## GENERAL CHEMISTRY II

**CHEM.1412.62430**  
**SPRING 2018**  
**12/11/2017 THRU TO 01/05/2018**

<table>
<thead>
<tr>
<th><strong>PROFESSOR:</strong></th>
<th>Jesse Fox</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EMAIL:</strong></td>
<td><a href="mailto:jfox@dccc.edu">jfox@dccc.edu</a></td>
</tr>
<tr>
<td><strong>OFFICE PHONE:</strong></td>
<td>214-860-8653/214-860-3653</td>
</tr>
<tr>
<td><strong>OFFICE NUMBER:</strong></td>
<td>H 125</td>
</tr>
</tbody>
</table>
| **MEETING DAYS AND TIME:** | LEC INET  
LAB INET |
| **ROOM NUMBER:** | LEC ECAMPUS  
LAB ECAMPUS |
| **CREDIT HOURS:** | 4 |
| **DIVISION:** | SCIENCE, NURSING, ARTS/HUMANITIES AND PHYSICAL EDUCATION |
| **DEAN:** | CHERLYN SHULTZ-RUTH, M.S.N., RN |
| **DIVISION OFFICE PHONE:** | 214-860-3617 |
| **DIVISION OFFICE NUMBER:** | H 25 A |

### 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. Basic laboratory activities will reinforce fundamental principles of general chemistry, introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports. (3 Lec., 3 Lab.)

Coordinating Board Academic Approval Number 4005015703

### COURSE PRE-REQUISITES:

CHEM 1411 & MATH 1314 or equivalent AND Developmental Reading 0093 or English as a Second Language (ESOL) 0044 or have met the Texas Success Initiative (TSI) Reading standard. High school chemistry is strongly recommended.

### COURSE MATERIALS:

Chemistry: The Central Science  
Published by Pearson. Copyright © 2015. Published Date: Jan 7, 2014

### ONLINE TEXTBOOK:


CHEMISTRY KITS NEED TO BE PURCHASED BY CAROLINA BIOLOGICAL LINK WILL BE FORTHCOMING FOR LAB KITS AND WILL BE SHARED ON ECAMPUS.DCCCD.EDU.  
http://www.carolina.com/catalog/detail.jsp?prodId=581561
STATE REQUIREMENTS:
COURSE OBJECTIVES
The objective of the study of a life and physical sciences component of the core curriculum is the focus on describing, explaining, and predicting natural phenomena using scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

Required Core Objectives for Chemistry are as follows:

- Critical Thinking
- Communication
- Empirical and Quantitative Skills
- Teamwork

For 2017-2018, Chemistry will evaluate and assess the following Core Objectives:

- Teamwork

The following science courses include the above core objectives: Biology 1406, 1407, 1408, 1409, 1411, 2401, 2402, 2406, 2416, 2420, 2421; Chemistry 1405, 1406, 1407, 1411, 1412, 2423, 2425; Geology 1401, 1402, 1403, 1404, 1405, 1445, 1447; Physics 1401, 1402, 1403, 1404, 1405, 1407, 1415, 1417, 2425, and 2426.

STUDENT LEARNING OUTCOME

STUDENT LEARNING OUTCOMES FOR DISCIPLINE OF CHEMISTRY

Students in lecture will be able to:

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.
11. Demonstrate their ability to represent chemistry artistically, either through presentation, poster or art form.

Students in lab will be able to:

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.

STUDENT LEARNING OUTCOMES FOR AA & AS DEGREE PROGRAM

Student will be able to:

1. Reason logically to solve social, political, economic, scientific, quantitative, or personal problems.
2. Communicate ideas (aurally, orally, and in writing) with clarity, logic, proper grammar, and appropriateness for audience and occasion.
3. Employ reading strategies to demonstrate learning, to analyze information, to formulate judgments, and to make recommendations.
4. Apply research skills necessary to retrieve and evaluate information.
5. Demonstrate scientific reasoning to solve problems. (AS Degree only)
COURSE OUTLINE
Instructor Attendance Policy:
Students are expected to attend all classes. Students have the responsibility to attend class and to consult with the instructor when an absence occurs. If for some reason you must leave class early, you should inform the instructor prior to the start of class of your reason for leaving early.

