Course Information: Spring 2013 (Item #7304, Section NB)

Lecture: Monday 6:00 p.m. – 9:20 p.m. and Wednesday 6:00 p.m. – 7:05 p.m.,
bldg. 35, room 251

Laboratory: Wednesday 7:15 p.m. – 9:20 p.m., bldg. 35, room 213

Attendance is MANDATORY

Prerequisites: MATH 099, concurrent enrollment, or appropriate math placement test score.

Instructor: Linda Baker

Contact Information:
Email: lbaker@spscc.ctc.edu, or through OWL
Office: 35 - 153
Office Hours: Monday and Wednesday 5:00 – 5:50 p.m., or by appointment

Catalog Description: Fundamental chemistry for those interested in nursing/allied health and those pursuing a non-science degree. Study of the classification, composition, calculations and properties (both chemical and physical) of matter at the macroscopic, atomic and subatomic levels. Includes measurements and conversions, atomic structure, chemical bonding, chemical reactions, molar stoichiometry and acid/base chemistry.

Required Materials:

On-line Access code for OWL: OWL is the online homework submission system and supplemental material platform for the text. YOU MUST HAVE AN OWL ACCESS CODE for this class. New textbooks purchased through the SPSCC bookstore will include an OWL access code. For other copies of the textbook, you may purchase an OWL access code online through [www.cengage.com/owl](http://www.cengage.com/owl)

Simple Scientific Calculator with a log key and an exponent key. Calculators on mobile devices will NOT be allowed for in-class exams.

Laboratory notebook: Acceptable notebooks include the carbonless copy lab notebook that is sold in the bookstore, or a blank, hardbound notebook.

Additional Materials such as powerpoint slides, handouts, labs and other documents will be available on the library electronic reserve system (“ERES”). ERES may be accessed at [www.spscc.ctc.edu/library](http://www.spscc.ctc.edu/library) and clicking on “eReserves”. When the new page pops up, click on “Chem 121”. Enter your student ID and click on “Baker”.

OPTIONAL: Safety goggles available at the bookstore.

Course Content:
A. Matter: solids, liquids, gases; homogeneous and heterogeneous mixtures; elements and compounds; and, properties and transformations of matter
B. Measurement: significant digits; scientific notation; metric units and conversions; English-metric conversions; temperature scales; and density
C. Atomic Structure: subatomic particles and location within the atom; atomic mass,
atomic number, mass number; electron energy levels and configurations; valence electrons and Lewis symbols; isotopes, radioactivity and radioactive decay
D. Periodic Table including categorization and trends: groups and periods; metals, nonmetals and metalloids; orbital blocks; representative, transition and inner transition elements; alkali metals; alkaline earth metals, halogens and noble gases; ionization energy; and electronegativity
E. Chemical Bonding: molecules and covalent bonds; Lewis structures; VSEPR theory, bond angles and polarity; ion formation and ionic bond; and naming ionic and binary molecular compounds
F. Chemical Compounds and Equations: writing and balancing chemical reactions and equations; types of chemical reactions including addition, decomposition, replacement, precipitation, redox and neutralization; solutions; mole and Avagadro’s number; molar mass; molarity and concentrations; chemical equilibrium; calculations involving dilution, reaction stoichiometry, gas laws and limiting reagent
G. Acids and Bases: names and chemical formula of common acids; neutralization reactions; predicting acid-base reactions; acid and base strength; pH; and buffers
H. Laboratory and Experimental Science: scientific method; laboratory safety; proper laboratory technique; and laboratory exercises to complement lecture concepts

Student Learning Outcomes:
A. Recognize and describe various forms of matter and the transformations thereof.
B. Take mass, volume, length and temperature measurements with appropriate accuracy and precision.
C. Perform mathematical conversions and calculations, expressed with appropriate units and significant digits.
D. Recognize and describe the key ideas of atomic structure, the periodic table and chemical bonding.
E. Recognize and identify specific ionic compounds, binary molecular compounds and inorganic acids by chemical formula and chemical name.
F. Balance chemical equations. Recognize and describe various types of chemical reactions.
G. Perform chemical calculations involving moles, molar mass, molarity and concentration, stoichiometry, gas laws and pH.
H. Perform safe, proper and accurate laboratory exercises.

College Wide Abilities: This course prepares students for future chemistry, nursing and allied health classes. It will also prepare the student to communicate effectively, think logically and critically, and evaluate and process quantitative and symbolic data.

