INTRODUCTORY CHEMISTRY I  
CHEM.1405.66400  
07/11/2016 TO 8/12/2016

PROFESSOR: PHILLIP KELLER (LEC & LAB)  
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OFFICE PHONE: 214-860-3634 (Department phone)  
OFFICE NUMBER: NA  
OFFICE HOURS: Email is the best way to reach me  
MEETING DAYS AND TIME:  
LEC MTWRF INET  
LAB MTWRF INET  
CREDIT HOURS: 4  
DIVISION: SCIENCE, NURSING, ARTS/HUMANITIES AND PHYSICAL EDUCATION  
DEAN: STEPHEN JONES, Ph. D.,  
DIVISION OFFICE PHONE: 214-860-8760

TEXTBOOK  

CHEMISTRY: AN INTRODUCTION TO GENERAL, ORGANIC, AND BIOLOGICAL CHEMISTRY 11TH EDITION TIMBERLAKE ISBN: 0-321-69345-0 (OPTIONAL)

Lab Kit  
http://www.carolina.com/catalog/detail.jsp?prodId=581560

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 1405-  
http://www.carolina.com/catalog/detail.jsp?prodId=581560

COURSE DESCRIPTION  
This course is for non-science majors. Fundamental concepts are presented in lecture and laboratory including the periodic table, atomic structure, chemical bonding, reactions, stoichiometry, states of matter, properties of metals, nonmetals and compounds, chemical nomenclature, acid-base theory, oxidation-reduction and solutions. Descriptive chemistry is emphasized. (3 Lec., 3 Lab.)

COURSE PREREQUISITES  
The following must be met: (1) Developmental Mathematics 0090 or higher or the equivalent AND (2) Developmental Reading 0093 or English as a Second Language (ESOL) 0044 or have met the Texas Success Initiative (TSI) Reading standard.

COURSE COREQUISITE  
NONE

STATE REQUIREMENTS:
INTELLECTUAL COMPETENCIES

Chemistry 1405 satisfies the following Core Curriculum Intellectual Competencies defined by the Texas Higher Education Coordinating Board.

**READING:** Reading at the college level means the ability to analyze and interpret a variety of printed materials -- books, articles, and documents. A core curriculum should offer students the opportunity to master both general methods of analyzing printed materials and specific methods for analyzing the subject matter of individual disciplines.

**WRITING:** Competency in writing is the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience. Although correct grammar, spelling, and punctuation are each a sine qua non in any composition, they do not automatically ensure that the composition itself makes sense or that the writer has much of anything to say. Students need to be familiar with the writing process including how to discover a topic and how to develop and organize it, how to phrase it effectively for their audience. These abilities can be acquired only through practice and reflection.

**SPEAKING:** Competence in speaking is the ability to communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion, and audience. Developing this competency includes acquiring poise and developing control of the language through experience in making presentations to small groups, to large groups, and through the media.

**LISTENING:** Listening at the college level means the ability to analyze and interpret various forms of spoken communication.

**CRITICAL THINKING:** Critical thinking embraces methods for applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies. Problem solving is one of the applications of critical thinking, used to address an identified task.

**COMPUTER LITERACY:** Computer literacy at the college level means the ability to use computer-based technology in communicating, solving problems, and acquiring information. Core-educated students should have an understanding of the limits, problems, and possibilities associated with the use of technology, and should have the tools necessary to evaluate and learn new technologies as they become available.

**EXEMPLARY EDUCATIONAL COURSE OBJECTIVES**
The objective of the study of a natural sciences component of a core curriculum is to enable the student to understand, construct and evaluate relationships in the natural sciences and to enable the student to understand the bases for building and testing theories. The exemplary educational objectives are:

- To understand and apply method and appropriate technology to the study of natural sciences.
- To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses and interpretation both orally and in writing.
- To identify and recognize the differences among competing scientific theories.
- To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
- To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to modern culture.

The following science courses include the above exemplary educational objectives: Biology 1406, 1407, 1408, 1409, Chemistry 1405, 1406, 1407, 1411, 1412, 2389, 2401, 2402, 2423, 2425 Geology 1401, 1403, 1404, 1445, Physics 1401, 1402, 1405, 1407, 1411, 1412, 1415, 1417, 2425, and 2426.

