

CHEM1A - GENERAL CHEMISTRY 1A SYLLABUS

- **Instructor:** Burcak Artun, PhD (artunburcak@fhda.edu)
- **Course Website:** [Canvas](#)
- **Lecture:** M/W 6:00pm-7:20pm (sections 51 and 52)
- **Lab:** M/W 2:30pm - 5:20pm -Section 51
M/W 7:30pm - 10:20pm -Section 52
- **Office Hours :** W 12:30pm-2:30p

A. INTRODUCTION:**B. STUDENT RESOURCES FOR ONLINE LEARNING:**

De Anza student resource pages:

<http://deanza.edu/online-spring/>

Canvas Help:

<https://www.deanza.edu/online-ed/help.html>

C. COURSE OVERVIEW AND LEARNING OBJECTIVES**Overview:**

- **Description:** Chem 1A is the first quarter of a three quarter General Chemistry series, and hence an introduction to the structure and reactivity of matter at the molecular level, as well as an application of critical reasoning to modern chemical theory and structured numerical problem-solving. Students will learn the development of molecular structure from rudimentary quantum mechanics, including an introduction to ionic and covalent bonding; chemical problem solving involving both formula and reaction stoichiometry employing the unit analysis method, and be introduced to thermochemistry and a discussion of the first law of thermodynamics.
- **Prerequisites:** CHEM 25 or CHEM 30A or satisfactory score on the Chemistry Placement Test; and MATH 114 or MATH 130 or equivalent
- **Advisory:** EWRT 1A or EWRT 1AH or EWRT 1AS and EWRT 1AT or ESL 5
- **Units:** 5 Units
- **Hours:** Three hours lecture, six hours laboratory per week

Course Format:

The course is divided into two separate instructional periods. A lecture period, and a lab period. These sections will both be conducted in person and attendance is mandatory. Studies have shown that students who are present and pay attention in classes are more successful in the class. So I strongly encourage each of you to attend the lectures. At De Anza College, ***the lab and lecture may not be taken as separate courses under any circumstances.***

Course objectives*Lecture Objectives*

- Examine contributions by investigators of diverse cultures and times to the body of chemical knowledge, with an emphasis on physical and chemical conceptual frameworks. Investigate the critical aspects of measurement.
- Explore the historical development of understanding the structure of the atom.
- Assess the development of the Periodic Table of Elements in light of modern atomic theory.
- Differentiate the causes and types of molecular bonding.
- Appraise the effect of quantum mechanics on formulation of molecular structure.
- Employ systematic nomenclature to the identification of molecules.
- Utilize the principles of stoichiometry to analyze compounds, chemical mixtures, and reactions.
- Examine the prominent characteristics of solutions.
- Classify the major types of chemical reactions.
- Apply the essential principles of thermodynamics to chemical systems.

Lab Objectives

- Always do the reading assignment (lab manual) before coming to lab lecture.
- Learn to work safely in the lab.
 - *Learn proper separation of chemical waste and safe waste disposal*
 - *Be familiar with MSDS*
 - *Be vigilant about personal safety and the safety of others around you*
 - *Use of Personal Protective Equipment (i.e safety goggles)*
 - *Maintain a clean and safe lab environment*
 - *Learn proper Chemical Labeling*
 - *Be familiar with Emergency Procedures*
- Be able to follow protocols accurately.
- Maintain an accurate, complete, and up-to-date Lab Notebook.
 - *Keep a written and current record of all procedures and results.*
 - *Perform data analysis, such as graphs, tables as appropriate.*

- Write logical and well-founded conclusions and discussions.
- Be able to communicate science.
 - Prepare meaningful graphs and tables that present your results.
 - Be able to demonstrate your comprehension of the data by sound data interpretation.
 - Prepare written lab reports that are clear, complete, with use of college level grammar, demonstrating critical thinking skills as they pertain to the practice of scientific method.

D. REQUIRED MATERIALS

- **Textbook: *The Molecular Nature of Matter and Change***, 9th Edition by Silberberg and Amateis (McGraw-Hill) ISBN: 9781309097182.
- **Lab Manual:** Lab procedures and assignments are **posted on Canvas**. All the labs for Chem1A can also be found online.
<http://www.deanza.edu/chemistry/Chem1A.html>
- **Calculator:** A simple scientific calculator with natural log functionality is necessary and sufficient for this class. You can use previously purchased ones, but graphing functionality will not be necessary to use.
- **Supplemental Texts:**
 - OpenStax Chemistry, 2nd edition. Available **free** online at <https://cnx.org/contents/f8zJz5tx@9.18:DY-noYmh@9/Introduction>

