

**De Anza College - summer 2016  
(6/27/16– 08/07/16)**

**INSTRUCTOR: Elena Zlatogorov  
CHEMISTRY 1A-02**

**HOURS:** LECTURE: M., T., W., Th. 03:00PM – 4:15PM MLC-112  
**LAB:** M., T., W., Th. 12:00 – 2:50PM SC-2202  
**OFFICE HOURS:** M., T., W., Th. 11:20AM - 11:50AM  
Instructors Offices –across the chem. labs\_ 2nd floor

**I. COURSE DESCRIPTION:**

5 Units

Prerequisite: High School Chemistry or Chemistry 50 and Mathematics 105 or 114, or high school equivalent. Advisory: English writing 100B and Reading 100, or English as a Second Language 172 and 173.

Chemistry 1A course includes: the study of atomic and molecular structure, quantum theory, thermo chemistry, gases, solutions, and qualitative analysis with the classical study of properties of atoms and molecules and their reactivity.

This course will consist of lectures, interactive multimedia, problem solving, lab lectures, laboratory experiments, exams and quizzes.

Emergency contact: email: [zlatogorovelena@deanza.edu](mailto:zlatogorovelena@deanza.edu)

**LECTURE:**

The class will meet in Room MLC112 for lecture M., T., W., Th. No one is excused from attending the lecture. If you fail to show up for two lectures you will be dropped from the class. If you have a medical or other documentable emergency, you are expected to provide written proof. You are expected to arrive to lecture and lab on time. Each two late arrivals count as an unexcused absence.

**Dropping out.**

**If you miss lecture or lab for any reason within the first two days of class, you will be dropped from the course.**

If for whatever reason you choose to drop or withdraw from this course during the summer session, it is **your responsibility alone** to initiate the drop or withdraw through Admissions @ Records by the appropriate deadline. After the first two days of class, I will not initiate drops or withdrawals- even if you stop attending. If you fail to drop the course, you will be assigned a grade corresponding to the total number of points accumulated up to the point you stopped attending. For important academic calendar dates, please check [www.deanza.edu/calendar/summer.html](http://www.deanza.edu/calendar/summer.html).

**The textbook should be read and notes from the textbook should be written before lecture.** The first part of class will be lecture and discussion. The remaining class time will be problem solving. An advanced education **requires active and polite** participation in class activities. Your Chem 1A grade is influenced by attendance and participation. I encourage you to ask chemistry questions during lecture no matter how trivial, silly or boring they are. Simply **write down your question and pass it to me or bring it to office hours.** You are encouraged to interact with each other in a collegial manner.

**Problem-solving** • When time permits we will also work problems in lecture. Sometimes problems are intended to be worked individually and in other instances, the class will be divided into groups to solve a problem. Sometimes a student may be called up to the board to answer a question. This is not meant to intimidate you; it is instead meant to better prepare you academically by giving you an opportunity to solve a problem your own unique way. It may be difficult at first to get in front of the class, but it will help you in long terms.

The assigned homework problems are due the meeting after completion of the chapter. You must have the questions and problems fully worked out to receive credit. These questions must be answered on a separate sheet of paper and neatly done. EXAM dates are listed on your schedule. **NO EXAMS WILL BE GIVEN AT ANY OTHER TIME. FAILURE TO TAKE THE EXAM AT THE SCHEDULED TIME WILL RESULT IN A ZERO FOR THAT EXAM.**

There will be 2 exams on the material covered worth 100 points each and final comprehensive exam, worth 200 points.

There will be a home take lecture practice exercises in addition to the selected end of the chapter homework and notes from the textbook (summary for each chapter) covering chapters 1-11.

Practice exercises are based on homework problems. Notes from the textbook and lectures, practice exercises and homeworks with detailed above 4 items should be written in pen for credit.