Tips for Success: In order to do well in this class, you need to be able to solve many algebra and story problems, memorize information, organize it, make connections and apply it. This takes a lot of TIME, and the quarter is short. Plan to work on this course material everyday.

Finding compatible study partners is a very effective method for studying since working out solutions to problems, talking about the material and quizzing each other will help. Strategies you can accomplish on your own include previewing chapters in the textbook before I lecture on them, taking good notes in lecture, transcribing notes after lecture, reviewing and rewriting your notes and doing lots and lots of problems from the text book, as well as, on OWL. Check the internet for additional chemistry resources, however, remember that information from the Internet is not guaranteed to be accurate. And, ask questions. If something is confusing to you, ask me.

Print the labs and Power Point presentations from ereserves before the appropriate class period.
Course Evaluation:

**Homework/Projects:** There will be nine homework sets from OWL (Online Web Learning) assignments, as well as projects that will be assigned during class. Each project or homework set is worth 5 points, unless otherwise noted. You may work together on the homework and projects.

**Research Paper:** A two page, typed, research paper on any subject relating to inorganic chemistry is due by Wednesday, May 29th. The purpose of this paper is to apply a portion of what you learn this quarter by documenting an application of inorganic chemistry. We will discuss this in more detail during class.

**Lab Reports:** Pre-lab work is due at the beginning of the lab session and the full lab report is due at the beginning of the class period following a given lab. These reports will be discussed in detail during our first lab period.

**Exams:** Two, one-hour in-class unit exams, eight chapter exams and a final comprehensive exam are scheduled. Each of the two unit exams is worth 50 points. The final, comprehensive exam is worth 100 points. No make-up exams will be given. In determining your course grade, either your lowest midterm exam score will be dropped, or your final exam score will be halved in weight, whichever is better for you. You must show your work on exam problems. Regardless of your final answer, if NO WORK is SHOWN then NO CREDIT will be GIVEN.

The final exam is scheduled for Wednesday, June 12th at 6:00 p.m.

Your **final grade** will depend on the total number of points you earn throughout the quarter. There will be 408 points possible, distributed as follows:

<table>
<thead>
<tr>
<th>Take Home Assignments</th>
<th>80 points</th>
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<tbody>
<tr>
<td>In Class Exams</td>
<td>148</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
</tr>
<tr>
<td>Lab Reports 8 at 10 points each</td>
<td>80</td>
</tr>
</tbody>
</table>

**TOTAL POINTS POSSIBLE**  408

**POINTS USED TO CALCULATE FINAL GRADE**  358

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percent</th>
<th>Point Range</th>
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<tbody>
<tr>
<td>A</td>
<td>94 +</td>
<td>337 – 358</td>
</tr>
<tr>
<td>A-</td>
<td>90 – 93.9</td>
<td>322 – 336</td>
</tr>
<tr>
<td>B+</td>
<td>87 – 89.9</td>
<td>311 – 321</td>
</tr>
<tr>
<td>B</td>
<td>84 – 86.9</td>
<td>301 – 310</td>
</tr>
<tr>
<td>B-</td>
<td>80 – 83.9</td>
<td>286 – 300</td>
</tr>
<tr>
<td>C+</td>
<td>76 – 79.9</td>
<td>272 – 285</td>
</tr>
<tr>
<td>C</td>
<td>71 – 75.9</td>
<td>254 – 271</td>
</tr>
<tr>
<td>C-</td>
<td>67 – 70.9</td>
<td>240 – 253</td>
</tr>
<tr>
<td>D+</td>
<td>64 – 66.9</td>
<td>229 – 239</td>
</tr>
<tr>
<td>D</td>
<td>58 – 63.9</td>
<td>208 – 228</td>
</tr>
</tbody>
</table>

There may be some minor alterations to this grade scale when determining the final grade, however this course will not be graded on a curve.
**Late Work Policy:**
OWL homework assignments will NOT be accepted after the due date and time and if not submitted on time, will receive a score of zero. Other projects, including laboratory reports will be accepted past the due date with a deduction of 25% of the total possible points for each class period that it is late. For example, if an assignment is due on a Monday and you turn it in the following Monday, your score will be reduced by 50% of the total number of points possible.

However, in order to pass the course, you are expected to turn in lab assignments even if more than three class periods late. You will receive no credit for attending and participating in lab if you do not turn a lab report in.

