Semester and Year: SUMMER II 2017 Section 86001

Class time & days: Lecture: MTWR 7.30 AM — 9.30 AM WH147
                 LAB: MTWR 9.40AM —11.40AM SH231

Instructor: Evgenia Manolova Contact Info: emanolova@dcccd.edu
Office: Adjunct Faculty Office, Alamito Hall, Suite A110 ; 972-238-6140

Final exam: August 10, Thursday 7.30AM-9.30AM

DROP DATE: Last day to drop with a “W”: Thursday, August 3

Evaluation Procedure: Your Final Course Grade will be determined by the total number of points obtained from the following:

Evaluation Course Points:

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Tests each of 100 points,</td>
<td>400 points</td>
</tr>
<tr>
<td>1 Final Exam</td>
<td>200 points</td>
</tr>
<tr>
<td>14 Labs each of 20 points</td>
<td>280 points</td>
</tr>
<tr>
<td>Mastering chemistry homework</td>
<td>120 points</td>
</tr>
<tr>
<td>Total</td>
<td>1000 points</td>
</tr>
</tbody>
</table>

Test: is a regular assessment of chapters taught at the time of each test; four tests will be given during the semester. Each test is show your work test.

Lab: Although you will work with an assigned partner or small group in lab, each student turns in a complete individual lab report in the end of each Lab. The on-line pre-lab must be completed before lab time and is worth 5 of the 20 points possible for each lab report. The first Lab worth 10 points. You must buy safety goggles and bring them to the lab each week, or leave them in the drawer assigned to your lab section.

There is not a makeup for the labs.

Instructor reserves the right to amend this information as necessary.

Homework: Mastering Chemistry is an online homework assignment consists of chapters corresponding to the text. Directions for logging into Mastering Chemistry can be found on eCampus.
Use your access code to register for the class at www.masteringchemistry.com The course ID which you will need when you register is CHEM1411MANOLOVA2017SU. Questions have been selected from the end-of-chapter exercises and assignments have a due date. Additional points cannot be earned after the due date has passed, although you will have access to all assignments until the end of the semester. Assignments are not available until the first day of class, Homework grades will be converted to a percentage of points possible in Mastering Chemistry; and then that percentage will be applied to the possible 120 points for homework.

**Final Exam** is comprehensive and covers all the chapters of the course.

**Grading System**

- A (90% – 100%)
- B (80% – 89%)
- C (70% – 79%)
- D (60% – 69%)
- F (Less than 60%)

**Attendance Policy**: You are expected to attend class regularly and consult with the instructor whenever an absence is necessary. If you are unable to attend a class, all assigned material will be due upon your return.

You will **NOT** be allowed to make up a missed exam, lab, or quiz neither extra time would be provided for any late arrival in test and quiz unless there are valid and acceptable reasons with supporting documents.

**Required Materials:**

1. The text for the course is *Chemistry, Structure and Properties, 1st edition, by Tro* and there are many options available, each with their own ISBN number. You can choose an eBook, soft cover, looseleaf pages to be put into a binder, or the regular hard-back cover text. You can rent and return the text at the end of the semester, rent and convert to a buy option or buy outright. Find all the options by following the textbook link next to the course name in eConnect.

2. The access code for Mastering Chemistry for *Chemistry, Structure and Properties, 1st edition, by Tro*

3. Laboratory activities for the course are posted on eCampus. You are responsible for downloading and printing the lab prior to class.

4. Splash proof safety goggles (you may borrow goggles form a community supply or purchase)

5. Scientific calculator (graphing calculator not required)
Resources:
Science Corner Tutoring – Northeast corner 2nd floor Sabine Hall – Free tutoring available on a walk in basis. Please login in/Register at terminal when working in the Science Corner. A schedule of tutors by hour and discipline is posted on the board in the northeast corner of the Science Corner. Faculty generally accept students for tutoring when their office doors are open.
Science Success Workshops - During the second week of the semester, the science faculty occasionally offers Science Success workshops.
Connections/Study Skills Workshops - The Center for Tutoring and Learning Connections offers workshops on a variety of topics throughout the semester. The workshops are all aimed at student success and include time and stress management as well as study skills and note taking. The web link for the schedule is: http://www.rlc.dcccd.edu/CTLC/connections.htm

General Instructor’s Policies:

- Disruptive behavior during lecture or lab session will not be tolerated and disruptive student(s) will be asked to leave the class.
- Study the material to be covered in class or lab before coming to the session.
- Cellphones should be turned off during the duration of the class/lab.
- Students coming in 15 minutes after the start of the lecture or lab will be marked as tardy. Students coming in 30 minutes after the start of the class will be marked as absent.
- NO food and Drink is allowed in class room except bottled water

Exam Policies:

- Instructor has the right to move students from their seats during an exam or lab. Students who do not comply with instructions to move will be asked to leave the class and will be awarded a zero for the exam/lab in question.
- Copying or cheating on tests/labs/quizzes/final exam is prohibited. All parties involved in cheating will be given a zero for that item in question. No excuses will be accepted in this regard.
- Out of the four (4) tests in class; one of the lowest test grade % will be replaced by the final exam percentage, but not due to absence in the test
- The final exam cannot be replaced by any other exam.
- You will NOT be allowed to make up a missed Test, Quiz, Lab, or final exam unless there is a valid reason with supporting documents.

