GENERAL CHEMISTRY II
CHEM.1412.66402
SUMMER II 2019
07/08/2019 to 08/08/2019

PROFESSOR: Woojin Lee, Ph.D
EMAIL: wlee@dcdcd.edu
OFFICE: W-19
OFFICE HOURS: Email is the best way to reach us

CREDIT HOURS: 4

CLASS TIME: LEC MTWRF INET
            LAB MTWRF INET

DIVISION: ALLIED HEALTH/ NURSING AND STEM
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

**ONLINE TEXTBOOK:**

**LAB KITS:**

**OTHER REQUIRED MATERIALS:**
1) A pair of Goggles
2) A box of nitrile gloves

**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

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)

CHEMISTRY 1412 COURSE CONTENT

Chapter 11 Liquids and Intermolecular Forces
Chapter 13 Properties of Solution
Chapter 14 Chemical Kinetics
Chapter 15 Chemical Equilibrium
Chapter 16 Acid–Base Equilibria
Chapter 17 Additional Aspects of Aqueous Equilibria
Chapter 19 Chemical Thermodynamics
Chapter 20 Electrochemistry
Chapter 21 Nuclear Chemistry
Chapter 23 Transition Metals & Coordination Chemistry
Chapter 24 Chemistry of Life: Organic and Biological Chemistry

ASSESSMENT

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam/ Final</td>
<td>45 %</td>
</tr>
<tr>
<td>Homework</td>
<td>12 %</td>
</tr>
<tr>
<td>Quiz</td>
<td>13 %</td>
</tr>
<tr>
<td>Safety Quiz</td>
<td>1 %</td>
</tr>
<tr>
<td>Lab reports</td>
<td>24 %</td>
</tr>
<tr>
<td>Lab Final</td>
<td>5 %</td>
</tr>
</tbody>
</table>

Total Percentage 100 %
LAB

All students taking INET Chemistry courses will conduct their labs at home, not on campus. Please check your ecampus.dcccd.edu for further instructions involving course. Make sure to take the Safety Quiz in the first week of taking the course, and please make an effort to purchase your Chem Kits early. Make contact with your instructor early in the semester and contacting them according to their syllabus. If you have further questions, contact Professor Fox at jfox@dcccd.edu or call 214-860-8653. All students taking INET labs must purchase Chemical Kits from Carolina Biological. Chemistry 1411-65402

http://www.carolina.com/catalog/detail.jsp?prodId=581561

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.

GRADING:

You will earn a criteria based individual grade. You are not in competition with your classmates. There is — NO curve, so in fact it is in your best interest to work with your classmates. The number of points you earn out of the maximum points will determine your grade. The maximum number of points may be adjusted up or down during the semester based on any assignments added or removed.

Course Grade: A >89.4%; B: 79.5-89.4%; C: 69.5-79.4%; D: 59.5-69.4 %; F< 59.5%

COLLEGE SPONSORED EVENT: NONE.

ELECTRONIC DEVICES: Not Applicable

The withdraw date for this class is July 30th, 2019.
**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 **July 30th, 2019**. 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.

**STOP BEFORE YOU DROP**
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: [https://www1.dcccd.edu/coursedrops](https://www1.dcccd.edu/coursedrops)

**Financial Aid:**
If you are receiving financial aid grants or loans, you must begin attendance in all classes. Do not drop or stop attending any class without consulting the Financial Aid Office. Changes in your enrollment level and failing grades may require that you repay financial aid funds. For further information, please contact Financial Aid at 214-860-8688, 8834, or 8826.
The Texas Success Initiative (TSI):
The Texas Success Initiative (TSI) is a statewide program designed to ensure that students enrolled in Texas public colleges and universities have the basic academic skills needed to be successful in college-level course work. The TSI requires assessment, remediation (if necessary), and advising of students who attend a public college or university in the state of Texas. The program assesses a student's basic academic skills in reading, writing, and math. Passing the assessment is a prerequisite for enrollment in many college-level classes. Students who do not meet assessment standards may complete prerequisite requirements by taking developmental courses in the deficient area and passing them with a grade of C or higher. Additional information is available at [www.mountainviewcollege.edu/syllabipolicies](http://www.mountainviewcollege.edu/syllabipolicies).