**In class Lecture Quizzes** • There will be a lecture quiz at the beginning of class after completion of each chapter. The quizzes will be short answer type questions as well as problem solving. The quizzes are designed to test your understanding of the concepts presented in the class, in the reading, and from the homework. These quizzes are for your benefit. They are meant as motivation for keeping up with the reading and homework. They will prepare you for questions and problems that are on the exams. Lecture quizzes covering chapters 1-11 are worth a total 88 points. No make-up quizzes will be given.

### **LABORATORY:**

Labs will be done in the room SC-2202. Lab reports are due **2 days** after the scheduled laboratory exercise is completed. **The lab manual should be read and pre-lab notes for the experiment should be written before the experiment.** On each day that a new experiment begins, the **pre-lab** for the experiment **will be checked** at the very beginning of lecture, **post-lab** for the experiment **will be checked** at the same day. Each lab test will begin at the very beginning of the lab lecture.

**If you fail to show up for two labs or present and do not perform lab assignments /experiments you will be dropped from the class.** All lab work must be in **PEN** for **credit**. You must complete **all labs** to receive a grade in the class.

When you are working in the room SC-2202 you must wear **Safety GOGGLES. No SHORTS or OPEN TOE SHOES will be allowed in the lab. NO FOOD OR DRINKS ARE ALLOWED IN THE CHEMISTRY LAB. Hair longer than the bottom of your neck must be securely tied back.**

The first part of class will be lecture and discussion. The remaining class time will be experiments and / or problem solving.

Tests dates are listed on your schedule.

**NO TESTS WILL BE GIVEN AT ANY OTHER TIME. FAILURE TO TAKE THE TEST AT THE SCHEDULED TIME WILL RESULT IN A ZERO FOR THAT TEST.**

**Being late for class** will result in a failure on any test you miss, and you will not be allowed extra time to complete a test, because of tardiness.

**Being late for, or missing, laboratory lecture,** will result in your not being allowed to perform the laboratory for that day, **because of safety reasons.** (An important part of lab lecture is being sure that students understand the experiment enough to be safe in their work). **Since there are no possibilities for making up a laboratory,** this will result in a zero for that lab.

The labs to be performed are outlined with expected completion dates. There will be 2 tests on all material covered in the lab worth 40 points each. Laboratory experiment reports are worth **15** points, prelab notes **5** points. Total points possible for the lab are 280.

Chemistry requires time and effort to understand and learn.

Between reading, writing notes for lecture and lab procedures, and working pre lab/post lab problems, it is expected that you will set aside at least two hours for studying chemistry for every hour of lecture and lab lecture.

Total points possible for the course are 920. Assigned grades are: 97-100% A+; 93-96% A; 89-92% A-; 85-88% B+; 81-84% B; 77-80% B-; 73-76 C+; 69-72% C; 65-68% D+; 62-64% D; 59-61% D-; 0-58% F

## **II. RECOMMENDED TEXT:**

### **Lecture:**

1. Chemistry: The Molecular Nature of Matter and Change, 7th edition by Martin Silberberg, Patricia Amateis (McGraw-Hill)

**Laboratory:** Experiments can be found online and Vernier packet found at the De Anza Bookstore

## **III. REQUIRED CLASS MATERIALS:**

1. OSHA approved laboratory safety goggles from the bookstore. Other types of goggles will not be permitted
2. Scantron forms 882E
3. A scientific calculator that has log and exponential functions is required. Graphing calculators will not be allowed!
4. Permanently bound laboratory notebook with duplicate copies either 6x9 or 8.5x11 sizes acceptable; No spiral bound lab notebook may be used. Latex or Nitrile Gloves available from the bookstore.

**Disruption• Any student disrupting class may be asked to leave. DeAnza College will enforce all procedures set forth in the Student Standards of Conduct and the appropriate remedial and/or disciplinary steps will be taken when violations occur.**

**The use of cell phones or pagers is strictly prohibited during lecture and lab.** Turn them **OFF** before you arrive or you will be **dropped** from the class.