Suggestions for Student Success:

1. Study: Plan to study two hours outside for each class, or about 8 hours per week. Your study time should be at a regular planned time and spread throughout the week, not all day Sunday.
2. Read: Read the sections from the text that will be covered in the lecture before you come to lecture so you will be familiar with the vocabulary and know the areas that may be difficult for you. Jot down your questions as you read. If your questions are not answered during lecture, then speak up in class or see me during tutoring hours or ask me during lab for clarification. You will also find knowledgeable tutors in the science corner across from SH278. Consult the posted schedule for times when Chemistry tutors are available.

3. Work Problems: Following most sections in the chapter, there are problems that you can work to test your understanding of that material. Answers are provided for the problems within each chapter and some of those problems will appear on the exam.

4. Do your Homework: Work the assigned end of chapter problems on Mastering Chemistry website and submit your scores on or before you take an exam on that chapter.

5. Keep up with the lab work: Prepare for lab by reading the procedure in advance and completing the pre-lab assignment in your manual before you come to lab.

Your grade at the end of the semester depends on the number of points that you have accumulated during the semester.

College Policies and Procedures:

For Institution Policies such as withdrawal policy, repeating a course, Financial aid, Academic Honesty, ADA Statement, Religious Holidays please refer to the Richland website [www.richlandcollege.edu](http://www.richlandcollege.edu) (Current Students) or to [www.richlandcollege.edu/syllabusinfo/syllabiInformation.pdf](http://www.richlandcollege.edu/syllabusinfo/syllabiInformation.pdf), [www1.dcccd.edu/6drops](http://www1.dcccd.edu/6drops), [www.dcccd.edu/thirdcourseattempt](http://www.dcccd.edu/thirdcourseattempt), [www1.dcccd.edu/cat0506/ss/code.cfm](http://www1.dcccd.edu/cat0506/ss/code.cfm), [www.dcccd.edu/Current+Students/Student+Services/Disability+services](http://www.dcccd.edu/Current+Students/Student+Services/Disability+services).

Richland College is piloting its Quality Enhancement Plan (QEP) in select cases. The QEP provides techniques, practices, and tools to help students develop the habits, traits or behaviors needed to be effective and successful lifelong learners in college and in life. For more information, please log onto [http://www.richlandcollege.edu/qep2013](http://www.richlandcollege.edu/qep2013).

Students are encouraged to discuss academic goals and degree completion with their instructors. Specific advising is available throughout the semester. Log on for more details, [www.richlandcollege.edu/admission/process.php](http://www.richlandcollege.edu/admission/process.php)

COURSE DESCRIPTION

This course is for science and science-related majors. It is a continuation of Chemistry 1411. Topics include states of matter, phase diagrams and intermolecular interactions; reaction kinetics, chemical equilibrium, modern acid-base theory, buffers, chemical thermodynamics, colligative properties of solutions, electrochemistry and nuclear chemistry. Topics may further include transition-metal chemistry, an introduction to organic chemistry and qualitative inorganic analysis. (3 Lec., 3 Lab.)

Coordinating Board Academic Approval Number 4005015203
PREREQUISITES
One of the following must be met: (1) Developmental Mathematics of 0097 or higher or the equivalent and/or one of the following: High School Chemistry, Chemistry 1405, or the equivalent; (2) Developmental Reading 0093 or English as a Second Language (ESOL) 0044 or (3) have met the Texas Success Initiative (TSI) Reading standard.

COURSE OBJECTIVES
1. Perform calculations related to topics included in Chemistry 1411
   Be able to express, interpret, and utilize relationships between variables
   Solve problems using complete, thorough setups with metric and SI units
   Utilize data, including graphs, and interpret results
2. Describe the fundamental particles of matter; relate basic laws and theories to their behavior, utilize a systematic method of naming compounds and polyatomic ions.
3. Write and balance chemical equations and perform stoichiometric calculations. Classify the different types of reactions.
4. Recognize the correlation between electronic structure and the organization of the periodic table. Be able to predict properties and account for periodic trends.
5. Determine the relationship between pressure, volume and temperature of gases and perform related calculations.
6. Define enthalpy and entropy, determine methods of measurement of enthalpy, and perform related calculations.
7. Investigate the quantum mechanical model of the atom, write and interpret quantum numbers for the electrons in an atom. Write electronic configurations and predict chemical properties.
8. Differentiate between ionic and molecular compounds, write Lewis formulas.
9. Utilize the VSEPR theory to predict the shapes of molecules, account for the effect of lone pairs of electron and multiple bonds.
10. Describe molecular orbitals using hybridization, distinguish between sigma and pi bonds, and account for properties using the molecular orbital theory.

