Chemistry 1412 Syllabus, summer II - 2019
El Centro College

Instructor Information
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Email: chamari.w@dcccd.edu

Course Information
Course Title: General Chemistry II
Course & Section Number: CHEM-1412-56428 (1206867)
Semester/Year: Summer 2019
Credit Hours: 4
Class Meeting Time/Location: Lecture: Internet Based
Lab: Internet Based

Course Prerequisites
CHEM 1411 with a minimum grade of "C."

Course Description
Chemical equilibrium; phase diagrams and spectrometry; acid-base concepts; thermodynamics; kinetics; electrochemistry; nuclear chemistry; an introduction to organic chemistry and descriptive inorganic chemistry.

Coordinating Board Approval Number 4005015703

Statement of Purpose and Core Objectives
Statement of Purpose
Through the Texas Core Curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.

Core Objectives
This course supports, develops, and assesses the following Core Objectives:

Chemistry 1412 develops the following Core Objectives:

Critical Thinking - to include creative thinking, innovation, inquiry, and analysis, evaluation, and synthesis of information.
Communication - to include effective development, interpretation, and expression of idea through written, oral, and visual communication.
Teamwork - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.
Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
Student Learning Outcomes

Upon successful completion of this course, students will be able to:

(Lecture)
1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
6. Apply the principles of equilibrium to aqueous systems using LeChatelier’s Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
8. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry.

(Lab)
1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data, and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry and chemical instrumentation.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

Required Course Materials


ISBN: 9780321943279
Note: A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

**Course Activities**

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<tr>
<th>Week of</th>
<th>Lecture Material &amp; Exams</th>
<th>Lab Assignments</th>
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<tbody>
<tr>
<td>07/08</td>
<td>Course Orientation. Introduction Participation in the discussion board “Introduction yourself” Thermochemistry - Chapter 08 Rate of Reaction – Chapter 11</td>
<td>Virtual ChemLab Thermodynamics 3-1, 3-3, and 3-5 Virtual ChemLab Thermodynamics 3-8, 3-9, and 3-11</td>
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<tr>
<td>07/15</td>
<td>Gaseous Chemical Equilibrium – Chapter 12 Acids and Bases – Chapter 13 Homework 1 (Review Test 1) Online Exam #1 Materials from Chapters 8, 11, and 12</td>
<td>Virtual ChemLab Acid-Base Chemistry 6-1, 6-2, and 6-3 Virtual ChemLab Acid-Base Chemistry 6-4, and 6-7</td>
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<tr>
<td>07/22</td>
<td>Equilibrium in Acid-Base Solution – Chapter 14 Precipitation Equilibria – Chapter 15 Electrochemistry – Chapter 17 Homework 2 (Review Test 2) Online Test #2 Materials from Chapters 13, 14, and 15</td>
<td>Virtual ChemLab – Equilibrium in Acid-Base Solution 6-11, 6-12, and, 6-13 Virtual ChemLab The Balance Between Enthalpy and Entropy 3-13</td>
</tr>
<tr>
<td>07/29</td>
<td>Spontaneity of Reaction – Chapter 16 (Cont.) Electrochemistry – Chapter 17 Nuclear Reactions –Chapter 18</td>
<td>Virtual ChemLab Electrochemistry 7-1 and 7-2</td>
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<tr>
<td>08/05</td>
<td>Introduction of Organic Chemistry – Chapter 22 Assessment (Formal Lab Report - Virtual ChemLab 7-3) Homework 3 (Review Final)</td>
<td>Virtual ChemLab Electrochemistry 7-3</td>
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<tr>
<td>08/08</td>
<td>Final Exam Material from Chapters 16, 17, 18, and 22</td>
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**Grade Policy:**
On-line Test 1, 2 and 3: (2 x 100) = 200 points

Final Exam: = 100 points

Lab Reports: (5 x 20) = 100 points

Three home works (3 x 20) = 60 points

Assessment (Blackboard): = 40 points

**Grading Scale:**

A = 90 – 100%
B = 80 – 89.9%
C = 70 – 79.9%
D = 60 – 69.9%
F = Below 60%

**Institutional Policies**

Institutional Policies relating to this course can be accessed using the following link: Institutional Policies (http://www.elcentrocollege.edu/syllabipolicies).

