

Lectures: Mon, Wed and Friday 8:00 - 9:25 am (CHEM 101),

Laboratory: Friday, 9:05 - 11:15 am (CHEM 162)

**TENTATIVE LECTURE & TEST SCHEDULES AND ASSIGNMENTS**

<u>Day/Date</u>		<u>CHAPTER/TOPIC/WORKSHEETS</u>
M 8/25		Course Overview; <b>Chapt 1</b> : Matter, Measurements, and Calculations;
W 8/27		<b>Chapt 1</b> , cont'd: ; Measurements and the Metric System;
F 8/29		<b>Chapt 1</b> , cont'd: Density and Specific Gravity
M 9/1		<b>Labor day Holiday-no class!</b>
W 9/3		<b>Chapt 1</b> , cont'd: Properties and Changes
F 9/5		<b>Chapt 1</b> , cont'd: Classification of Matter;
M 9/8		<b>Chapt 2</b> : Atoms and Molecules; Important Elements and Their Symbols;
W 9/10		<b>Chapt 2</b> , cont'd: the Mole
F 9/12		<b>Chapt 3</b> : Electronic Structure and the Periodic Law
M 9/15		<b>Chapt 3</b> , cont'd: Property Trends; Formula Writing Practice
W 9/17		<b>Chapt 10</b> : Radioactivity
F 9/19		<b>Chapt 10</b> , Radioactivity cont'd
M 9/22	T 1	<b>TEST I</b>
W 9/24		<b>Chapt 4</b> : Forces Between Particles; Charges of Simple Ions;
F 9/26		<b>Chapt 4</b> , cont'd: Covalent Bonding;
M 9/29		<b>Chapt 4</b> , cont'd: Lewis Electron Dot Diagrams; Polyatomic ions;
W 10/1		<b>Chapt 4</b> , cont'd: Polarity of Covalent Molecules
F 10/3		<b>Chapt 5</b> : Chemical Reactions; Equation Writing;
M 10/6		<b>Chapt 5</b> , cont'd: Types of Reactions; Redox Rxns;
W 10/8		<b>Chapt 5</b> , cont'd: the Mole and Chemical Equations (omit Sec 5.10);
F 10/10		<b>Chapt 5</b> , cont'd; Stoichiometry Worksheet
M 10/13	T2	<b>TEST II</b>
W 10/15		<b>Chapt 6</b> : The States of Matter;
F 10/17		<b>Chapt 6</b> , cont'd: the Gas Laws (omit Sec 6.10);
M 10/20		<b>Chapt 6</b> , cont'd: Changes in State
W 10/22		<b>Chapt 6</b> , cont'd; Gas Law Worksheet;
F 10/24		<b>Chapt 6</b> , cont'd: Changes in State
M 10/27		<b>Chapt 7</b> : Solutions (and Colloids – but omit Sec 7.6, 7.8, 7.9);
W 10/29		<b>Chapt 7</b> , cont'd: Solution Properties
F 10/31		<b>Chapt 8</b> : Reaction Rates and Equilibrium;
M 11/3	T3	<b>TEST III</b>
W 11/5		<b>Chapt 8</b> , cont'd: Chemical Equilibrium;
F 11/7		<b>Chapt 8</b> , cont'd: Factors that Influence Equilibrium Position

**TENTATIVE LECTURE & TEST SCHEDULES AND ASSIGNMENTS, cont'd**

<u>Day/Date</u>		<u>CHAPTER/TOPIC/WORKSHEETS</u>
M 11/10		<b>Veterans day Holiday-no class!</b>
W 11/12		<b>Chapt 9:</b> Acids, Bases, and Salts;
F 11/14		<b>Chapt 9, cont'd;</b>
M 11/17		<b>Chapt 9, Buffers</b>
W 11/19		<b>Chapt 11:</b> Organic Chemistry: <b>Alkanes</b> ; Functional groups;
F 11/21		<b>Chapt 11, cont'd:</b> Structure/Isomerism; Organic Nomenclature;
M 11/24		<b>Chapt 11, cont'd:</b> Organic Nomenclature;
W 11/26	T4	<b>TEST IV</b>
F 11/28		<b>Thanksgiving Holiday-no class!</b>
M 12/1		<b>Chapt 11, cont'd:</b> Alkane Reactions
W 12/3		<b>Chapt 12:</b> Unsaturated Hydrocarbons;
F 12/5		<b>Chapt 12:</b> Unsaturated Hydrocarbons;
M 12/8		<b>Chapt 12, cont'd:</b> Properties of Alkenes; Alkynes and Aromatics
W 12/10	FE	<b>FINAL EXAM</b>
F 12/12		Conclusion of class