E. COURSE WORK AND GRADING

Grading Scheme

Lecture	70% of Total Grade
Homework Assignments	12.5 % of Lecture
Weekly Chapter Quizzes	20% of Lecture
Midterms	40% of Lecture
Final Exam	25% of Lecture
Participation	2.5% of Lecture
Lab	30% of Total Grade
Lab Reports and Calculations	50 % of Lab
PreLabs and Data	22.5 % of Lab
Lab Quizzes	25 % of Lab
Participation	2.5 % of Lab

Grade Scale:

A+	95.0 – 100.0 %	C+	73.0 – 76.9 %
A	90.0 – 94.9 %	C	70.0 – 72.9 %
A–	87.0 – 89.9 %	D+	66.0 – 69.9 %
B+	84.0 – 86.9 %	D	63.0 – 65.9 %
B	80.0 – 83.9 %	D–	60.0 – 62.9 %
B–	77.0 – 79.9 %	F	0 – 60%

NOTES ON GRADING:

- There will not be a **curve** in general.
- Final Exam is **cumulative**
- An overall grade of **“C” (% 70) or better** is required to pass the course
- You will need to score at least 50% on the lab portion to be able to pass the course.

Work Expectation:

Each week there are 2x 75 min lectures, and 2x 3 hour lab sections. Expect to spend an additional 8-12 hours a week on the course.

You will spend additional time preparing for the labs (PreLabs), answering Homework questions, and writing up the results from the labs (Lab WriteUp or Calculations), as well as preparing for Quizzes and Midterms. You are expected to join class having done some related reading and chapter assignments.

LECTURE**1. Quizzes and Midterms - 20% + 40% of Lecture Grade**

There will be 3 Midterms . The schedule can be found in the course calendar. The assessments will consist of the material covered in lecture, and will also assess your problem solving skills. ***I will be testing for concepts. I will provide Study Guides.***

There will be a Chapter Quiz at the conclusion of each Chapter. The Quizzes will be posted on the weekend, and will be online. Lowest two scores will be dropped.

2. FINAL EXAM - 25% of Lecture Grade

- The final exam is a cumulative exam -unless otherwise stated, covering all of the lecture material, and is worth 25% of your lecture grade. No make-up exam will be given if you miss the final without an excuse. Make up requests will be evaluated on a case by case basis.
- **The final exam will take place in the last week of classes as indicated by the Final Exam Schedule for De Anza College**

3. ASSIGNMENTS -12.5 % of Lecture Grade

In Chem 1A, the following Chapters will be covered in order from *Silberberg*:
Chapters 1-4, 6-11

- **Reading:** Please read the assigned textbook chapters carefully **before** coming to lecture.
- **Problem solving:** You will be assigned problems from the textbook to follow up and to reinforce your knowledge of the topics. These problems will help increase your grasp of the material. Please make sure to work on and understand the sample problems available to you in your textbook before you attempt the assignment problems. Chapter assessments may include similar problems. Corrections will be required to be submitted after each homework assignment. Solutions to the problems will be posted.

4. PARTICIPATION – 2.5 % of Lecture Grade

- *As long as you show up and show effort, you will get full credit*

Do not hesitate to drop in to the office hours if for any reason you think you are falling behind, need reinforcement of material or simply to say hi. Office hours are a crucial part of the support system the students have.

Remember “practice makes perfect” and “mistakes are the stepping stones to learning”. It is essential that you attempt as many problems as possible

LAB

1. PRELABS and Data - 15% of Lab Grade PreLab

- Before you come to lab, you will write a “Prelab” in your lab notebook, take a photo and submit electronically. The prelab format will be discussed, and the list of labs are scheduled in the Lab Schedule.

Include the following in your PreLab

- Name and date on each page.
- Title write the title of the exercise at the top.
→ Page number as in A1-1, A1-2 (for exercise A1 page 1, etc)
- Purpose/Abstract ***in your own words***, state the goals for doing this experiment.
- Summary of method. This is a summary of the procedure in your own words. It can be bullet points or a flowchart.

Data

- You are expected to submit your data to Canvas at the end of each lab period

2. LAB NOTEBOOK- Calculations and Lab Reports - 50% of Lab Grade

Please read very carefully. We will go over the lab expectations within the first lecture.

Lab Reports, ***if required***, are generally due on ***a date*** following the end of that particular exercise and must be submitted online. ***Note that exact due dates are listed on your schedule. There might be exceptions.***

There might be a Post Lab assignment or Calculations due at the end of a lab as well. Schedule of due dates will be provided.

You are required to keep a Lab Notebook that you designate for lab. It could be an old lab notebook you have at home, or any bound notebook. You will be asked to submit your data every lab that we collect data

What Goes in a Lab Notebook

First couple of Pages should be left blank for a **Table of Contents** - which basically lists the experiments we are doing with the corresponding page numbers for the start of the Experiment.