**STUDENT LEARNING OUTCOME**
STUDENT LEARNING OUTCOMES FOR DISCIPLINE OF CHEMISTRY

Student in lecture will be able to:
1) Convert units and measurements and calculate calories and joules.
2) Classify matter, compounds, and chemical reactions, superficially.
3) Use the gas laws in the remedial sense and basics of the Kinetic Molecular Theory to solve problems.
4) Evaluate nuclear radiation.
5) Demonstrate their ability to represent chemistry artistically, either through presentation, poster or art form.
6) Use octet rule and identify trends in chemical and physical properties of elements using Periodic Table.
7) Rules of nomenclature to name chemical compounds.
8) Solve problems stoichiometrically.
9) Write and balance equations.
10) Write chemical equations.

Student in lab will be able to:

1) Convert units and measurements and calculate calories and joules.
2) Demonstrate safe and proper handling of laboratory equipment and chemical laboratory.
3) Conduct basic laboratory experiments with proper laboratory techniques.
4) Learning skills necessary to make accurate and careful experimental observations.
5) Relate physical observations and measurements to theoretical principles.
6) Identify appropriate sources of information for conducting laboratory experiments involving the major 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 1405 COURSE CONTENT/OUTLINE

Introduction: Chemistry in our lives.
Chemistry and chemicals, the Scientific Method, Science and technology.

Chapter 1- Measurements
Units of measurements, scientific notation, significant figure, measuring mass and volume, conversion factors, density, and specific gravity.

Chapter 2- Energy and Matter
Energy, energy and nutrition, temperature conversions, specific heat, states of matter, and changes of state.

Chapter 3- Atoms and Elements
Classification of matter, elements and symbols, the periodic table, the atom, atomic number and mass number, Isotopes and atomic mass, electron energy levels and the periodic trends.

Chapter 4- Compounds and their Bonds
The octet rule and ions, ionic compounds, naming and writing covalent compounds, electronegativity, bond polarity, shapes and polarity of molecules.

**Chapter 5 - Chemical Reactions and Quantities**
Chemical changes, chemical equations, types of reactions, oxidation-reduction reaction, the mole, molar mass, mole relationship in chemical reactions, mass calculations for reactions and energy in chemical reactions.

**Chapter 6 - Gases**

**Chapter 7 - Solutions**
Solutions, electrolytes and nonelectrolytes, solubility, percent concentration, molarity and dilution, solutions in chemical reactions, properties of solutions.

**Chapter 8 - Acids and Bases**
Acids and Bases, Bronsted-Lowry Acids and Bases, strengths of acids and bases, ionization of water. The pH scale, reactions of acids and bases, Buffers

**Chapter 9 - Nuclear**
Nuclear radiation, natural radioactivity, nuclear equations, radioactivity, radiation measurement, half-life of a radioisotope, medical applications using radioactivity, nuclear fission and fusion.

**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>LEC</th>
<th>Points</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1.0</td>
<td>1.0 pts</td>
<td>Syllabus quiz</td>
</tr>
<tr>
<td>9.0</td>
<td>9 Homework</td>
<td></td>
</tr>
<tr>
<td>15.0</td>
<td>9 Quizzes</td>
<td></td>
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<tr>
<td>40.0</td>
<td>4 EXAMS</td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td>5.0 pts</td>
<td>COMPREHENSIVE FINAL EXAM</td>
</tr>
<tr>
<td>LAB</td>
<td>1.0 pts</td>
<td>Safety Quiz</td>
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<tr>
<td>24.0</td>
<td>LAB ASSIGNMENTS</td>
<td></td>
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<tr>
<td>5.0</td>
<td>LAB FINAL</td>
<td></td>
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<tr>
<td>TOTAL</td>
<td>100.0 pts</td>
<td>POINTS AVAILABLE</td>
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**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**
Students are required to buy a kit from Carolina website at [http://www.carolina.com/catalog/detail.jsp?prodId=581560](http://www.carolina.com/catalog/detail.jsp?prodId=581560)

We encourage students to get together in a group of 3 to 4 students to buy the lab kit. It will share the cost of the kit and reduce the financial burden. Students can communicate with each other thru discussion board on blackboard. Students must send me the name of the group and team members in the group if you decide to work in a group. Each team member submits their copy of the lab video (1-5 min)
as part of the lab submission. Make sure the video clip shows all the participating members. **Every student is required to write their own lab report. Do not copy work from other team members of the group.** The only similarity in the lab reports of team members will be the data and the lab video.

