

De Anza College - fall 2016 (09/26/16– 12/16/16)

INSTRUCTOR: Elena Zlatogorov

**CHEMISTRY 25**

**Chem25-03**

HOURS: LAB Tue. 11:30AM - 2:20PM Room-SC2208

**Chem25-04**

HOURS: LAB Th. 11:30AM - 2:20PM Room-SC2208

**Chem25-03 and Chem25-04**

LECTURE Mon., Tue., Wed., Th. 8:30AM – 9:20AM Room SC1102

OFFICE HOURS Tue, Th. 9:30AM - 10:30AM; Instructors Offices –  
across from the chem. labs\_ 2<sup>nd</sup> floor

**I. COURSE DESCRIPTION:** 5 Units

Prerequisite: Mathematics MATH 114 or equivalent. Advisory: English EWRT 1A or EWRT 1AH or ESL 5.

Course Description:

An introduction to the core theory and problem- solving techniques of chemistry as preparation for Chemistry 1A and other science related fields. An introduction to gravimetric and volumetric analysis, rudimentary laboratory equipment and operations, and the preparation and maintenance of a laboratory notebook.

Emergency contact: email: zlatogorovlena@deanza.edu

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

Everyone will have the same lecture period, but a different lab lecture and lab period depending on which code you used for enrolling.

At De Anza College the lab and lecture cannot be taken as separate courses under any circumstances.

Once you are enrolled you may **not** switch lab lecture or lab whether on a temporary or on-going basis.

**LECTURE:**

The class will meet in Room SC1102 for lecture Mon., Tue., Wed., Th. 8:30AM – 9:20AM.

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 quarter, it is **your responsibility alone** to initiate the drop or withdraw through Admissions @ Records by the appropriate deadline. After the first two weeks 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/fall.html](http://www.deanza.edu/calendar/fall.html).

**The textbook should be read and notes from the textbook should be written before lecture.** The first part of lecture 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 25 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:

Two lecture **exams** on all material covered worth 100 points each and **based on lectures, textbook material, homeworks and practice exercises.**

Final comprehensive exam, worth 200 points.

There will be no make- up exams.

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 PSS,1-14.

Practice exercises are based on homework problems. Notes from the textbook and lectures, practice exercises and homeworks with detailed calculations covering chapters PSS,1-14 are worth a total of 84 points. The above 4 items should be written in **pen** for credit and answers for practice exercises in addition to written part should be transferred to scantrons in pencil #2.

**In class Lecture Quizzes** • There will be a lecture quiz at the beginning of class after completion of each chapter. The quizzes will be essay/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 PSS-1, 2-14 are worth a total 112 points.

## **LABORATORY:**

Labs will be done in the room SC-2208. The laboratory data is due the same day you perform the experiment. **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 or as required by instructor. You must obtain the signature of the lab instructor in the lab notebook

at the end of each lab period. You must be present in the lab for the **entire duration of the experiment**. Each lab quiz 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-2208 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. **You may not be in the laboratory unless an instructor is present.** **Notify the instructor immediately in cases of illnesses while in the lab.** **Personal headphones, cell phones or i-phones may not be used while in the lab or lectures.** **Dispose off waste material and broken glassware as per instructions from your instructor.**

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

Quizzes dates are listed on your schedule.

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

**Being late for class** will result in a failure on any quiz you miss, and you will not be allowed extra time to complete a quiz 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 quizzes on all material covered in the lab worth 40 points each. Laboratory experiment reports are worth 10 points each, prelab notes 5 points for a total of 135 points. Total points possible for the lab are 215.

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 **811**.

Assigned grades are:

*Percentage points Grade*

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

### *Other Options*

Pass/No Pass: At De Anza college 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.**

## **II. RECOMMENDED TEXT:**

Corwin, Charles H. Introductory Chemistry, Concepts & Critical Thinking Laboratory Manual, 6th Edition, Pearson Education, Inc. (2013)

ISBN 13: 978-0-321-75094-5

ISBN 10: 0-321-75094-2

Corwin, Charles H. Introductory Chemistry, Concepts & Critical Thinking, 7th Edition, Pearson Education, Inc. (2014)

ISBN 13: 978-0-321-80490-7

ISBN 10: 0-321-80490-2

## **Resources**

**Tutorial Center:** De Anza’s Tutorial Center is in S43.

[www.deanza.edu/studentsuccess](http://www.deanza.edu/studentsuccess)

Weekly one-on-one sessions all quarter! Please visit for details:

[www.deanza.edu/studentsuccess/mstrc/weekly\\_ind.html](http://www.deanza.edu/studentsuccess/mstrc/weekly_ind.html)

Drop-in Tutoring: Opens at 8:30 am.

