

# Introductory Chemistry

## Chem. 10 Syllabus

Lecture: T/Th 5:30 PM – 7:20 PM

Lab: Th 7:30-10:20 PM

**Instructor:** Prof Nisha Guha

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**Office Hours:** Th : 5pm-5.25pm, by appointment only.

**Description:** An Introduction to the discipline of Chemistry, including chemical laboratory techniques and methods and a survey of important chemical principles. This course emphasizes chemistry as a subject of scientific inquiry and is designed to give the student a general appreciation for chemistry as a science

**Prerequisites:** Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Mathematics 212 or the equivalent.

**Evaluation:** Your grade will be based on your performance in the following:

2 Quizzes		40 points
8 Lab reports	(20 pts. each)	160
Lab Clean-up		20
1 Lab Final Exam	(50 pts.)	50
2 Exams	(100 pts. each)	200
1 Final	(200 pts.)	200
Lab note book		20 pts
HW		80 pts
<b>Total</b>		<b>760points</b>

Letter grades will be assigned according to the *approximate* scale:

A 90%

B 80%

C 70%

D 50%

F < 50%

### Attendance:

You **MUST** attend the first class and lab or you will be dropped from the course. Your attendance is urged for all lectures and required for all quizzes, exams and labs. Unexcused exam, quiz and lab absences score a zero (0) points. It is the responsibility of the student to contact the professor regarding missed work. If an absence is anticipated, the student should make arrangements to complete the missed assignments prior to the absence. In an emergency, it is the student's responsibility to contact the instructor within one class period of an exam. *There are no laboratory make-up days. Please sign the attendance sheet each class and lab.*

**Quizzes:** Quizzes will be given during class as scheduled in syllabus, and will have a time limit. Answer keys will be available after the quiz. *If you miss the quiz, you will **not** have a chance to make it up.* The best 5 quiz scores will be used in determining your final grade.

**Exams:** There will be two exams and one final exam. You must bring your own calculator (if you need one), pencil and eraser for exams. Cell phones may not be used at any time during the exam. Calculators may be used if approved by instructor. Once the exam begins you may not leave the room unless you turn in the exam, so plan to take a bathroom break *before* class. **No Cell Phones and e watches allowed during Exam!**

**Text: Chemistry for Changing Times:** *Applying Chemistry to Society*, 9e, by Fahlman, Roberts, Kirk, Bentley, Daubenmire, Ellis, and Mury. ISBN: 978-1-259-692015-1. You may be able to rent your text at [www.vitalsource.com](http://www.vitalsource.com). Unfortunately, any previous edition of this text is distinctly different than this edition. Purchasing any previous edition will be problematic with regards to following the contents of this course.

**Lab Text: Laboratory Manual for Conceptual Chemistry**, 5e, 2014, Prentice Hall, by Donna Gibson & John Suchocki

**Lab Report:** All 9 labs count towards your grade. No make-up labs. Late labs will incur a penalty. You **MUST** wear eye protection during lab! You may work with a lab partner. Requirements of the Lab Report are given below. Need 1 Composition Notebooks -Your notebook will be graded during lab and returned to you before you leave lab. Should have Lined pages please.

**List of things to write in Notebook-**

1. Name and Contact Information, include an email or phone number
2. Number each page from front to back in upper right hand corner. Number each side of the page.
3. Table of contents on First Page: Experiment name and Page Number. You will fill this in as the Quarter proceeds.
4. Experiment Name
5. Experiment Objective (can summarize)
6. Materials list
7. Brief Discussion or Theory
8. Procedure: Summarize, but must be able to follow in class to perform the experiment.
9. Data Table as it appears in the lab book.
10. Discussion of Results including possible sources of error (after the experiment)
11. Questions and Answers: Must be in Full Sentences

Must write in INK. No pencil. Must be neatly recorded.

Steps 1-9 **MUST** be completed before coming to Lab. Receive signature from Instructor to verify.

Labs are due One Week after the completion of the lab.

Late labs may incur a penalty and will get only 50% of the grade.

**Lab Clean Up:** You will be assigned one lab to be cleaned after lab with a team of students.

**Academic** "Academic dishonesty is a serious offense, which includes but is not limited to the following:

**Dishonesty:** cheating, complicity, fabrication and falsification, forgery, and plagiarism. Cheating involves copying another student's paper, exam, quiz or use of technology devices to exchange information during class time testing. It also involves the unauthorized use of notes, calculators, and other devices or study aids. In addition, it also includes the unauthorized collaboration on academic work of any sort. Complicity, on the other hand, involves the attempt to assist another student to commit an act of academic dishonesty. Fabrication and falsification, respectively, involve the invention or alteration of any information (data, results, sources, identity, and so forth) in academic work. Another example of academic dishonesty is forgery, which involves the duplication of a signature in order to represent it as authentic. Lastly, plagiarism involves the failure to acknowledge sources (of ideas, facts, charges, illustrations and so forth) properly in academic work, thus falsely representing another's ideas as one's own."

**Word Processing:** If you are looking for a **free** word processor compatible with WORD, checkout [www.openoffice.org](http://www.openoffice.org).