**Classroom expectations:**

**Attendance Policy:** Lab attendance is mandatory for a passing grade. Missing more than one lab section and/or lab assignment will result in a failing grade for the class. You MUST, however, attend the lab session on lab safety, this session is not optional.

Failure to attend at least one of the class periods during the first week of the quarter will result in an administrative drop.

**Appropriate Behavior:** This course will include lecture and discussion. The college encourages diversity of belief and the free expression of ideas. However, freedom of expression also requires respect for differing opinions. Disrespectful behavior will not be tolerated. Disrespectful behavior includes, but is not limited to: talking in small groups while someone else has the floor, monopolizing the discussion, or making disparaging comments. Students who continually disrupt the class will be referred to the Vice President of Student Services.

In this class you will also be expected to demonstrate the work habits that will help you succeed in college and work. These include regular attendance, being ready to begin work at the beginning of the class period, bringing your text and materials to class, turning assignments in on time, and refraining from behavior that distracts you and others.

**Cell phones / pagers:** This classroom is a learning environment. Please turn off cell phones, pagers and electronic devices before class begins.

**Policies:**

**Academic Dishonesty** includes cheating, plagiarism, knowingly furnishing false information to the college, forgery, etc. Students who are suspected of academic dishonesty will receive a failing grade on the assignment, will be subject to an oral exam over the same material, and may be referred to the Vice President of Student Services. For the college policy on academic honesty, please refer to the “Rights, Responsibilities, Policies” section of the Current Students page on the college website. It is the responsibility of the student to understand and abide by the college policy on academic honesty.

Student code of rights and responsibilities can be found at http://inside.spscc.ctc.edu/StudentServices/enrollment/forms/codeofrights.pdf
Students who are eligible for learning accommodations must make arrangements with the Office of Disability Support Services. Students who have a letter of accommodations should meet with the instructor as soon as possible, preferably during the first week of class.

Please check with the Enrollment Services staff or the Financial Aid office to determine how a withdrawal will affect your academic or financial aid standing.

We will conform to the official decision of the college for any closures. Please check the website at www.schoolreport.org, or listen to one of the several Olympia radio stations for any changes in college operations.
TENTATIVE Lecture Topics and Exam Schedule:
Schedule is subject to change at instructor’s discretion.

Unit I: Matter, Measurement
   Atomic Structure and Periodic Table
   Nuclear Chemistry

   April 1 – 8: Chapter 1
   Matter, Energy and Measurements

   April 8 - 17: Chapter 2
   Atoms

   Chapter 9
   Nuclear Chemistry

Unit I Exam: April 24

Unit II: Chemical Bonds (Ionic and Covalent)
   Chemical Calculations and Reactions

   April 22 – 29: Chapter 3
   Chemical Bonds

   April 29 – May 8: Chapter 4
   Chemical Reactions

Unit II Exam: May 15

Unit III: Gases, Liquids, Solids
   Solutions, Colloids, Reaction Rates and Chemical Equilibrium
   Acids and Bases

   May 13 - 20: Chapter 5
   Gases, Liquids and Solids

   May 20 - 29: Chapter 6 and 7
   Solutions and Colloids
   Reaction Rates and Chemical Equilibrium

   May 27th is a HOLIDAY

   May 29 – June 5: Chapter 8
   Acids and Bases

Review: June 10

Final Exam: June 12
**TENTATIVE Lab Schedule**

Most laboratory write-ups are available on *ereserves*. Those that are not will be handed out in class.

Labs will be held in room 213, building 35, on Wednesday between 7:15 and 9:20 p.m.

<table>
<thead>
<tr>
<th>Date</th>
<th>Experiment</th>
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<tbody>
<tr>
<td>April 3</td>
<td>Introduction to OWL</td>
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<tr>
<td>April 10</td>
<td>Lab Safety and Density of Copper</td>
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<tr>
<td>April 17</td>
<td>Lab Measurements and Conversions</td>
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<tr>
<td>April 24</td>
<td>Separation of Components</td>
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<tr>
<td>May 1</td>
<td>Models</td>
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<tr>
<td>May 8</td>
<td>Copper Silver Reaction, and Determination of a Metal Oxide</td>
</tr>
<tr>
<td>May 15</td>
<td>Ionic Compounds</td>
</tr>
<tr>
<td>May 22</td>
<td>Titration</td>
</tr>
<tr>
<td>May 29</td>
<td>No Lab</td>
</tr>
<tr>
<td>June 5</td>
<td>Gas Law</td>
</tr>
</tbody>
</table>