The lab grade consists of a safety quiz, lab reports to include a video, and a lab final exam.

Labs are conducted and submitted through the following eCampus folders:

**SAFETY** (1 point, Individual work measured with a safety quiz)
**EXCEL GRAPHING EXERCISE** (1 point, Individual work with a report--no video submission required)
The remaining **MEASURING UNCERTAINTY** (2 points)
**EXPLORING DENSITY** (3 points)
**ESTIMATING AVOGADRO’S NUMBER** (3 points)
**BALANCING CHEMICAL EQUATIONS** (3 points)
**CHEMICAL AND PHYSICAL CHANGES** (3 points)
**INVESTIGATING CHEMICAL REACTIONS** (3 points)
**FLAME TEST** (3 points)
**CHARACTERISTICS OF BUFFER SOLUTIONS** (3 points)

**LAB FINAL EXAM**
Questions will be specifically assessed to determine your laboratory knowledge, one of which will be on the Excel graphing exercise. The lab final worth 5% of overall grade. A mastery of 60% or above is acceptable and the paradigm.

**Quizzes**
There are nine chapters in the book. So, there will be a quiz for each chapter. All quizzes will consist of multiple choice, fill in the blanks, numerical answer, and true or false questions. You will be given only one attempt to take the quiz. So plan your time accordingly. It is recommended to do the homework and then take the quiz.

**Homework**
There is a homework for every chapter. Students are required to show the work on their homework or they do not get any credit. The best way to do the homework would be to print the homework, solve problems on a given space, scan it, and upload it back on blackboard. **NO homework should be emailed to me.** Students are required to finish and submit the homework before the due date--no extension on the homework due date. The answer key for the homework will be posted the following day.

**Exams**
There will be four exams (due dates for the exams can be found in the calendar):

<table>
<thead>
<tr>
<th>Exam</th>
<th>Chapters</th>
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<tbody>
<tr>
<td>1</td>
<td>1 and 2</td>
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<tr>
<td>2</td>
<td>3 and 4</td>
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<tr>
<td>3</td>
<td>5 and 6</td>
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<tr>
<td>4</td>
<td>7, 8, and 9</td>
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**GRADING SCALE**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
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<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>
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**Calendar**
Due to the compressed nature of the summer term, the first four weeks’ requirements will be due, with the exception of the syllabus quiz, as follows for each week:

- Homework will be due by 11:59 PM on the Friday evening.
- Quizzes will be due by 11:59 PM on the Saturday evening.
- Exams and Lab Reports will be due by 11:59 PM on the Sunday evening.

It is imperative that students and groups pace themselves, working throughout the week. Homework answers will be posted one minute after the submission cutoff on Saturday morning at midnight. Late homework will not be accepted for a grade. Answers to quizzes will be available one minute after the submission cutoff on Sunday morning at midnight. The last lab (Buffers) will be due by 11:59 PM on the Tuesday of week 5. Students are encouraged to complete this lab in week 4, leaving only review and final exams for week 5. Try to work ahead—all assignments are open; only quizzes and exams are sequenced.