**Online Help:** Some suggested websites for help. <http://chemistry.about.com/od/homeworkhelp/>

**Help:** If you need help with any aspect of this course, please contact your instructor first. You can also contact the Student Success Center at <http://www.deanza.edu/studentuccess/> to get help with tutoring or with reading, and writing, tutoring or academic skills. Please use this resource.

**Calculator:** You may **NOT** use your phone for a calculator on any quiz or exam! You still need a simple scientific calculator not associated with your mobile phone. They cost about \$10.00-\$15.00. My favorite calculator is shown below, the TI-30XIIS.

**Cloud Storage:** If you would like free cloud storage, send me an email requesting an invitation to **dropbox**. If you use this invitation to join **dropbox**, your instructor gets a bit extra free storage added to his existing account and your will get 2Gb of free storage that is very useful for sharing files.

**Eye Protection:** You **MUST** wear full goggles and not safety glasses. Without them, you may not participate in lab and will receive a grade of zero for that lab. See illustration below. **Only the Safety Goggles sold at the DeAnza bookstore are allowed. No substitutions.**

**This syllabus may/will change according to the instructor and the needs of the class.** Changes will be announced and sent through email, and you must read and follow the changes. Please check with the syllabus posted (latest update will be posted and dated) or with your instructor.

**Lab Housekeeping Rules: A clean lab is a safe lab!**

1. **Wear protective eyewear at all times during experimentation.** Your instructor will let you know if you may remove your protective eyewear.
2. Clean up all broken glass immediately with broom and dust pan and dispose in special container
3. Clean all chemical spills immediately. Notify your instructor who will advise or help you. Dispose all chemicals in the designated container.
4. Do not pour any chemicals down the drain. Dispose only in designated containers as indicated by your instructor.
5. Go to the stock chemical container. **DO NOT** take the container to your desk. **DO NOT** pour used chemicals back in stock container. Only take what you need to minimize waste. Un-needed chemicals must be taken to disposal container.
6. Always carefully read the label to insure you will use the correct chemical reagent.
7. Do not wear shorts, open-toed shoes or diaphanous clothing on lab days.
8. Clean your glassware and your lab bench before you leave the lab. The lab should always be in better shape than when you found it.
9. It Is Your Job/Responsibility. It doesn't matter if you did not make the mess, you should clean it up.
10. The balance room should be left in immaculate order: Clean, All balances in perfect order, all chairs under the desks. **NO EXCEPTIONS!**
11. Wash your hands before you leave lab, no matter what experiment was performed.
12. The lab is always under observation and any unkempt areas will be recorded and reported to me and the head of the department and then to you.
13. Thanks for keeping these concepts and any other concepts necessary for a safe and clean lab.

**How to succeed in Chemistry 10:**

1. Always come to class prepared. Please read your assignments and work as many homework problems as you can.
2. Form a study group with your classmates. Work homework together.
3. Attend class and pay attention. Ask questions.
4. Stay current with assignments.
5. Stay current with lab: have pre-lab complete before class. Turn in lab reports on time.
6. Get help before it is too late. Use your instructor's office hours or get help from the tutoring center on campus.
7. Keep your life in balance: Study, Play, Relax.

**INSTRUCTIONS for the Laboratory:**

1. Lab Score for each experiment: Your lab score will depend upon your preparedness, participation in class and your completion of the lab report. Lab reports are to be turned in at the end of class. Late report will lose points. Improper completion of lab report or improperly answered questions will lose points.
2. You must do your laboratory work at the time assigned. Attendance will be taken. Study the experiment carefully before coming to class so that you don't (waste time going through the procedure during the lab. **NO MAKE UP LABS.**
3. You must do your own work unless you are told to work in pairs for an experiment. If you need guidance, let the instructor know.
4. Always think through the next step you are going to perform before starting it.
5. **Record all data in ink while you work.** Do not write data on paper towels or other pieces of paper, even temporarily. Make sure your data is complete. **Do not forget to write your name or record any unknown number.** Pay attention to

significant figures and units. If you make a mistake, cross it out neatly with a **single** line.

6. All laboratory reports are due one week after the experiment is performed.

7. Children are not allowed in the lab.

8. No eating or drinking in the lab.

9. **ALWAYS WEAR YOUR EYE PROTECTION.** Failure to wear your eye protection will lead to dismissal from lab and a

lowered grade for that experiment.

10. You **MUST WEAR LONG PANTS** and **SENSIBLE CLOTHING** when we are doing any lab that required Safety Goggles

as discussed during the safety lectures. This is a school policy. If you wear shorts, sandals, or other clothing that is not consistent with safety, you will **not** be admitted to the laboratory. Wear a lab apron if you have one. **You can NEVER WEAR SHORT PANTS or SKIRTS during LABORATORY PERIODS.**

11. Minimum usage of cell phones in lab.

12. Always work with clean equipment. Clean also means **DRY**.

13. Carefully measure the quantity of each material to be used in the experiment.

14. Always place reaction vials, test tubes or flasks in a clean beaker when standing them on a laboratory bench.

15. Do not take reagent bottles to your laboratory work area. Use test tubes, beakers, or paper to obtain chemicals from the dispensing area. Take small quantities of reagents. You can always get more if you run short.