**FINAL EXAM:****WEDNESDAY, December 10 (ALL COURSE MATERIAL)**

**LABORATORY SCHEDULE**

<u>DATE</u>	<u>EXPERIMENT or TOPIC/WORKSHEETS</u>
F 8/29	Continues Lecture: Measurement / Sig Figs / Exponential Notation
F 9/5	Check-in; <b>Expt 2</b> : Lab Measurements and Graphing
F 9/12	<b>Expt 3, part 3</b> : Physical Properties of Inorganic Substances: Density
F 9/19	<b>Expt 5</b> : Names and Formulas of Chemical Compounds
F 9/26	<b>Lab Safety</b> ; Read <b>Expt 1 BACKGROUND</b> ; <b>Expt 6</b> : Lewis Dot Structures and Molecular Models
F 10/3	<b>Expt 7</b> : Chemical Reactions and Their Classification
F 10/10	Continuation of lecture - no lab experiment scheduled
F 10/17	<b>Expt 10</b> : Collection and Measurement of Hydrogen Gas
F 10/24	<b>Expt 6-2 (Hand-out)</b> : Solution Chemistry
F 10/31	<b>Expt 9</b> : Equilibrium Systems
F 11/7	<b>Expt 13</b> : Acids, Bases, pH, and Indicators
F 11/14	Continuation of lecture - no lab experiment scheduled
F 11/21	<b>Expt 18</b> : Hydrocarbons (Models)
F 11/28	<b>Thanksgiving Holiday-no lab!</b>
F 12/5	Continuation of lecture - no lab experiment scheduled
F 12/12	Lab Check-out

By the end of the course you should be able to:

1. use the language of general chemistry (vocabulary, nomenclature, formulas and equations) to describe chemical systems and changes (physical and chemical) they undergo.
2. describe the structure of the atom in terms of the arrangement of subatomic particles and electronic configuration.
3. extract information from the Periodic Table and predict periodic trends.
4. distinguish between ionic and covalent bonding and write Lewis structures for molecules and polyatomic ions.
5. predict molecular geometry, bond angles and polarity.
6. solve introductory level quantitative problems applied to chemical systems by using dimensional analysis and algebra. These problems include unit conversions, stoichiometry, gas laws, solution concentrations and pH.
7. describe the properties of solids, liquids, gases and solutions and relate them to bonding and intermolecular forces.
8. discuss the factors which affect the rate of reactions and apply Le Chatelier's Principle to equilibria.
9. state the properties and definitions of acids and bases and interpret elementary acid-base equilibria, including buffer systems.
10. describe the bonding and geometry of carbon compounds in terms of hybridization and type of bonding orbital overlap (pi or sigma).
11. use mechanisms to show how selected organic reactions take place.
12. determine the nomenclature and write equations for the preparation and important reactions of alkanes, alkenes, alkynes, alcohols and ethers.
13. state the names of common aromatic compounds and describe the structures of these compounds.
14. recognize a chiral center in an organic compound.
15. use common laboratory glassware and equipment.
16. state and apply the rules and procedures for laboratory safety.
17. demonstrate the ability to use basic laboratory skills such as taking and recording observations of chemical systems and interpreting qualitative and quantitative experimental data.

