GENERAL CHEMISTRY, CHEM-1A, WINTER 2012
INSTRUCTOR: DR. RAM SUBRAMANIAM

Instructor Contact Information

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Office Hours: MW- 12:30 to 1:30 p.m. and F- 9:30 to 10:30 a.m.

Class Meeting

Lecture: SC 2202
Lecture time: MTWR- 10:30 to 11:20 a.m.

Lab lecture and Lab: SC 2202
Lab lecture and Lab time: 7:30 to 10:10 a.m.

Textbook

Lecture- Chemistry - The Molecular Nature of Matter & Change with ARIS Access Card, 5th Edition, ISBN: 13 9780077276096, Publisher: McGraw-Hill.
Lab- Microscale General Chemistry Laboratory, 2008; De Anza edition, Szafran, Pike, Foster (John Wiley & Sons: 2008, ISBN 0-471-77762-5)

Course Content

General Chemistry at De Anza College is presented as a three-part class. In Chem-1A, we will start with a discussion about the structure of an atom. We will then learn about the various types of chemical compounds and the different types of reactions they can participate in. After introducing some of the properties of gases, we will introduce the concepts of energy involved in chemical reactions. At this time, we will refocus on the atom, this time introducing the concepts of quantum chemistry. This will lead to a more in depth discussion about the periodic table and the properties of the elements. We will conclude the quarter with a discussion about the various theories that describe how a chemical compound is formed. This will give us many useful insights such as the shape and geometry of chemical compounds and the nature of the bond that forms between two elements.

Academic Integrity

All graded assignments must be completed without any consultation (people, books, internet) unless otherwise permitted by the instructor. Any student that violates this policy will receive a failing grade (F) in the class and reported to appropriate administrative authorities such as the Dean.

Attendance Policy

Failure to attend any of the lectures or laboratory classes during the first two weeks will result in you being dropped from the class. You are expected to attend all lecture and laboratory classes. Strong evidences exist that indicate that the success of a student is directly related to her/his class attendance. You will be given an "F" grade for unexcused absences in TWO or more lecture and/or laboratory periods.

Excused Absence: If you know in advance that you will need to miss a class, please notify the instructor and provide proof of the excuse. If you have already missed a class, please follow up with the instructor as soon as possible and provide a proof of a valid excuse. Valid excuses are: birth/death in the family, work-related travel, illness/medical emergencies, conference travels, jury duty, accidents, legal issues, or traveling to represent De Anza College at meetings/other events. Other excuses will be considered on a case-by-case basis. Please note that verifiable documented proof of the excuse is essential in order to grant a make-up.

Cell Phone Policy

Use of cell phones is strictly prohibited during class. There is to be no text messaging, browsing the Internet, or voice conversations. Violation of this policy will bar you from attending office hours and may result in failure in the class.

Evaluation

The lecture portion of the class is weighted at 75% and the laboratory portion is 25%. You must complete all the lab experiments and pass the lab in order to pass the class. The evaluation for the laboratory part will consist of lab reports, lab exams, attendance, and notebook.

Lecture Schedule

The following is a tentative schedule for the lecture portion of the class. It is highly recommended that you read the relevant sections in the book prior to the lecture. Periodically, the instructor may assign certain sections of the book to be read on your own and these will not be covered in the lecture. You will receive appropriate instruction for such readings during the lecture. Some laboratory periods may be used for lectures.

Week	Dates	Chapter	Topic
1	January 10, 12, 13	Chapter 1, 2	Matter
2	January 17, 19, 20	Chapter 3	Stoichiometry
3	January 24, 26, 27	Chapter 4	Chemical Reactions
4	January 31, February 2, 3	Chapter 5	Gases
5	February 7, 9, 10	Chapter 6	Thermochemistry
6	February 14, 16	Chapter 7	Quantum Theory
7	February 21, 23, 24	Chapter 8	Periodic Trends
8	February 28, March 1, 2	Chapter 9	Chemical Bonding
9	March 6, 8, 9	Chapter 10	Shapes
10	March 13, 15, 16	Chapter 11	Covalent Bonding
11	March 20, 22, 23	Chapter 11	Covalent Bonding
12	March 28, 9:15 to 11:15 a.m.		Final Exam

Mid Term Exam Dates:

Exam	Date	Chapters
1	January 13	1, 2
2	January 27	3
3	February 10	4, 5
4	February 24	6, 7
5	March 9	8, 9
6	March 23	10

Grading

Lecture: 750 points	
Exams	5 × 100 = 500 points
Homework	5 × 20 = 100 points
Final Exam	1 × 150 = 150 points

Lab: 250 points	
Pre-lab	9 × 5 = 45 points
Lab report	9 × 10 = 90 points
Lab notebook	1 × 15 = 15 points
Lab exam	1 × 100 = 100 points

Grading Scale

In order to obtain the final letter grade for the class, your total lecture score will be added to your lab score and a percentage score will be computed based on the total. This percentage score will be rounded to the nearest whole number and a letter grade will be assigned as per the following table. Grades will not be based on a curve. Please note that regardless of your overall score, if you do not complete all the lab assignments you will receive an F grade in the class.

