Course Syllabus ___________________________ Summer 2008
Los Angeles Southwest College

Chemistry 051 – Fundamentals of Chemistry
Lecture MTWTh 9:10 am – 12:05 pm Room COX303
Laboratory MTWTh 12:15 pm – 2:20 pm Room LL413

Instructor: Dr. Kenneth R. Rodriguez
Office: LL405A
Phone: (323)241-5296 (Dept. Chair)
Email: rodrigkr@lasc.edu
Office Hours: none but will be available after class

Textbooks and Supplies:
Timberlake, “Essential Laboratory Manual.”
Scientific Calculator (no graphing calculator allowed)
Laboratory safety glasses/goggles

Prerequisites: None but basic algebra is highly recommended!

Exams: There will be 3 examinations given in the semester and each exam is worth 100 points.

Exam 1: Chapters 1-4
Exam 2: Chapters 5-7,10
Exam 3: Chapters 8,9,11, and other topic

*** IMPORTANT NOTE: Any “excusable” absence for a lab 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!

Grading: Exams 300 points Scale: A 90 - 100%
Final 150 points B 80 - 89%
Laboratory 200 points C 70 - 79%
Homework 100 points D 60 - 69%
Total 750 points F 0 - 59%

Final: The final examination is worth 150 points and is cumulative. You must take the final examination to receive credit for the class. The final exam will be given on Tuesday, August 19th 2008 from 9:10 -11:30 am.
Laboratory: You must be enrolled in a laboratory concurrently with the corresponding lecture. In order to pass the class, you must complete all laboratory assignments with a satisfactory score. Failure to pass the laboratory with a C or better will result in an F for the class. Bring safety glasses/goggles and closed toed shoes to every lab section. Please use your cell phones outside of the lab if it is an emergency.

Homework: 10 homework assignments will be collected during the semester. Each homework assignment is worth 10 points. Homework assignments will be assigned after chapter has been completed. You will have the week to complete the homework assignments once assigned. Solutions to the homework will be handed out after the due date of each assignment. Late homework will not be accepted at all!

Course Objective for CHEM051: This course is a 5-unit introductory level chemistry course. The topics covered will include the following: basic scientific principles, measurements and units, atomic structure and reactivity, state of matter, basic organic chemistry, functional groups, basic biochemistry, carbohydrates, lipids, proteins, and molecular genetics. This course will develop problem solving skills and basic data analysis.

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 how energy is a key role for all chemical reactions in chemistry.

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, thiols, 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.

Course Content:

General Chemistry Topics
Chapter 1. Measurements
Chapter 2. Energy and Matter
Chapter 3. Atoms and Elements
Chapter 4. Compounds and Their Bonds
Chapter 5. Chemical Reactions and Quantities
Chapter 6. Gases
Chapter 7: Solutions
Chapter 8: Acids and Bases
Chapter 9: Nuclear Radiation

Organic Chemistry Topics
Chapter 10. Introduction to Organic Chemistry: Alkanes
Chapter 11. Unsaturated Hydrocarbons
Chapter 12. Organic Compounds with Oxygen and Sulfur
Chapter 13. Carboxylic Acids, Esters, Amines, and Amides

Biochemistry Topics
Chapter 14. Carbohydrates
Chapter 15. Lipids
Chapter 16. Amino Acids, Proteins, and Enzymes
Chapter 17. Nucleic Acids and Proteins Synthesis
**Course Material:** The course materials for this section will be available online. The lecture notes are all PowerPoint presentations which you will be able to download from the following link: [http://chemistry.csudh.edu/faculty/krodriguez/ken.htm](http://chemistry.csudh.edu/faculty/krodriguez/ken.htm). Homework assignments and any other materials will also be available for you to download.

**Academic Misconduct:** Cheating and/or plagiarism will result in an F grade for the course. Dishonest students will be reported to the administration for further disciplinary action. No programmable calculators or devices with alphanumeric text storage capacity will be allowed in the exams (including language translators and cell phones). Communicating with another student during the exam will result in a zero.

**Attendance Policy:** It is the responsibility of the student to attend lectures and labs. Failure to attend lectures may result in zeros on homework and exams due on those days. Be prompt and regular in attendance. Quizzes and 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 three absences may result in being dropped from the class. Attendance points will be given for the lab. Failure to report to lab will result in no credit for the assignment. If you arrive to LAB after discussion of safety procedures you may be excluded from the lab (0 pts) that day.