ADA Statement:
If you are a student with a disability and/or special needs who requires accommodations, please contact the college Disability Services Office. For information regarding the rights and responsibilities of students with disabilities, contact DSO at 972-260-8691 (Voice) or 972-860-3651 (TDD).

Religious Holidays:
Absences for observance of a religious holy day are excused. A student whose absence is excused to observe a religious holy day is allowed to take a make-up examination or complete an assignment within a reasonable time after the absence.

Inclement weather:
In the event of severe weather conditions, please listen to local radio or television stations for information concerning official closing of Mountain View College facilities. You can also call the information line at [214.860.8680](tel:214.860.8680), or check for updates on this web site. Decisions for evening classes will be made by 4:00 pm. [http://www.mountainviewcollege.edu/1weather.aspx](http://www.mountainviewcollege.edu/1weather.aspx)

Final Course Grade:
Final grades are available only on eConnect and touchtone telephone at 972-613-1818. You will need your student ID number and use your birth date as your password. [http://econnect.dcccd.edu/econnect/st/stmenu.htm](http://econnect.dcccd.edu/econnect/st/stmenu.htm)

Disclaimer Reserving Right to Change Syllabus:
The instructor reserves the right to amend this syllabus as necessary. 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 of the duties, rights and responsibilities of students enrolled in MVC courses.
*The guideline and class schedule in this syllabus may be changed, deleted, or amended at any time.

TENTATIVE SCHEDULE FOR CHEM-1412-66402
(Lecture: MTWRF; Lab: MTWRF)

<table>
<thead>
<tr>
<th>week</th>
<th>Topic</th>
<th>Lecture Slides</th>
<th>Lab</th>
</tr>
</thead>
</table>
| 1<sup>st</sup> (7/8 ~ 7/12) | - Chap 11: Liquids and Intermolecular forces  
- Chap 13: properties of solutions | Chap 11, 13 | - Safety Orientation & Safety Quiz  
- Excel Graphing  
- Exp. 1: Fundamentals of Chromatography (580304) |
| 2<sup>nd</sup> (7/15 ~ 7/19) | - Chap 14: Chemical Kinetics  
- Chap 15: Chemical Equilibrium  
- Chap 16: Acid-Base Equilibria  
- Exp 1 (Chap 11, 13, and 14) | Chap 14, 15, 16 | - Exp. 2: Determination of Acetic Acid (580314)  
- Exp. 3: Factors affecting reaction rate (580318) |
| 3<sup>rd</sup> (7/22 ~ 7/26) | - Chap 16: Acid-Base Equilibria  
- Chap 17: Additional aspects of aqueous equilibria  
- Chap 19: Chemical Thermodynamics | Chap 16, 17, 19 | - Exp. 4: Enzyme Catalyst (580356)  
- Exp 5: Equilibrium - Le Chatelier’s principle (580336)  
- Exp. 6: Characteristics of Buffered solution (580324) |
| 4<sup>th</sup> (7/29 ~ 8/2) | - Exam 2 (Chap 15~17 & 19)  
- Chap 20: Electrochemistry  
- Chap 21: Nuclear Chemistry  
- Chap 23: Transition Metals & Coordination Chemistry | Chap 20, 21, 23 | - Exp. 7: Determining the $K_{sp}$ of Calcium Hydroxide (580368)  
- Exp. 8: Evaluating Antacids (580346) |
| 5<sup>th</sup> (8/5 ~ 8/8) | - Chap 23: Transition Metals & Coordination Chemistry  
- Chap 24: Organic & Biological Chemistry | Chap 23, 24 | - Exp. 9: Determination of Vitamin C by Redox Titration  
- Lab Final (online) |
| 8/8 | | | Final Exam (Chap 20, 21, 23, and 24) |