- **PreLab for each experiment** should also be written here. You need to submit your prelab online BEFORE you start doing the lab.

- **ALL DATA RECORDINGS GO IN YOUR BOUND LAB NOTEBOOK**
Use ink to record your Data. Mistakes can be crossed out with a simple line through. Use of white-out during Data Collection is prohibited
- **Some exercises will end with a “Lab Report/WriteUp” which is to be submitted to me online after the experiment is concluded on the due date indicated on your schedule.** The report should be typed on a separate word (or similar) document and will state the purpose of doing the experiment in your own words, data/results, discussion, and a conclusion. Lab report will also include the method *in paragraph form for the first couple of experiments where indicated.*
- **This is the type-written description of your observations, the data you collected, your conclusion, discussion and/or any assignment.**
- A list of Exercises, Prelabs and Assignments are detailed in the course schedule.
- **Assignments/Calculations** *For some lab experiments, you might be asked include an assignment with your lab writeup. Assignments and calculations will also be posted on Canvas*

3. QUIZZES – 25% of Lab Grade

Lab Quizzes

- ***There’s no lab final for this course. The quizzes take place of the lab final.***
- You can expect two/three lab quizzes, based on the discussions in class, testing concepts behind the lab procedures and ability to perform calculations such as those done in the lab.

4. PARTICIPATION/LAB CONDUCT – 2.5% of Lab Grade

You will receive points based on your performance in the lab class that will take into account the following:

- whether you are prepared for the lab;
- whether you demonstrate that you have a strong understanding of the lab exercises;

F. POLICIES**PLEASE READ THE FOLLOWING POLICIES VERY CAREFULLY**

- **Registration:** *Enrollment is strictly limited to 30 students per section.* Spaces are filled in accordance with the official class roster from Admissions and Records, followed by the official wait list. Any errors must be addressed directly with Admission and Records. Waitlisted students **must come to lecture** on the first day of class, but may not be assigned a code until someone drops the course within the first two weeks.
- **Policy on attendance:** Attendance of **both** the Lecture and Labs are required for the successful completion of this course. Unexcused absences will affect your grade. **Attendance is expected for all lectures, all lab lectures and all labs. The De Anza College Chemistry Department does not offer make-up labs.**
- **Policy on missing class:** If you need to miss class you must notify the instructor **at least 24 hours in advance** for approval. Missing a lab period may affect your grade negatively. If you have an excused absence, we can talk about ways to compensate for the missed lab. **You will be dropped from the course for any unexcused absences during the first two weeks of class.**
Absences from lecture or lab will be evaluated on a case by case basis. It is your responsibility to contact the Instructor for any absences. Clear Communication is the best whatever the reason is. If I don't know your reasons, I can't be reasonable...
- **Policy on late assignments/lab notebooks/lab report:** Items turned in late will receive an automatic 5% deduction in points per day up to a week. After that, acceptance of the late assignment will be considered on a case by case basis.

ALL assignments, lab write-ups, reports, and exams must be completed and turned in to receive credit for this course. No

exceptions. It is the responsibility of the student to arrange for make-ups for missed work.

- **Policy on Final exams:** Final exam dates are determined by the De Anza College and cannot be changed. Please find the exam dates from your course calendar, and put all of the dates into your calendar.
- **Dropping the course:** Dropping the course must be done through the Admissions and Records office. **It's the student's responsibility to withdraw from the course by the deadline set by the Admissions and Records Office.** Dropping the course after the deadline will result in a W (or an FW) on your transcript.
- **Policy on Grading:** The course can also be taken as Pass/no Pass

Policy on plagiarism There's a zero tolerance policy for academic misconduct. You should remember as a De Anza College student, you agreed to abide by the policies of the De Anza College Rules of Conduct. It is expected that you are familiar with the code of conduct and disciplinary actions that may result from academic misconduct. **All submitted work should be your own, and should represent your own grasp of the material. Cheating will not be tolerated.**

If you have any questions about what constitutes unfair collaboration or plagiarism, please contact the instructor.

These policies are found in the De Anza College manual:
<https://www.deanza.edu/studenthandbook/academic-integrity.html>

Students who violate academic integrity policy (e.g. are caught cheating or plagiarizing) will be reported to the Dean of Student Services. Any plagiarized material will receive a 0.

Student Learning Outcomes:

1. Identify and explain trends in the periodic table.
2. Construct balanced reaction equations and illustrate principles of stoichiometry.
3. Apply the first law of thermodynamics to chemical reactions.

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Office Hours:

W 12:30 PM 02:30 PM In-Person Chem Offices