Students must begin attendance in all classes of enrollment. No exceptions. Financial Aid will not be granted to students who have been certified as not attending, by the certification date. For this lecture course, your physical participation in class, on or before the certification date will allow you to receive credit for FA purposes. For certification dates, check with the division or FAO for further information. Students, who are not certified as beginning class, are responsible for any payments due as a result of non-certification, to include the dropping of courses.

CHEMISTRY 1412 COURSE CONTENT

Chapter 7
KINETICS
Chapter 8
CHEMICAL EQUILIBRIUM
Chapter 9
ACID-BASE EQUILIBRIA
Chapter 10
ELECTROCHEMISTRY
Chapter 11
CHEMISTRY OF COORDINATION CHEMISTRY
Chapter 12
ORGANIC CHEMISTRY

HOMEWORK AND EXAM DATES WILL BE GIVEN IN CLASS. THERE WILL BE NO MAKE UP WORK WITHOUT SUFFICIENT PROOF OF ABSENCE.

ASSESSMENT

Exams and Assignments:
The final grade for the course is based on the grade scale shown above.
There are no exceptions to this grade scale.
The total points are based on the following:

<table>
<thead>
<tr>
<th>Points</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>45.0</td>
<td>EXAMS</td>
</tr>
<tr>
<td>23.0</td>
<td>LAB REPORTS</td>
</tr>
<tr>
<td>10.0</td>
<td>GROUP PROJECT</td>
</tr>
<tr>
<td>5.0</td>
<td>COMPREHENSIVE FINAL EXAM</td>
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<tr>
<td>5.0</td>
<td>COMPREHENSIVE LAB EXAM</td>
</tr>
<tr>
<td>5.0</td>
<td>COMPREHENSIVE LECTURE QUIZZES</td>
</tr>
<tr>
<td>4.0</td>
<td>DISCUSSIONS</td>
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<tr>
<td>3.0</td>
<td>CHAPTER QUIZZES</td>
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</tbody>
</table>

FINAL EXAM
The final exam will be a standardized test compiled by the American Chemical Society. This tool will assess your overall chemistry knowledge of this course. A mastery of 60% or above is acceptable and the paradigm.

LAB
All students must score 70% on lab safety exam. If score is less than 70%, student must retake safety exam. No student will be allowed to work in the lab unless 70% mastery is achieved. Labs for Excel graphing will be specially assessed to test your graphing ability. A mastery of 60% or above is acceptable and the paradigm.

LAB FINAL EXAM
Questions will be specifically assessed to determine your laboratory knowledge, one of which will be on Excel graphing exercise. A mastery of 60% or above is acceptable and the paradigm.

Individual and Group Project
Every student is assigned a project to be turned in or conveyed before the end of course. Students will also be assigned to cooperative learning groups and special project assigned to be turned in as a group project.
Grades will be assessed on basis of creativity, originality, neatness and accuracy with an assessment form administered by the Chemistry department. A mastery of 60% or above is acceptable and the paradigm.

**Quizzes**
Quizzes are given at the discretion of the instructor, and could be calculated into overall grade.

**GRADING SCALE**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
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<tbody>
<tr>
<td>A</td>
<td>100 TO 89.5</td>
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<tr>
<td>B</td>
<td>&lt;89.5 TO 79.5</td>
</tr>
<tr>
<td>C</td>
<td>&lt;79.5 TO 64.9</td>
</tr>
<tr>
<td>D</td>
<td>&lt;64.9 TO 59.5</td>
</tr>
<tr>
<td>F</td>
<td>&lt;59.5 TO 0</td>
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</tbody>
</table>

COLLEGE SPONSORED EVENT: NONE.
ELECTRONIC DEVICES: Not Applicable

The withdraw date for this class is December 22, 2017
Census date is December 13, 2017.

**Academic Dishonesty:**
Students that caught plagiarizing an assignment will be subject to an “F” in the course and possible expulsion from the college.

