PROFESSOR: Jesse Fox
EMAIL: jfox@dccc.edu
OFFICE PHONE: 214-860-8653/214-860-3653
OFFICE NUMBER: H 125
OFFICE HOURS: BY APPOINTMENT
MEETING DAYS, TIME & ROOM NUMBER: LEC MTWRF INET
           LAB MTWRF INET
CREDIT HOURS: 4
DIVISION: Science, Technology, Engineering & Mathematics/Physical Education
DEAN: STEPHEN JONES, Ph.D.
DIVISION OFFICE PHONE: TBA
DIVISION OFFICE ROOM NUMBER: TBA

COURSE DESCRIPTION: This course is for science and science-related majors. Fundamental principles of chemistry for engineering majors; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, acid-base concepts, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, phase-diagrams, introduction to chemical equilibrium, chemical thermodynamics, electrochemistry, and an introduction to descriptive inorganic chemistry and organic chemistry. (3 Lec., 3 Lab.)

COURSE PRE-REQUISITES: MATH 1314 or High school chemistry or equivalent.


LABS for CHEMISTRY FOR ENGINEERS are located on ecampus.dccc.edu

ORDER CHEM KIT FROM https://www.carolina.com/catalog/detail.jsp?prodId=581552
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
- Empirical and Quantitative Skills
- Oral, Written or Visual Communication
- Teamwork

For 2019-2020, Chemistry will evaluate and assess the following Core Objectives:

- Critical Thinking
- Communication
- 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, 1409, 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. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
3. Determine the basic nuclear and electronic structure of atoms.
4. Identify trends in chemical and physical properties of the elements using the Periodic Table.
5. Describe the bonding in and the shape of simple molecules and ions.
7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.
10. Define the types and characteristics of chemical reactions including acids and bases.
11. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
12. Determine the role of energy in physical changes and chemical reactions.
13. Articulate the importance of intermolecular interactions and predict trends in physical properties.
14. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
15. Apply the principles of equilibrium to chemical systems using Le Chatelier’s Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
16. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
17. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
18. Convert units of measure and demonstrate dimensional analysis skills
19. 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.
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 1409 COURSE CONTENT

Chapter 1
ATOM

Chapter 2
MOLECULE

Chapter 3
STOICHIOMETRY

Chapter 4
SOLIDS AND LIQUIDS

Chapter 5
GASES

Chapter 6
THERMOCHEMISTRY AND THERMODYNAMICS

Chapter 7
CHEMICAL KINETICS

Chapter 8
CHEMICAL EQUILIBRIUM

Chapter 9
ELECTROCHEMISTRY

HOMEWORK AND EXAM DATES WILL BE GIVEN ON ECAMPUS. THERE WILL BE NO MAKE-UP WORK.

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>24.0</td>
<td>LAB REPORTS</td>
</tr>
<tr>
<td>5.0</td>
<td>PROJECT</td>
</tr>
<tr>
<td>5.0</td>
<td>COMPREHENSIVE CHAPTER QUIZZES</td>
</tr>
<tr>
<td>9.0</td>
<td>COMPREHENSIVE FINAL EXAM</td>
</tr>
<tr>
<td>9.0</td>
<td>COMPREHENSIVE LAB EXAM</td>
</tr>
<tr>
<td>1.0</td>
<td>SYLLABUS QUIZ</td>
</tr>
<tr>
<td>2.0</td>
<td>DISCUSSIONS</td>
</tr>
</tbody>
</table>
**FINAL EXAM**

The final exam will be a COMPREHENSIVE test. 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. ALL LABS ARE TO BE SUBMITTED TO CHEM 1409 61400 LABORATORY PORTION.

Your laboratories must be your original work. Any collusion, plagiarism, and/or intent to submit work dishonestly, and/or not your intellectual property, will be dealt with severely, and could result in a grade of zero or dismissal from the course.

**Individual Book Projects**

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 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**

Lecture and lab quizzes WILL be given, and calculated into overall grade.

**GRADING SCALE**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100 TO 89.5</td>
</tr>
<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>
</tr>
</tbody>
</table>

COLLEGE SPONSORED EVENT: NONE.