Percentage points	*Grade*
97-100	A+
92-96	A
88-91	A-
85-87	B+
82-85	B
78-81	B-
74-77	C+
70-73	C
66-69	D+
60-65	D-
0-59	F

Other Options

Pass/No Pass: A grade of "C" or higher is considered "Pass" in the course and lower than "D+" is considered "No Pass" in the course.

Audit: If you do not need any credit for this course, you may elect to audit the course.

Note: You are not permitted to attend this class if you are not officially registered.

Lab

Safe lab practices are of utmost importance. Please read the section in your laboratory on safety issues carefully. The following rules are applicable while in the lab:

- You may not be in the laboratory unless an instructor is present
- Notify the instructor immediately in cases of illnesses while in the lab
- Eating and drinking are strictly prohibited inside the lab
- Open-toed shoes and shorts are not permitted inside the lab
- Personal headphones may not be used while in the lab
- Dispose off waste material and broken glassware as per instructions from your instructor
- Safety goggles must be worn at all times

The lab instructor will provide more detailed information regarding the lab reports as well as the lab exams to you.

The following is a schedule of experiments that will be performed this quarter. Prior to start of a particular lab, you must complete the pre-lab exercise and must have read the lab manual completely. Failure to comply may result in not being able to complete the lab experiment at the assigned time.

Date	Procedure	Topic
1/10		Introduction and Check-in
1/12	11-24	Lab 1: Experiment 1, Data analysis
1/17	45-56	Lab 2: Experiment 3, Melting point & boiling points
1/19	45-56	Lab 2: Experiment 3, Melting point & boiling points
1/24	Packet	Lab 3: Vernier 1- Conductivity of solutions
1/26	Packet	Lab 3: Vernier 1- Conductivity of solutions
1/31	57-65	Lab 4: Experiment 4, Gravimetric analysis of a hydrate
2/2	57-65	Lab 4: Experiment 4, Gravimetric analysis of a hydrate
2/7	67-92	Lab 5: Experiment 5, Acid base titration of vinegar
2/9	67-92	Lab 5: Experiment 5, Acid base titration of vinegar
2/14	Packet	Lab 6: Vernier 2, Calorimetry & thermochemistry
2/16	Packet	Lab 6: Vernier 2, Calorimetry & thermochemistry
2/21	117-127	Lab 7: Experiment 7, Molar volume of a gas
2/23	117-127	Lab 7: Experiment 7, Molar volume of a gas
2/28	Packet	Lab 8: Vapor pressure
3/1	Packet	Lab 8: Vapor pressure
3/6	133-145	Lab 9: Redox titration of bleach
3/8	133-145	Lab 9: Redox titration of bleach
3/13	149-153	Lab 10: Experiment 11, Molecular modeling
3/15	149-153	Lab 10: Experiment 11, Molecular modeling
3/20	147-148	Lab 11: Experiment 10, Atomic line spectra
3/22		Check out, Lab Exam

Lab Notebook: You are required to maintain a detailed laboratory notebook. Pre-lab assignments and all data obtained in the lab must be carefully documented in your notebook. All entries in the lab notebook must be in PEN. You may use a composition notebook as your lab notebook. You must maintain a table of contents in your lab notebook. At the end of each lab period, you are required to obtain a signature of your lab instructor.

Pre-lab Assignment: Prior to coming to lab, you must complete a numbered outline of the procedure for the experiment that will be performed on the particular day. You must also enter a blank data table for the data to be obtained in the laboratory. Failure to complete the pre-lab assignment will result in a loss of a minimum of 5-points. Additionally, the instructor may disallow you from continuing in lab on that day.

Lab report: All lab reports must be typed and must adhere to a strict 3-page limit. A printed copy of the lab report must be turned in to the instructor on the due date. Late lab reports will incur a penalty of 1-point per late day. Use the following format for all lab reports:

- Title of experiment, date experiment was conducted, your name (as well as your lab partner's name)
- Objective: A statement of the goals/aims of the particular experiment
- Introduction: One or two paragraph introduction to the experiment. In this section, highlight the main chemical principles being studied, how the experiment will be conducted, any relevant chemical reaction equations, etc.
- Data tables: these should correspond to that in your lab notebook
- Calculations (this section may be hand written): show detailed calculations of at least one sample of the data.
- Results: summarize the main results obtained from the experiment
- Discussion: what does your result mean? How is the result relevant to your objective? How does the result compare to literature values? What are the sources of error?
- References

Lab Report Due Dates:

Lab 2	1/26
Lab 3	1/31
Lab 4	2/7
Lab 5	2/16
Lab 6	2/21
Lab 7	3/1
Lab 8	3/8
Lab 9	3/15
Lab 10	3/20