*Academic honesty is expected, and integrity is valued in the Dallas County Community Colleges. Scholastic dishonesty is a violation of the Code of Student Conduct. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion. As a college student, you are considered a responsible adult. Your enrollment indicates acceptance of the DCCCD Code of Student Conduct published in the DCCCD Catalog. More information is available at [https://www1.dcccd.edu/catalog/ss/code.cfm](https://www1.dcccd.edu/catalog/ss/code.cfm).*

**INSTITUTIONAL POLICIES**
Institutional Policies relating to this course can be accessed from the following link:
[www.mountainviewcollege.edu/syllabipolicies](http://www.mountainviewcollege.edu/syllabipolicies)

**Disclaimer Reserving Right to Change Syllabus:**
The instructor reserves the right to amend this syllabus as necessary.

**Withdrawal Policy (with drop date):**
If you are unable to complete this course, it is your responsibility to withdraw formally. The withdrawal request must be received in the Registrar’s Office by December 22, 2017. Failure to do so will result in your receiving a performance grade, usually an "F." If you drop a class or withdraw from the college before the official drop/withdrawal deadline, you will receive a "W" (Withdraw) in each class dropped.

This is a tentative lecture schedule of events and is subject to change.
Please refer to ecampus.dcccd.edu for all course information.

**Course Outline (Calendar):**

<table>
<thead>
<tr>
<th>DATE</th>
<th>KINETICS</th>
<th>COMPREHENSIVE QUIZ FOR KINETICS &amp; CHEMICAL EQUILIBRIUM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEC 11–DEC 15</strong></td>
<td>KINETICS CHEMICAL EQUILIBRIUM DISCUSSION I OPENS QUIZ 1 QUIZ 2</td>
<td>DISCUSSION I OPENS</td>
</tr>
<tr>
<td></td>
<td>LAB: SAFETY ORIENTATION (IF NEEDED) &amp; SAFETY QUIZ &amp; CHECK IN (SAFETY QUIZ ONLINE)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LAB: EXCEL GRAPHING</td>
<td>LAB: FACTORS EFFECTING REACTION RATES INVESTIGATION(S80318)</td>
</tr>
<tr>
<td></td>
<td>LAB: ENZYME CATALYSIS(S80356)</td>
<td>DISCUSSION I Closes</td>
</tr>
<tr>
<td><strong>DEC 16</strong></td>
<td><strong>COMPREHENSIVE QUIZ FOR KINETICS &amp; CHEMICAL EQUILIBRIUM</strong></td>
<td>EXAM I-KINETICS &amp; CHEMICAL EQUILIBRIUM</td>
</tr>
<tr>
<td><strong>DEC 17 ONLY</strong></td>
<td>(ALL DAY: NO EXCEPTIONS)</td>
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<tr>
<td><strong>DEC 18–DEC 22</strong></td>
<td><strong>ACID-BASE EQUILIBRIUM ELECTROCHEMISTRY</strong></td>
<td>DISCUSSION II OPENS</td>
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<td></td>
<td>DISCUSSION II OPENS</td>
<td>QUIZ 3 QUIZ 4</td>
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<td></td>
<td>LAB: EQUILIBRIUM AND LE CHATELIER’S PRINCIPLE(S80336)</td>
<td></td>
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<tr>
<td><strong>DEC 23</strong></td>
<td><strong>COMPREHENSIVE QUIZ FOR ACID-BASE EQUILIBRIUM &amp; ELECTROCHEMISTRY</strong></td>
<td>EXAM II- ACID-BASE EQUILIBRIUM &amp; ELECTROCHEMISTRY</td>
</tr>
<tr>
<td><strong>DEC 24 ONLY</strong></td>
<td>(ALL DAY: NO EXCEPTIONS)</td>
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<tr>
<td><strong>DEC 25–DEC 29</strong></td>
<td><strong>COORDINATION CHEMISTRY ORGANIC CHEMISTRY</strong></td>
<td>DISCUSSION III OPENS</td>
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<td></td>
<td>DISCUSSION III OPENS</td>
<td>QUIZ 5 QUIZ 6</td>
</tr>
<tr>
<td></td>
<td>LAB: EVALUATING ANTACIDS (S80346)</td>
<td>DISCUSSION III Closes</td>
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<tr>
<td></td>
<td>LAB: CHARACTERISTICS OF A BUFFERED SOLUTION(S80324)</td>
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<tr>
<td></td>
<td>LAB: DETERMINATION OF ACETIC ACID CONCENTRATION IN VINEGAR USING TITRATION (S80314)</td>
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<tr>
<td></td>
<td>LAB: SOLUBILITY PRODUCT (S80368)</td>
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<tr>
<td><strong>DEC 30</strong></td>
<td><strong>COMPREHENSIVE QUIZ FOR COORDINATION CHEMISTRY &amp; ORGANIC CHEMISTRY</strong></td>
<td>EXAM III- COORDINATION CHEMISTRY &amp; ORGANIC CHEMISTRY</td>
</tr>
<tr>
<td><strong>DEC 31 ONLY</strong></td>
<td>(ALL DAY: NO EXCEPTIONS)</td>
<td></td>
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<tr>
<td><strong>JAN 02</strong></td>
<td>PROJECTS (SUBMITTED ONLINE) 11:59:00.00</td>
<td>DISCUSSION IV CLOSES</td>
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<tr>
<td></td>
<td>LAB: DETERMINATION OF VITAMIN C CONTENT BY REDOX TITRATION(S80330)</td>
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<tr>
<td></td>
<td>LAB: THE FUNDAMENTALS OF CHROMATOGRAPHY INVESTIGATION (S80304)</td>
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<td>LAB: WORKSHEET</td>
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<tr>
<td><strong>JAN 03</strong></td>
<td>LAST DAY FOR ALL SUBMITTALS 11:59:00.00 PM</td>
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<tr>
<td><strong>JAN 04 ONLY</strong></td>
<td>(ALL DAY: NO EXCEPTIONS)</td>
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<tr>
<td></td>
<td>LECTURE FINAL EXAM (ONLINE)</td>
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<tr>
<td></td>
<td>LABORATORY FINAL EXAM (ONLINE)</td>
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For a complete listing of MVC and DCCCD policies, refer to [http://www.tasb.org/policy/pol/private/057501/](http://www.tasb.org/policy/pol/private/057501/). The highlighted policies below provide partial listing off the duties, rights and responsibilities of students enrolled in MVC courses.
Please fill out the following information and scan or email it to my email: jfox@dcccd.edu.