**Academic Integrity**• Giving or receiving unauthorized aid in any form is not tolerated and will result in dismissal from the course with a grade of F. Academic dishonesty includes, but not limited to, the following:

- 1) Looking at another student's test and copying from it or allowing another student to copy from your test during an exam or quiz.
- 2) Talking to another student inside the classroom during an exam or quiz.
- 3) Using data or formulas stored in a calculator or obtained from any communications device.
- 4) Copying of laboratory data or data analysis from another student, including from a lab partner, without prior permission of the instructor.

Chemistry 1A Summer 2015  
 Elena Zlatogorov Lec: M., T., W., Th. 3:00PM – 4:15PM MLC112

## TENTATIVE LECTURE AND EXAMINATION SCHEDULE

### CHAPTER AND LECTURE TOPIC

Chapter 1 – Keys to the Study of Chemistry	06/27/16-06/28/16
Chapter 2 –The Components of Matter	06/28/16-06/29/16
Last day to drop summer class for a refund	06/29/16
Chapter 3 –Stoichiometry of Formulas and Equations	06/30/16
Last day to add summer classes	07/03/16
Last day to drop a class w/o W	07/04/16
Census date	07/05/16
Chapter 3 –Stoichiometry of Formulas and Equat. cont	07/05/16
Chapter 4 –Classes of Chemical Reaction	07/05/16-07/06/16
Review Chapter 1,2,3,4,	07/07/16

### MIDTERM #1 CHAPTERS 1- 4 07/11/16

Chapter 6 – Thermochemistry: Energy Flow and Chemical Change	07/12/16-07/13/16
Chapter 7– Quantum Theory and Atomic Structure	07/14/16-07/18/16
Chapter 8 – Electrons Configuration and Chemical Periodicity	07/19/16-07/20/16
Review Chapters 6-8	07/21/16

### MIDTERM #2 CHAPTERS 5 – 8 7/25/16

Chapter 9 – Models of Chemical Bonding	07/26/16-07/27/16
Last day for drop with a “W”	07/27/16

Chapter 10 – The shapes of Molecules.	07/28/16-08/01/16
Chapter 11 – Theories of Covalent Bonding.	08/01/16-08/02/16
Review Chapters 1-11	08/03/16

**FINAL EXAMINATION -- CHAPTERS 1-11**      **8/04/16**  
**@ 12:00-2:00 PM Room: SC 2202**

**Notes:** Please note that this is a **tentative** schedule. While I think it is a realistic one, we may not always proceed exactly according to the schedule. However, you are expected to have read each chapter before I begin to lecture on that material, and you are expected to be prepared for each lab experiment.

**LABORATORY SCHEDULE**

<b>Week</b>	<b>Experiment /Lab lecture</b>	<b>Date</b>	<b>Day</b>
1.	Lab Check-In. Safety Lecture. Lab Notebooks/Reports	06/27/16	M
	Exp #1 Measurements, Significant Figures & Graphing	06/28/16	T
	Exp #2 Nomenclature Worksheet	06/29/16	W
	Exp #3 (Lab Manual-Exp4) Empirical Formula of a Hydrate (1).	06/30/16	Th
2.	Exp #3 (Lab Manual-Exp 4) Empirical Formula of a Hydrate (2).	07/05/16	T
	Exp #4 Precipitation Reaction (1)	07/06/16	W
	Exp #4 Precipitation Reaction (2)	07/07/16	Th
3.	Exp #4 Precipitation Reaction (3)	07/11/16	M
	Exp #5 Type of Reactions (1)	07/12/16	T
	Exp #5 Type of Reactions (2)	07/13/16	W
	Exp #6 Conductivity (Vernier Experiment ) (1)	07/14/16	Th
4.	Exp #6 Conductivity (Vernier Experiment ) (2)	07/18/16	M
	Quiz 1. Exp #7 Acid-Base Titration (Vinegar_1)-Lab Manual-Exp 5a)	07/19/16	T
	Exp #7 Acid-Base Titration (Vinegar_2)-Lab Manual-Exp 5a)	07/20/16	W
	Exp #8 Calorimetry (1) Hess's Law (Vernier Experiment)	07/21/16	Th
5.	Exp #8 Calorimetry (2) Hess's Law (Vernier Experiment)	07/25/16	M
	Exp #9 Redox Titration (1) (Lab Manual-Exp 9)	07/26/16	T
	Exp #9 Redox Titration (2) (Lab Manual-Exp 9)	07/27/16	W
	Exp #10 Line Spectra (Lab Manual-Exp 10)	07/28/16	Th