**Chemistry 21A: Survey of General and Organic Chemistry**  
Spring, 2008

Instructor: Dr. Gary Landis  
glandis@elcamino.edu

**Chemistry 21A** is the first semester of a two-semester sequence designed to provide students with the skills and knowledge needed to satisfy the requirements for several allied health related majors, especially the pre-Nursing major. This course presents the fundamental principles of inorganic chemistry and begins the study of organic chemistry.

**Chemistry 21A** fulfills the chemistry prerequisite for Biology 1B, Microbiology 33, and Physiology 31, and provides the foundation necessary for success in Chemistry 21B (the second course in the sequence).

**Prerequisite:** Mathematics 40 (Elementary Algebra) or equivalent.

**Materials:**

1. Seager and Slabaugh, *Chemistry for Today: General, Organic, and Biochemistry*, 6th edition
2. Campbell, *Chemistry 21A Packet*
3. Peller, *Exploring Chemistry: Laboratory Experiments in General, Organic, and Biological Chemistry, 2nd Edition*.
4. Safety goggles (Instructor approved - do not purchase until "fitted" in class)
5. Calculator (able to handle exponential notation calculations and logarithms)
6. OPTIONAL: *Study Guide and Solutions Manual for Seager and Slabaugh's Chemistry for Today: General, Organic, and Biochemistry*, 5th edition
7. Small stapler
8. Scantron 882-E and a #2 pencil with an eraser for each exam.

**Grading:** Final letter grades will be assigned according to the following percentage of total points earned:

<u>Grade</u>	<u>Percent</u>
A	90 - 100%
B	80 - 89%
C	70 - 79%
D	60 - 69%
F	below 60%

Approximate distribution of points:

Tests (4 @ 100 points each) .....	400	40 %
Laboratory (10 @ 25 points) .....	250	25 %
Homework Assignments (12 @ 10 points each) .....	120	12 %
Project (30 pts) .....	30	3 %
Final Exam .....	<u>200</u>	<u>20 %</u>
Course Total .....	1000	100 %

## POLICIES, PROCEDURES, AND GUIDELINES FOR SUCCESS

READ THOROUGHLY - YOU ARE RESPONSIBLE FOR AWARENESS OF ALL INFO ON THIS PAGE!

1. PLEASE TURN YOUR CELL PHONE OFF!! Points may be deducted for such interruptions - is that incoming call worth it?

2. **GRADES** are EARNED, not appointed. It is up to YOU to learn the material thoroughly enough to do well on Quizzes, Tests, and Labs. PLAN to spend 15-20 HOURS PER WEEK on this course IN ADDITION to time in class! Study effectively: **read the texts before lecture**; take good lecture notes (taping of lectures is permitted); rewrite your lecture notes; study the texts and your notes; DO ALL THE SUGGESTED PROBLEMS, repeatedly. Use FLASHCARDS to help memorize terms and formulas. **STUDY PARTNERS OR GROUPS** are especially recommended!

3. **ATTENDANCE** - Be PROMPT and regular in attendance. Tests are “lecture-based” and may include questions on material covered only in Lecture (i.e. not discussed in the texts). Consistent late arrival may result in a lower grade; MORE THAN FOUR ABSENCES may result in being dropped from the class. If you arrive to LAB after discussion of safety procedures you may be excluded from the lab (0 pts) that day.

\*\*\* **IMPORTANT NOTE**: Any “excusable” absence for a lab, quiz, or test MUST be substantiated by a WRITTEN note; a grade for “excused” missing work will be assigned as determined appropriate by the Instructor, on a case by case basis. Otherwise, missed work = zero points!

4. **TESTS AND THE FINAL EXAM** - It is **your** responsibility to be present and on time for all tests, quizzes, and especially the Final Exam. **CHECK THE SCHEDULE!** No extra time will be allotted due to late arrival. **There are NO MAKE-UP tests. ALL test scores will be counted in the final point tally.** The Final Exam is COMPREHENSIVE, with a slight emphasis on material covered after Test 4 – including organic chemistry. A higher Final Exam score (%) may be substituted for ONE Test score.