**Course Requirements**

- Complete the Course Orientation.
- Participate in Introduction of Yourself in discussion board at eCampus.
- Read all class email by instructor carefully. Don’t reply class email that could miss by instructor due to system Thread effect. It is better to send your email to instructor directly with remarkable title about your topic.
- Participate in assigned discussions, posting and replying as directed.
- Complete learning activities (such as “Weekly Activities”) / lab assignments.
- Prepare for and complete chapter tests and exams.

**Discussion Board**

Discussion boards are used to orient students to the course and to assist in the more challenging chapters. Discussion board comments are entered online either within the chapter content or under the Discussion Board navigation button. Each forum contains one discussion topic (thread). To maintain good communication, organization is required. Please follow directions carefully.

**How to complete a discussion board:**

1. Enter the Discussion Board section for the course.
2. Click on the topic (thread) and read the directions.
3. Click on the Reply button.
4. Type or paste your response in the Message test box.
5. Observe Rules of Netiquette (located under Start Here).
6. Click the Submit button.
7. Look through your classmate messages and respond to someone else’s message with two or three sentences. (Click on the student’s message, click on Reply, type your response, and click Submit.)
8. Click OK at the end of the board to exit. (You will have to scroll down to see the OK button.)

**Online Conduct**

Discussion Board responses, emails, and all other correspondence among faculty and students enrolled in this class are expected to conform to the level of conduct that would be expected in a regular classroom. Students should feel free to express disagreement with the instructor and other students but it must be done in a manner which is not verbally abusive, threatening, or harassing. Communication among students is encouraged but must end if one of the parties requests that it be terminated. Students will not send unsolicited email espousing a cause, religion, or activity to other class participants and will not add other class participants to any list serves or other entity which distributes unwanted email or material. *Violation of these guidelines may result in disciplinary action against the offending student. This action can include termination of the student's participation in the class and a grade of "F".*

**CHEM-1412-51001 - Tentative Course and Exam Schedule – Fall 2019**

<table>
<thead>
<tr>
<th>Week of</th>
<th>Lecture Material &amp; Exams</th>
<th>Lab</th>
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<tr>
<td>08/26</td>
<td>Course Orientation; Thermochemistry - Chapter 08</td>
<td>Safety Rules</td>
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<tr>
<td>09/02</td>
<td>Thermochemistry - Chapter 08</td>
<td>Calorimetry</td>
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<tr>
<td>09/09</td>
<td>Rate of Reaction – Chapter 11</td>
<td>Kinetic</td>
</tr>
<tr>
<td>09/16</td>
<td>Gaseous Chemical Equilibrium – Chapter 12</td>
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<tr>
<td>09/23</td>
<td>Exam 1</td>
<td></td>
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<tr>
<td>09/30</td>
<td>Acids and Bases – Chapter 13</td>
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<tr>
<td>10/07</td>
<td>Acids and Bases – Chapter 13</td>
<td>Titration of Acid and Base</td>
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<tr>
<td>10/14</td>
<td>Equilibrium in Acid-Base Solution – Chapter 14</td>
<td>Titration Curve</td>
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<tr>
<td>10/21</td>
<td>Complex ion and Precipitation Equilibrium – Chapter 15</td>
<td>Precipitation Titration</td>
</tr>
<tr>
<td>10/28</td>
<td>Exam 2</td>
<td></td>
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<td>11/04</td>
<td>Spontaneity of Reaction – Chapter 16</td>
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<td>11/11</td>
<td>Electrochemistry – Chapter 17</td>
<td>Thermodynamics</td>
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<td>11/18</td>
<td>Nuclear Reactions – Chapter 18</td>
<td>pH and Conductivity</td>
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<tr>
<td>12/02</td>
<td>Exam 3</td>
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<td>12/09</td>
<td>Comprehensive Final Exam</td>
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