you to succeed in this course. I really like it when you all earn A grades!

LECTURE SCHEDULE (Subject to Change) – link through course website (tinyurl.com/1asummer16)

*Below C grades on any or all knowledge demonstrations may result in a failing grade in the course. Studies show that doing several problems one day, several problems the next day, and several problems about 7 – 10 days later results in better learning and retention. Don't cram ☺

The following is a *preliminary* schedule that is likely to be updated. Thanks.

Date	Topic	Ch	Preview
6-20	Course Outline; Introduction to Chemistry; Atomic Theory; Ions & Molecules (<i>You are responsible for Ch 1, Ch 2, and App 1&2 content</i>) Periodic Table; Bonding: Names and Formulas Atomic Masses; Moles & Molar Mass; %Composition	App 1&2 2 3	Skim 2.2 – 2.5; Read 2.6 – 2.8; Skim 2.9 Skim 3.1 – 3.4; Read 3.5 Read 3.6; Skim 3.7 – 3.8;
6-22	Formula Determination; Chemical Equations; Stoichiometric Calculations	3	Read 3.9 – 3.10
6-24	Stoichiometric Calculations (con't.); Properties of Water; Aqueous Solutions (composition, reactions)	3 4	Skim 4.1 – 4.2; Read 4.3 – 4.6
6-27	Knowledge Demonstration 1? Precipitation Reactions	2-4.3 4	Skim 4.7; Read 4.8 – 4.11; Skim 4.12
6-29	Acid-Base Reactions & Titration; Oxidation States; Redox Reactions	4	Skim 5.1 – 5.2; Read 5.3 – 5.5 Skim 5.6; Read 5.7; Skim 5.8 – 5.12
7-1	Foundations of Gas Laws; Ideal and Combined Gas Laws Gas Stoichiometry, Partial Pressures, Kinetic Molecular Theory	5	Read 6.1 – 6.3; Skim 6.4; Read 6.5 – 6.7
7-6	Knowledge Demonstration 2? Concepts of Equilibrium; Equilibrium Condition & Characteristics Equilibrium Constant (K_{eq}) & Expressions	2-5 6	Read 6.8; Skim 6.9
7-8	Heterogeneous Equilibria; Reaction Quotient; Calculations LeChâtelier's Principle Acids & Bases, Acid (or Base) Strength; pH Scale & Calculations Calculations - Strong Acids and Bases	6 7	Read 7.1 – 7.3; take a <i>quick skim</i> through the rest of Ch 7 I organize Ch 7 a little differently than the book...
7-11	Calculations (cont.) - Weak Acids and Bases; Acid-Base Properties of Salts; Polyprotic Acids	7	...Read/review Ch 7 as we go through Read 8.1 – 8.2; Skim 8.3; Read 8.4 – 8.5
7-13	Acids & Bases – Common Ion Effects; Acid-Base Buffers	8	Skim 8.6 – 8.7
7-15	Titrations & pH Curves, Indicators; Polyprotic Acid Titrations Solubility, K_{sp} , Common Ion Effects <i>Selective Precipitation, Complex Ion Equilibria</i>	8	Read 8.8; Skim 8.9 – 8.10
7-18	Catch-up and Review		Review Ch 6 – 8
7-20	Catch-up and Review		Review Ch 3 – 8
7-22	Knowledge Demonstration 3?	3-8	

Randa Roland, Ph.D.

Thimann 317

459-5486

randaro@ucsc.edu