[www.deanza.edu/studentsuccess/mstrc/drop in.html](http://www.deanza.edu/studentsuccess/mstrc/drop_in.html)•

**Disability Support Program** and Services (DSPS): DSPS can help you get the right tools to succeed.

Their website is [www.deanza.edu/dsps](http://www.deanza.edu/dsps)

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

Student must bring a safety glasses/goggles to the first laboratory meeting.

Safety goggles – sold at the bookstore.

Scantron forms 882E

**Regular Scientific math calculator.**

**Permanently bound laboratory notebook**; either 6x9 or 8.5x11 sizes acceptable; **No spiral bound lab notebook may be used.**

**Disruption• Any student disrupting class may be asked to leave. De Anza 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.**

**Cell Phone Policy • The use of cell phones or pagers is strictly prohibited during lecture and lab.** There is to be no text messaging, browsing the Internet, or voice conversations. Turn **Cell Phone 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 Chem25-03

### LABORATORY SCHEDULE

SC2208

Instructor: E. Zlatogorov

Fall, 2016

Week	Experiment/ Lab lecture	Date
01.	CHECK-IN	09/27/16
02.	Exp #2 METRIC SYSTEM, Exp #3 DENSITY (Ch 2)	10/04/16
	Last day to add	10/08/16
03.	Last day to drop for refund	10/09/16
	Last day for Drops w/o W	10/09/16
	Census date	10/10/16
	Exp #5 PHYSICAL / CHEMICAL PROPERTIES (Ch 3)	10/11/16
	Last day to request Pass/No Pass grade	10/14/16
04.	Exp #7 PERIODIC TABLE (Ch 5)	10/18/16
05.	Quiz #1. Exp #13 ALUM (Ch 2.5)	10/25/16
06.	Exp # 10 PENNY ANALYSIS (Ch 7)	11/01/16
07.	Exp #14 BAKING SODA (Ch 7)	11/08/16
08.	Exp # 21 CONDUCTIVITY (Ch 14.10)	11/15/16
	Last day for drops	11/18/16
09.	Exp #20 VINEGAR ANALYSIS (1)(Ch 13.8-13.11, Ch 14.5)	11/22/16
10.	Exp #20 VINEGAR ANALYSIS (2)(Ch 13.8-13.11, Ch 14.5)	11/29/16
11.	Lab final. Check –out.	12/06/16
12.	Final exams	12/10/16-12/16/16

**CHEMISTRY Chem25-04**

**LABORATORY SCHEDULE**

**SC2208**

**Instructor: E. Zlatogorov**

**Fall, 2016**

Week	Experiment/ Lab lecture	Date
01.	CHECK-IN	09/29/16
02.	Exp #2 METRIC SYSTEM, Exp #3 DENSITY (Ch 2)	10/06/16
	Last day to add	10/08/16
03.	Last day to drop for refund	10/09/16
	Last day for Drops w/o W	10/09/16
	Census date	10/10/16
	Exp #5 PHYSICAL / CHEMICAL PROPERTIES (Ch 3)	10/13/16
	Last day to request Pass/No Pass grade	10/14/16
04.	Exp #7 PERIODIC TABLE (Ch 5)	10/20/16
05.	Quiz #1. Exp #13 ALUM (Ch 2.5)	10/27/16
06.	Exp # 10 PENNY ANALYSIS (Ch 7)	11/03/16
07.	Exp #14 BAKING SODA (Ch 7)	11/10/16
08.	Exp # 21 CONDUCTIVITY (Ch 14.10)	11/17/16
	Last day for drops	11/18/16
09.	THANKSGIVING HOLIDAY	11/24/16
10.	Exp #20 VINEGAR ANALYSIS (1/2)(Ch 13.8-13.11, Ch 14.5)	12/01/16
11.	Lab final. Check –out.	12/08/16
12.	Final exams	12/10/16-12/16/16