STUDENT CONTACT INFORMATION (needed to confirm your enrollment.)

Name:_______________________________________  Student Identification No.:___________________________
Current E-mail Address:______________________  Current Contact Phone Number:__________________

Contact Modalities:
SKYPE: YES or NO  FACETIME: YES or NO
FACEBOOK: YES or NO  TWITTER: YES or NO
Other:________________

Initial the following acknowledging that you adhere to the statements. Any typed responses will be viewed as a signature. Sign and date at the bottom of this page.

___  I fully understand that this is an online course, and that it will be rigorous and will uphold the rule of academic honesty, stating that any work submitted for this course will be my work.

___  I also understand that the test and quizzes will be timed and only given one time and one time only, and will abide by the rules of test taking, based on academic honesty.

___  I will also read the syllabus and ask questions on subjects that need further clarification. I understand that this syllabus is a contractual agreement, and accept this syllabus as a contract subject to change, and, if changes are made, my professor will give me prior notice in the form of oral or written communication in class.

___  I will also refer to this syllabus when I have questions about grades and extracurricular projects.

___  I understand that it is my responsibility to drop this course, after consulting my professor.

___  I will consciously make an effort to follow exam, quiz and laboratory schedules. I also understand that lab safety is my responsibility and will record my experiments.

___  I understand that if I cannot meet the established timelines, that I will receive a zero for that exercise.

___  I also understand that any violation of the rules that are written and/or orally communicated for lecture and/or laboratory could result in disciplinary action.

____________________________________________
Signature and Date