**ELECTRONIC DEVICES:** Not Applicable

The withdraw date for this class is November 14, 2019

Census date is September 09, 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).*

**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, or check for updates on this web site. Decisions for evening classes will be made by 4:00 pm.

[http://www.mountainviewcollege.edu/1weather.asp](http://www.mountainviewcollege.edu/1weather.asp)
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.html

INSTITUTIONAL POLICIES
Institutional policies related to this course can be accessed from the following link: 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 November 14, 2019. Failure to do so will result in you 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.

COURSE SCHEDULE
This is a tentative lecture schedule of events and is subject to change.
ECAMPUS WILL BE DOWN FOR MAINTENANCE FROM TIME TO TIME. IT IS YOUR RESPONSIBILITY TO GET THE REQUIRED MATERIALS IN ON TIME. MAKE SURE THE AREA YOU ARE IN HAS A SOLID WIFI OR INTERNET CONNECTION. MAKE SURE YOU VIEW YOUR ASSIGNMENTS ON A COMPUTER WITH A TV SCREEN. DO NOT SOLELY RELY ON YOUR SMART PHONE TO TAKE THIS COURSE.
Please refer to ecampus.dcccd.edu for all course information.

Course Outline (Calendar):

<table>
<thead>
<tr>
<th>DATE</th>
<th>ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUG 26-30</td>
<td>SYLLABUS QUIZ&lt;br&gt;Chapter 1&lt;br&gt;ATOMS</td>
</tr>
<tr>
<td>AUG 27</td>
<td>LAB: Safety Orientation (ONLINE)&lt;br&gt;LAB: EXCEL GRAPHING (ecampus.dcccd.edu)&lt;br&gt;LAB: CHECK-IN/INQUIRY LAB WRITE-UPS&lt;br&gt;LAB SAFETY QUIZ (ONLINE)</td>
</tr>
<tr>
<td>SEP 2-SEP 6</td>
<td>Chapter 2&lt;br&gt;MOLECULES</td>
</tr>
<tr>
<td>SEP 3</td>
<td>LAB: ATOMIC STRUCTURE AND PERIODICITY: ELECTRONIC CONFIGURATION&lt;br&gt;ACTIVITY AND SIMULATION (<a href="http://genchem1.chem.okstate.edu/CCLI/CCLIDefault.html">http://genchem1.chem.okstate.edu/CCLI/CCLIDefault.html</a>)</td>
</tr>
<tr>
<td>SEP 9-SEP 13</td>
<td>Chapter 3&lt;br&gt;STOICHIOMETRY</td>
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<tr>
<td>SEP 10</td>
<td>LAB: NUCLEAR CHEMISTRY ONLINE</td>
</tr>
<tr>
<td>SEP 16</td>
<td>COMPREHENSIVE QUIZ FOR ATOMS&lt;br&gt;COMPREHENSIVE QUIZ FOR MOLECULES&lt;br&gt;COMPREHENSIVE QUIZ FOR STOICHIOMETRY</td>
</tr>
<tr>
<td>SEP 17</td>
<td>LAB: MEASUREMENT AND UNCERTAINTY</td>
</tr>
<tr>
<td>SEP 18</td>
<td>EXAM I OVER ATOMS, MOLECULES AND STOICHIOMETRY</td>
</tr>
<tr>
<td>SEP 24</td>
<td>LAB: MINERAL PROPERTIES IDENTIFICATION</td>
</tr>
<tr>
<td>SEP 23-27</td>
<td>Chapter 4&lt;br&gt;SOLIDS &amp; LIQUIDS</td>
</tr>
<tr>
<td>OCT 01</td>
<td>LAB: DETERMINATION OF ACETIC ACID IN VINEGAR USING A TITRATION</td>
</tr>
<tr>
<td>SEP 30-OCT 4</td>
<td>Chapter 5&lt;br&gt;GASES</td>