Elena Zlatogorov Lec: Mon., Tue., Wed., Th. 8:30AM - 9:20AM Room: SC1102

**TENTATIVE LECTURE AND EXAMINATION SCHEDULE****CHAPTER AND LECTURE TOPIC**

Chapter 1 – Introduction to Chemistry	9/26/16
Prerequisite Science skills PSS 1-7	9/26/16-9/28/16
Chapter 2 – The Metric System	9/29/16-10/04/16
Chapter 3 - Matter and Energy	10/05/16-10/06/16
Last day to add	10/08/16
Last day to drop for refund	10/09/16
Last day for Drops w/o W	10/09/16
Census date	10/10/16
Chapter 3 - Matter and Energy (cont)	10/10/16
Chapter 4 – Models of the Atom	10/11/16-10/13/16
Last day to request pass/no pass grade	10/14/16
Review Chapter PSS,1,2,3,4	10/17/16
<b>MIDTERM #1 CHAPTERS PSS, 1- 4</b>	<b>10/18/16</b>
Chapter 5 – The Periodic Table	10/19/16-10/24/16
Chapter 6 – Language of Chemistry	10/24/16-10/26/16
Chapter 7 – Chemical Reactions	10/27/16-11/01/16
Chapter 8 – The Mole Concept	11/01/16-11/03/16
Chapter 09 –Chemical Equation Calculations	11/07/16-11/09/16
Review Chapters 6-10	11/10/16
<b>MIDTERM #2 CHAPTERS 6 - 10</b>	<b>11//14/16</b>
Chapter 12 – Chemical Bonding 12.1-12.2	11/15/16
Chapter 11 – Liquid and Solids	11/16/16-11//17/16
Last day for drops	11/18/16
Chapter 11(cont.) – Liquid and Solids	11//21/16
Chapter 13 – Solutions	11//21/16-11/23/16
Chapter 14 – Acids and Bases	11/28/16-11/30/16
Chapter 11 – The Gaseous State	11/30/16-12/05/16
Chapter 12 cont. – Chemical Bonding	12/06/16
Review for FINAL	12/07/16_12/08/16
Final exams	12/10/16-12/16/16
<b>FINAL EXAMINATION -- CHAPTERS PSS, 1-14</b>	<b>12/14/16</b>
Wed @ 7:00AM-9:00AM Room: : SC1102	

Exams will be given in the regularly assigned lecture room unless otherwise noted. When a class has both a lecture and a laboratory, the exam schedule is geared to the **lecture**.

**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.



## PRACTICE HOMEWORK PROBLEMS

### CHAPTER 1

p.25 - 26: 2, 4, 6, 8, 10, 14, 16 (a,b), 18, 20, 24, 28, 32, 34, 38(a, d), 42, 44, 50

### CHAPTER 2

p.59-60: 4, 6, 8d, 12, 16 (b,d), 18a, 20b, 24 (c,d), 28, 32, 38, 44, 54a, 58a, 62b, 66, 68, 72, 76

### CHAPTER 3

P.93-97: 4, 8, 14, 16, 18, 22, 28, 32, 36, 38a, 40, 44, 46, 48, 54, 56, 60, 62, 64, 66, 70, 72

### CHAPTER 4

P.126-129: 2, 8, 10, 12, 14, 16, 18(a, b), 24(a, b, c), 26, 30, 34, 40, 44, 46, 52, 56, 68, 72, 76 (a, b, d), 82

### CHAPTER 5

P.155-158: 2, 6, 14, 16, 18, 22, 30, 36, 38, 44, 48, 54(a-d), 58, 62(a-d), 66, 70, 72, 76, 80(a,b)

### CHAPTER 6

p.159-162: 4, 8, 12, 16, 20, 24, 26, 28, 30, 34, 38, 40, 44, 48, 54, 58, 62, 66, 68, 70, 74, 80

### CHAPTER 7

p.187-191: 2, 6, 10, 14, 18, 22, 24, 26, 30, 34, 38, 42, 46, 48, 50, 54, 58, 62, 66, 70, 74

### CHAPTER 8

p.218-223: 6, 10, 14, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80

### CHAPTER 9

p.247-249: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76,80

### CHAPTER 10

p.275-279: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 72, 76

### CHAPTER 11

p.305-307: 2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42, 46, 50, 54, 58, 62, 66, 70, 74, 78

### CHAPTER 12

p.336-339: 2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42, 46, 50, 54, 58, 62, 66, 70, 74, 78

### CHAPTER 13

p.380-383: 2, 6, 12, 16, 24, 28, 34, 38, 46, 54, 58, 64, 66, 70, 74, 78

### CHAPTER 14

p.392-395: 4, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42, 46, 50, 54, 58, 62, 66, 68, 70, 74

### CHAPTER 15

p.426-429: 2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42, 46, 50, 54, 58, 62, 66, 70, 74, 78

## **Student Learning Outcomes (SLO)**

1. **Outcome:** Assess the fundamental concepts of modern atomic and molecular theory.  
**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)
2. **Outcome:** Evaluate the standard classes of 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)
3. **Outcome:** Demonstrate a fundamental understanding of mathematical concepts pertaining to chemical experimentation and calculations.  
(Demonstrate the ability to perform stoichiometric calculations for chemical reactions in order to predict quantities of reactants and products).  
**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