Core Curriculum Intellectual Competencies

Reading: The ability to analyze and interpret a variety of printed materials (books, documents, and articles) above 12th grade level. Your text book is written on a level above 12th grade and requires that you interpret graphs, charts, and figures, as well as text.
Listening: Analyze and interpret various forms of spoken communication, possess sufficient literacy skills of writing and reading above 12th grade level. The lecture format requires you to listen critically and take notes.
Critical Thinking: Think and analyze at a critical level. Every Chemistry problem is a world problem. You will learn to extract necessary data from a problem, disregard irrelevant data, select the appropriate chemical law for its solution, and apply that relations

CORE CURRICULUM STATEMENT
To identify and apply appropriate methods and technology to the study of chemistry: For example, you will graph your data and determine the best straight line when it is appropriate. You will sometimes use the Lab Works Interface to collect your data, but only after the device has been properly calibrated.

To recognize scientific and quantitative methods and the differences between these approaches and the other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing: Quantitative methods always require you to take measurements and record data. Some of your labs this semester will be quantitative, requiring data and calculations; but some labs will be qualitative, requiring observations and subjective descriptions. For the quantitative labs you may compare your results to values recorded in chemical reference books. Discussions with your lab partner(s) to reach a consensus on the written lab report will give you practice in communicating your results.

To identify and recognize the differences among competing scientific theories: For example, various interpretations of the atomic theory are used, depending on the information needed: the Bohr (solar system) model for looking at shells of electrons, the valence bond theory for determining shapes of molecules, and the molecular orbital theory for a closer examination of electron location.

To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies: You are encouraged to bring in newspaper articles that raise issues related to modern science. In the past this has included: acceptable levels of arsenic in drinking water; ethanol as an alternative fuel to gasoline; ozone levels; and most recently, the use of chlorine oxides to de-contaminate the Senate building from anthrax spores.

To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture: Science impacts our everyday lives in many ways, but one example is the FDA requirement that chemical contents of all foods and drugs be listed on the label. As you learn the chemical vocabulary, these will become more meaningful.
<table>
<thead>
<tr>
<th>Lecture</th>
<th>July 11</th>
<th>July 12</th>
<th>July 13</th>
<th>July 14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intro CH 2 - Measurement, Problem Solving, the Mole</td>
<td>CH 1 Atoms</td>
<td>CH 3.1 - 3.4 - Quantum Mechanical Atomic Model</td>
<td>CH 3.5 - 3.6 - Quantum Mechanical Atomic Model</td>
</tr>
<tr>
<td>Lab</td>
<td>Lab Safety, MSDS, Measurements &amp; Sig Figs #1</td>
<td>Mole Concept Sections I-IV #2</td>
<td>Identification of an Ionic Compound #3</td>
<td>Light, Quantization, and the Hydrogen Atom; #4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>July 17</th>
<th>July 18</th>
<th>July 19</th>
<th>July 20</th>
<th>July 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam on Chapters 1 – 3</td>
<td>CH 4.5 - 4.8: Periodic Trends</td>
<td>CH 5.6 - 5.11: Molecules &amp; Compounds</td>
<td>CH 6.1 - 6.6: Lewis Structures</td>
<td>CH 4.1 - 4.4: Periodic Props of the Elements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>July 24</th>
<th>July 25</th>
<th>July 26</th>
<th>July 27</th>
<th>July 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam on Chapters 4 – 6.6</td>
<td>CH 7: Valence Bond Theory Omit 7.4, MO Theory</td>
<td>CH 8.1 - 8.4: Stoichiometry</td>
<td>CH 8.5 - 8.6: Limiting Reactant Stoichiometry</td>
<td>CH 6.7 - 6.10: VSEPR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>July 31</th>
<th>Aug 1</th>
<th>Aug 2</th>
<th>Aug 3</th>
<th>Aug 4</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Aug 7</th>
<th>Aug 8</th>
<th>Aug 9</th>
<th>Aug 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam on Chapters 9 – 10</td>
<td>CH 11.4 – 11.7: Gases LAB: Gasomtric analysis #14</td>
<td>CH 11.8 – 11.11: Gases LAB: Review for Final</td>
<td>FINAL EXAM Chapters 1 to 11</td>
</tr>
</tbody>
</table>