6. Exp #11 Molecular Geometry (1) (Lab Manual-Exp 11)	08/01/16 M
Exp #11 Molecular Geometry (2) (Lab Manual-Exp 11)	08/02/16 T
Lab final. Lab Check out.	08/03/16 W
Finals.	08/04/16 Th

**Notes:** Please note that this is a **tentative** schedule.



## PRACTICE HOMEWORK PROBLEMS

### CHAPTER 1

p.35 - 38: Problems: 6(all), 15(all), 19, 20, 23, 26, 27, 31, 33, 35, 39, 41, 53, 55(a,b,c), 58 (a,b,c), 59(a,b,c), 61(a,b,c,d)

### CHAPTER 2

p. 82-89; Problems: 3 all, 14 all, 15 all, 23 (a, b), 37, 39, 42 all, 47, 50, 57, 61, 63, 74, 85 all, 86 (a), 87( a,b), 88 all, 89 all, 90 all, 91 all, 93 (a, b), 95 all, 96 (a, b), 97(a, c), 100(a,b), 101 (b,d), 102(a)

### CHAPTER 3

p. 130-136; Problems: 7 all, 11(a), 14(a), 15(a, b), 17 all, 19(a,b,c), 21(a,b), 23 (a,b), 35, 37 (a,b), 59 all, 66, 69 (a,b), 71(a,b), 75, 86

### CHAPTER 4

p.189-196; Problems: 5 all, 19 (a,b), 21(a,b), 27 (a), 42(a,b), 48, 66(a,b), 72, 76, 79, 83, 86(a,b,c), 88(a,b), 96 (a,b), 104 all, 106 all, 108(a,b), 112 ( a, d, e), 114, 130

### Chapter 6

p.280-284; Problems: 11, 13 (a,b,c), 19 (all), 28, 29(a,b), 30(all), 31(all), 37, 38, 39, 43, 46, 48, 50, 55, 58, 63, 67, 68, 72, 73, 79, 80(a, b), 82, 87(a,b), 90, 93

### Chapter 7

7.2; 7.5; 7.8; 7.10; 7.11; 7.12; 7.14; 7.20; 7.27; 7.28; 7.32; 7.34; 7.40; 7.43; 7.49;  
7.51; 7.55(a,b,c); 7.56; 7.57; 7.58(a,b,c); 7.78; 7.87(a); 7.94(a,b);

### Chapter 8

8.11; 8.12; 8.22(b); 8.24; 8.26; 8.32(a,b); 8.34(b); 8.36(a,b); 8.37; 8.38; 8.40(a,b,c);  
8.42(a,b,c); 8.44(a,b,c,d); 8.46; 8.48(c); 8.54(a,b,c,d); 8.56(a,b,c,d); 8.60(a,b,c);  
8.70(a,b,c); 8.72(a,b,c); 8.76(a,b,c); 8.78(a,b,c); 8.80(a,b,c,d); 8.82; 8.84(a,b,c,d);  
8.100; 8.101(c,d)

### Chapter 9

9.5; 9.6; 9.7; 9.9; 9.10; 9.17(b); 9.21(a,b,c,d); 9.25; 9.29; 9.31; 9.39(a,b); 9.47; 9.48; 9.50;  
9.53; 9.57; 9.59; 9.65; 9.66; 9.67; 9.74; 9.76; 9.80; 9.84; 9.87;  
9.89;