</tr>
<tr>
<td>OCT 08</td>
<td>LAB: PROPERTIES OF SOIL: AGRICULTURAL AND WATER: AVAILABILITY IMPACTS</td>
</tr>
<tr>
<td>OCT 07-OCT 11</td>
<td>Chapter 6&lt;br&gt; THERMODYNAMICS &amp; THERMOCHEMISTRY</td>
</tr>
<tr>
<td>OCT 15</td>
<td>LAB: SYNTHESIS OF BIODIESEL&lt;br&gt;LAB: OIL SPILL BIOREMEDIATION</td>
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<tr>
<td>Date</td>
<td>Event</td>
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<tr>
<td>OCT 14</td>
<td>COMPREHENSIVE QUIZ FOR SOLIDS &amp; LIQUIDS</td>
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<td></td>
<td>COMPREHENSIVE QUIZ FOR GASES</td>
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<tr>
<td></td>
<td>COMPREHENSIVE QUIZ FOR THERMODYNAMICS &amp; THERMOCHEMISTRY</td>
</tr>
<tr>
<td>OCT 22</td>
<td>LAB: ENGINEERING A BETTER AIR BAG</td>
</tr>
<tr>
<td>OCT 16</td>
<td>EXAM II FOR SOLIDS &amp; LIQUIDS, GASES, AND THERMODYNAMICS &amp; THERMOCHEMISTRY</td>
</tr>
<tr>
<td>OCT 29</td>
<td>LAB: FUNDAMENTALS OF CALORIMETRY</td>
</tr>
<tr>
<td>OCT 21-25</td>
<td>Chapter 7</td>
</tr>
<tr>
<td></td>
<td>CHEMICAL KINETICS</td>
</tr>
<tr>
<td>NOV 5</td>
<td>LAB: FACTORS AFFECTING REACTION RATES</td>
</tr>
<tr>
<td>OCT 28-NOV 1</td>
<td>Chapter 8</td>
</tr>
<tr>
<td></td>
<td>CHEMICAL EQUILIBRIUM</td>
</tr>
<tr>
<td>NOV 12</td>
<td>LAB: EQUILIBRIUM AND LE CHATELIER PRINCIPLE</td>
</tr>
<tr>
<td>NOV 4-8</td>
<td>Chapter 9</td>
</tr>
<tr>
<td></td>
<td>ELECTROCHEMISTRY</td>
</tr>
<tr>
<td>NOV 19</td>
<td>LAB: DEVELOPING AN ACTIVITY SERIES</td>
</tr>
<tr>
<td>NOV 11</td>
<td>COMPREHENSIVE QUIZ FOR CHEMICAL KINETICS</td>
</tr>
<tr>
<td></td>
<td>COMPREHENSIVE QUIZ FOR CHEMICAL EQUILIBRIUM</td>
</tr>
<tr>
<td></td>
<td>COMPREHENSIVE QUIZ FOR ELECTROCHEMISTRY</td>
</tr>
<tr>
<td>NOV 26</td>
<td>LAB: QUALITY OF SURFACE WATER: COMBINED (10 STATIONS)</td>
</tr>
<tr>
<td>NOV 13</td>
<td>EXAM III FOR CHEMICAL KINETICS, CHEMICAL EQUILIBRIUM &amp; THERMOCHEMISTRY</td>
</tr>
<tr>
<td>DEC 03</td>
<td>LAB: LAST DAY FOR LAB REPORT SUBMITTALS. YOU HAVE UNTIL 11:59:00.00 PM</td>
</tr>
<tr>
<td>NOV 19</td>
<td>CLASS PRESENTATIONS</td>
</tr>
<tr>
<td>DEC 10</td>
<td>LABORATORY FINAL EXAM (ONLINE)</td>
</tr>
<tr>
<td>DEC 12</td>
<td>LECTURE FINAL EXAM (ONLINE)</td>
</tr>
</tbody>
</table>

For a complete listing of MVC and DCCCD policies, refer to [www.mountainviewcollege.edu/syllabipolicies](http://www.mountainviewcollege.edu/syllabipolicies). 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 THE SPOT ON ECAMPUS THAT SAYS STUDENT CONTACT INFORMATION.

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, that it will be rigorous and will uphold the rule of academic honesty, stating that any work submitted 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