**Classroom Etiquette:** Please arrive to lectures and labs on time. **Turn off all cell phones and pagers when in class!** Points may be deducted for such interruptions - is that incoming call worth it? Be respectful of others. Do not bring visitors to the class or laboratory.

**Extra Credit:** There are no extra credit assignments. There is plenty of non-extra credit work to complete. For chemistry practice problems online that will help you out for this course, please visit [http://proton.csudh.edu/homeworkcs/hwintrocsn7.html](http://proton.csudh.edu/homeworkcs/hwintrocsn7.html). Bonus problems may be given on the exams for extra credit.

**Re-grading Policy:** No re-grades unless there is a clear error in the adding of points.
# Proposed Lecture and Lab Schedule

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<thead>
<tr>
<th>Date</th>
<th>Lecture</th>
<th>Lab</th>
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<tbody>
<tr>
<td>July 14</td>
<td>Intro&lt;br&gt;Chapter 1 - Measurements</td>
<td>Expt 1: Measurement/Sig Figs</td>
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<td>July 15</td>
<td>Chapter 1</td>
<td>Expt 2: Conversion Factors in Calculation</td>
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<tr>
<td>July 16</td>
<td>Chapter 3 – Atoms and Elements</td>
<td>Expt 3: Density, Specific Gravity, and Graphing</td>
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<td>July 17</td>
<td>Chapter 3</td>
<td>Expt 4: Atomic Structure and Electron Arrangement</td>
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<td>July 21</td>
<td>Chapter 4 - Bonds</td>
<td>Expt 6: Compounds and Their Formulas</td>
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<td>July 22</td>
<td>Chapter 4</td>
<td>Expt 7: Chemical Reactions and Equations</td>
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<td>July 24</td>
<td>Test 1 (1, 2, 3, 4)&lt;br&gt;Chapter 5 - Reactions</td>
<td>Expt 9C, 9D: Food Calories and Exothermic and Endothermic Rxns</td>
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<td>July 28</td>
<td>Chapter 5</td>
<td>Expt 10A: Gas Laws: Boyle’s Law</td>
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<td>July 29</td>
<td>Chapter 6 - Gases</td>
<td>Expt 12C: Solutions: Conc. of NaCl solution</td>
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<td>July 30</td>
<td>Chapter 7 - Solutions</td>
<td>Expt 14: Solutions, Colloids, and Suspensions</td>
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<tr>
<td>July 31</td>
<td>Chapter 7</td>
<td>Expt on Strong, Weak, and Nonelectrolytes</td>
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<td>Aug 4</td>
<td>Test 2 (5, 6, 7,10)&lt;br&gt;Chapter 8 – Acids and Bases</td>
<td>Expt 15A &amp; B: pH and measuring pH</td>
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<td>Aug 5</td>
<td>Chapter 8</td>
<td>Expt 15C: Titration of vinegar with NaOH</td>
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<td>Aug 6</td>
<td>Chapter 9 – Nuclear Chemistry</td>
<td>Possible Lab Make-Up</td>
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<td>Aug 7</td>
<td>Chapter 10 - Alkanes</td>
<td>Possible Lab Make-Up</td>
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<td>Aug 11</td>
<td>Chapter 10, Chapter 11 - Alkenes</td>
<td>Expt 16D &amp; E: Structures of Alkanes &amp; Isomers</td>
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<td>Aug 12</td>
<td>Chapter 11</td>
<td>Expt 16F: Cycloalkanes</td>
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<td>Aug 13</td>
<td>Chemistry &amp; Foods</td>
<td>Possible Lab Make-Up</td>
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<td>Aug 14</td>
<td>Test 3 (8, 9, 11, Chem. &amp; Foods)</td>
<td>Possible Lab Make-Up</td>
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<tr>
<td>Date</td>
<td>Subject</td>
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<td>Aug 18</td>
<td>Chapter 12 – Oxygen and Sulfur</td>
<td>Lab Final Practicum</td>
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<td>Aug 19</td>
<td>Final – Cumulative</td>
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<td>July 23</td>
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<td>July 24</td>
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*Acknowledgement of Syllabus:*

By signing and returning this sheet, I acknowledge that I have read the LA Southwest College Chemistry 051 Syllabus, section 1538 2nd summer session and that I have understood all of its contents.

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Signature                        Printed full name