### Chapter 10

10.6; 10.8; 10.10(a,b); 10.12(a,b); 10.14(a,b); 10.16(a,b); 10.18(a,b); 10.20(a,c);  
10.22(a,b,c); 10.31; 10.33(a,b,c,d); 10.35(a,b,c); 10.37(a,b); 10.39; 10.41(a,b); 10.45(a,b);  
10.47; 10.55a; 10.58;

**Student Learning Outcome (SLO)**

**Outcome:** Identify and explain trends in the periodic table.

**Assessment:** A midterm exam and quizzes will be developed and used to test students knowledge of the stated outcomes. The exam will be ACS (American Chemical Society) style exam (multiple choice questions)

**Outcome:** Construct balanced reaction equations and illustrate principles of stoichiometry.

**Assessment:** A midterm exam and quizzes will be developed and used to test students knowledge of the stated outcomes. The exam will be ACS (American Chemical Society) style exam (multiple choice questions)

**Outcome:** Apply the first law of thermodynamics to chemical reactions

**Assessment:** A final exam will be developed and used to test students knowledge of the stated outcomes. It will be ACS (American Chemical Society) style exam (multiple choice questions)

## **Safety guidelines**

From the American Chemical Society Safety In Academic Laboratories Guidelines, 7th Ed., the following mandatory minimum safety requirements must be followed by all students and be rigorously enforced by all Chemistry faculty:

- 1) Chemistry Department-approved safety goggles purchased from the De Anza College bookstore (NOT safety glasses) must be worn at all times once laboratory work begins, including when obtaining equipment from the stockroom or removing equipment from student drawers, and may not be removed until all laboratory work has ended and all glassware has been returned to student drawers.
- 2) Shoes that completely enclose the foot are to be worn at all times; NO sandals, open-toed, or open-topped shoes, or slippers, even with socks on, are to be worn in the lab
- 3) Shorts, cut-offs, skirts or pants exposing skin above the ankle, and sleeveless tops may not be worn in the lab: ankle-length clothing must be worn at all times
- 4) Hair reaching the top of the shoulders must be tied back securely
- 5) Loose clothing must be constrained
- 6) Wearing "...jewelry such as rings, bracelets, and wristwatches in the laboratory..." should be discouraged to prevent "...chemical seepage in between the jewelry and skin...".
- 7) Eating, drinking, or applying cosmetics in the laboratory is forbidden at ALL times, including during lab lecture
- 8) Use of electronic devices requiring headphones in the laboratory is prohibited at ALL times, including during lab lecture
- 9) Students are advised to inform their instructor about any pre-existing medical conditions, such as pregnancy, epilepsy, or diabetes, that they have that might affect their performance.
- 10) Students are required to know the locations of the eyewash stations, emergency shower, and all exits
- 11) Students may not be in the lab without an instructor being present
- 12) Students not enrolled in the laboratory class may not be in the lab at any time after the first lab period of each quarter.
- 13) Except for soapy or clear rinse water from washing glassware, NO CHEMICALS MAY BE Poured INTO THE SINKS; all remaining chemicals from an experiment must be poured into the waste bottle provided.
- 14) Students are required to follow the De Anza College Code of Conduct at all times while in lab: "horseplay", yelling, offensive language, or any behavior that could startle or frighten another student is not allowed during lab;

15) Strongly recommended: Wear Nitrile gloves while performing lab work; wear a chemically resistant lab coat or lab apron; wear shoes made of leather or polymeric leather substitute.

By signing below, I,

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First Name Family Name

acknowledge that I fully understand and agree to abide by the laboratory safety rules listed above.

Further, I acknowledge that my failure to abide by these rules will result in my being dropped from this chemistry class immediately.

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Signature Date