5. **ASSIGNMENTS** - **Problems from the texts are an essential part of the learning process and give you practice, drill, and reinforcement of the course material.** End-of-Chapter problems will be assigned, collected, and graded. Complete all assignments in a timely manner – **late submittals are zero points without an approved excuse.** Be prepared to ask questions at appropriate times during class concerning any material or problems which you don’t understand. **Assignments are due before class begins- else 0 points.**

6. **LABORATORY** - Read laboratory experiments BEFORE coming to class, as this will allow you to ask appropriate questions and take full advantage of further instructions provided by the Instructor so that you will be able to complete the laboratory work in the allotted time. Specified “Pre-lab” assignments will be part of the overall lab points total. **Pre-lab assignments are due at the beginning of class on Friday!** “Background” material from the labs may be tested on! **Lab reports submitted late will earn NO credit without an approved excuse. Missed labs earn zero points. Labs are due 1 week after they are performed, on Friday. Pre-labed will be stamped with an OK when they are turned in. No student may proceed with a lab without a stamped OK on their prelab!**

\*\*\*NOTE: There is NO time allotted for “make-up” labs! If necessary you MAY be able to complete a lab during the time when another Section is doing the SAME experiment - ask the Instructor. (See above for what to do if you miss a lab for a legitimate reason.) Although many laboratory exercises will be completed with partners, all REPORTS must be completed individually!

7. **Success is a matter of preparation and repetition.** The material presented is perhaps new to you, but is not difficult IF YOU SPEND THE TIME TO LEARN IT. Make use of all possible learning resources - your texts, the Instructor (in class), tutors if necessary, and especially your fellow students. Always remember that everything BUILDS on what comes before, so don’t let any gaps develop!

\*KEEP UP - THERE IS TOO MUCH MATERIAL, AND NOT ENOUGH TIME, TO PLAY CATCH UP \*

## **ECC Resources to Help You Succeed in Chemistry 21A (and Other Courses)**

El Camino College provides many resources and programs outside of this classroom that can help you to succeed in this class, and in other classes. Below are some of the resources that you might find especially helpful.

1. **Counseling**: Counselors provide students with academic, vocational, career, and personal support counseling. Academic, vocational, and career counseling through Counseling Services will help you identify and focus on goals and objectives - a significant factor in academic success is having a clearly identified goal and knowledge of what it takes to achieve that goal. Personal support counseling is provided on a short-term basis in Counseling Services, but in greater depth at the Health Center.
2. **Learning Resources Center**: TUTORING, and basic skills and other assistance.
3. **Academic Strategies Course**: 1abcd, 20ab, 22ab, 23ab, 25ab, 30ab, 31ab, 33ab, 35ab, 36ab, 40ab, 100. These courses focus on specific skills areas, such as test taking, study techniques, math anxiety, listening and note-taking, problem solving, writing, thinking skills, vocabulary, spelling, memory techniques, sentence punctuation, and learning resources skills development. Mid-term classes are available.
4. **Special Resources Center**: For physically-, visually-, or hearing-impaired, and learning disability students (including dyslexia, ADD and related). Special tutorials, adapted testing assistance, and other services are available to provide academic and related support to students with disabilities. They provide testing to discover possible learning disabilities, and also for determining your study/learning method strengths and weaknesses.
5. **EOP&S Supervised Study**: Tutoring and other assistance; only for EOP&S students.
6. **Career Services and Transfer Services - Counseling Services**: The Career and Transfer Center offers a wide array of services which help to motivate students and give them a clear idea of what they need to achieve goals. Services include a number of workshops on career areas and issues, transfer options, and information about specific universities.
7. **Student Enhancement Program (SEP) Workshops in Counseling Services**: The SEP workshops are actually a three workshop series, two hours each in duration, and are offered throughout the year. Activities in the workshops help students develop a proactive sense of responsibility for their academic performance and generate solutions to problems affecting their academic performance. Students are referred to on- and off-campus services. Workshop participants are encouraged to form “study partnerships” and study groups. Student feedback has been that workshops do make a difference in their classroom attitudes, motivation, personal confidence, and study behavior. Students discuss problems, formulate action plans, engage in exploration of resources, and report back to their group their findings and actions taken.