16. Check carefully the label on each reagent bottle to be sure you have the correct reagent. The names of many substances appear similar at first glance.

17. To avoid possible contamination, never return unused chemicals to the reagent bottles. Never interchange spatulas or droppers.

18. Do not insert droppers into large reagent bottles. Instead pour a little of liquid into a small beaker.

19. Be neat in your work; if you spill something, clean it up immediately.

20. Wash your hands anytime you get chemicals on them and at the end of the laboratory period.

21. Keep the mass balances and the area around them clean. Follow the directions given by the instructor on the proper weighing

technique to use. Otherwise, do not place chemicals directly on the balance pans; place a piece of weighing paper or a small container on the pan first, and then weigh your material. Never weigh an object while it is hot.

22. Do not heat graduate cylinders, burettes, pipettes, or bottles with a burner flame.

23. Do not look down into the open end of a test tube in which the contents are being heated or in which a reaction is being conducted.

24. Do not perform unauthorized experiments.

25. After completing the experiment, clean and put away your glassware and equipment. Clean your work area and make sure

the gas and water are turned off. A clean lab is a safe lab.

26. Dispose solid waste such as filter paper, litmus paper, and matches in the wastebasket, not in the sink. Dispose broken glass

in the broken glass waste boxes. Dispose all other solid chemicals as directed by your instructor. **Pour all the waste liquids into the waste bottles provided or as directed by instructor. Only tap water or deionized water may be poured down the drain.**

### Spring 2018 De Anza College

### Lab Schedule

Week	Week of	Lab Topic	What's Due	Notes
1	April 12	Introduction, Safety, Check in, Scientific Method		
2	April 19	Lab 1: Taking Measurements	Safety Contract	
3	April 26	Lab 2: Percent Water in Popcorn	Lab 1	
4	May 3	Lab 3: Electron Dot Structures	Lab 2	
5	May 10	Lab 4: Molecular Shapes	Lab 3	
6	May 17	Lab 5: Solutions	Lab 4	
7	May 24	Lab 6: Upset Stomach	Lab 5	

8	May 31	Lab 7: How Much Fat?	Lab 6	
9	June 7	Organic Molecules	Lab 7	
10	June 14	Lab 9: DNA Capture	Lab 8	
11	June 21	Lab Exam / Check Out	Lab 9	
12	June 22	Final's Week. No Lab		<b>No Lab</b> <b>Finals Week</b>

### Lecture Content:

Text Coverage	Key Concepts	Recommended Text Problems
chapter 1	The Scientific Method, Classifying Matter, Units and Unit Conversion	1, 19, 21, 25, 29, 31, 33, 35, 39, 45, 47, 53, 55, 65, 67
Chapter 2	Atomic Theory and Origins, The Periodic Table	15, 17, 19, 21, 25, 27, 43, 45, 47
chapter 3	Atomic Structure, Electron Configuration, Orbitals	5, 13, 15, 17, 19, 21, 23, 25, 27, 28-32
chapter 5	The octet rule, Lewis Structures, Chemical Nomenclature, Polarity	4, 5, 6, 9, 11, 13, 17, 19, 21, 23, 31, 33, 37, 41, 43, 49, 51, 53, 55
chapter 6	Balancing Chemical Equations, The Mole, Molarity	2, 11, 13, 15, 19, 21, 23, 25, 27, 29, 31, 35, 39, 41, 43, 45
Chapter 7	Identifying Acids and Bases, Brønsted-Lowry theory, Acid-Base Reactions, pH	5, 6, 9, 13, 15, 17, 19, 21, 23, 25, 29, 31, 33, 35, 39, 41, 43, 45, 47, 49, 51, 55
Chapter 8	Identifying Redox, Fuel Cells, Explaining Batteries and Corrosion	1, 13, 15, 16, 17, 23, 25, 27, 37, 39, 41
Chapter 4	Nuclear Reactions, What is Radiation, Half Life, Uses for Nuclear Reactions	2,4,6,7,8,21,23,27,31,35

Week	Week of	Topic		
1	April 12	Introduction, Safety, Check in, Scientific Method		
2	Week of April 17	lecture		
3	Week of April 24	lecture		
4	Week of May 1	Quiz 1, lecture		
5	Week of May 7	lecture		
6	Week of May 14	Midterm Exam 1	Chap 1,2,3,4 and half of 5	
7	Week of May 22	lecture		
8	Week of May 29	Quiz 2		

9	Week of June 5	lecture		
10	Week of June 12	Midterm Exam 2	Chap 5, 6, 7	
11	June 21	Lab Exam / Check Out	<b>Lab Exam</b>	
12	June 28	Final's Week. No Lab	<b>Final Exam</b>	

**Student Learning Outcome(s):**

\*Develop problem solving techniques by applying the \Scientific Method\" to chemical data."

\*Analyze and solve chemical questions utilizing information presented in the periodic table of the elements.

\*Evaluate current scientific theories and observations utilizing a scientific mindset and an understanding of matter and the changes it undergoes.