**Week-1 (07/11/17 to 07/16/17)**

- due by 11:59 PM on the Thursday evening
  - Syllabus quiz: Submission by 11:59 PM on July 13, 2017 fulfills the census requirement.
- due by 11:59 PM on the Friday evening
  - Chapter 1 homework
  - Chapter 2 homework
- due by 11:59 PM on the Saturday evening
  - Safety Quiz
  - Chapter 1 quiz
  - Chapter 2 quiz
- due by 11:59 PM on the Sunday evening
  - Exam 1: The exam will be opened on 07/14/17 and will stay open until 11:59 PM on 07/16/17. Students should start the exam at least 2 hours before the due time.
  - LAB: EXCEL GRAPHING EXERCISE
  - LAB: MEASURING UNCERTAINTY

**Week-2 (07/17/17 to 07/23/17)**

- due by 11:59 PM on the Friday evening
  - Chapter 3 homework
  - Chapter 4 homework
- due by 11:59 PM on the Saturday evening
  - Chapter 3 quiz
  - Chapter 4 quiz
- due by 11:59 PM on the Sunday evening
  - Exam 2: The exam will be opened on 07/21/17 and will stay open until 11:59 PM on 07/23/17. Students should start the exam at least 2 hours before the due time.
  - LAB: EXPLORING DENSITY
  - LAB: ESTIMATING AVOGADRO’S NUMBER

**Week-3 (07/24/17 to 07/30/17)**

- due by 11:59 PM on the Friday evening
  - Chapter 5 homework
  - Chapter 6 homework
- due by 11:59 PM on the Saturday evening
  - Chapter 5 quiz
  - Chapter 6 quiz
Exam 3: The exam will be opened on 07/28/17 and will stay open until 11:59 PM on 07/30/17. Students should start the exam at least 2 hours before the due time.

LAB: BALANCING CHEMICAL EQUATIONS
LAB: CHEMICAL AND PHYSICAL CHANGES

Week-4 (07/31/17 to 08/06/17)
due by 11:59 PM on the Friday evening
- Chapter 7 homework
- Chapter 8 homework
- Chapter 9 homework
due by 11:59 PM on the Saturday evening
- Chapter 7 quiz
- Chapter 8 quiz
- Chapter 9 quiz
due by 11:59 PM on the Sunday evening
- Exam 4: The exam will be opened on 08/04/17 and will stay open until 11:59 PM on 07/06/17. Students should start the exam at least 2 hours before the due time.
- LAB: INVESTIGATING CHEMICAL REACTIONS
- LAB: FLAME TEST

Week-5 (08/07/17 to 08/10/17)
due by 11:59 PM on the Tuesday evening
- LAB: CHARACTERISTICS OF BUFFER SOLUTIONS
due by 11:59 PM on the Thursday evening
- Final Exam: The exam will be opened on 08/07/17 and will stay open until 11:59 PM on 07/10/17. Students should start the exam at least 3 hours before the due time.

LATE WORK POLICY: Late work is not ordinarily accepted. Exceptional cases must be approved by the instructor. Emergency absences must be supported by documentation. This INET course allows students to work ahead, making most adjustments unnecessary. In all cases, no assignment will be accepted after the 08th of August.

INSTITUTIONAL POLICIES

Attendance Policy:

To be considered an active INET student, one must complete at least one assignment before the census date: July 14, 2017. Students should do all the assignments in a timely manner.

(Face-to-face/regular policies follow and may be interpreted relative to INET courses.)

Students are expected to regularly attend all classes in which they are enrolled and to be on time. Students have the responsibility to attend class and to consult with the instructor when an absence occurs. There are NO make – up exams, labs or homework assignments EXCEPT with a genuine excuse from instructor.

No student is exempted from taking the final exam. If a student cannot take the final exam on the regular scheduled date, that student will receive a grade of “Incomplete” until such time as the exam is completed, EXCEPT in case of an emergency.

Students who are absent from class for the observance of a religious holiday may take an examination or complete an assignment for that missed class within a reasonable time after the absence, if no later than the 15th day of the semester, the student notified the instructor that the student would be absent for a religious holiday. Sec.51.911TX. Educ. Code
**Attendance Policy Addendum Statement**

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.

**Repeating This Course:**

Effective for Fall Semester 2005, the Dallas County Community Colleges will charge additional tuition to students registering the third or subsequent time for a course. This class may/may not be repeated for the third or subsequent time without paying the additional tuition. Third attempts include courses taken at any of the Dallas County Community Colleges since the Fall 2002 semester. More information is available at: [https://www1.dcccd.edu/cat0506/ss/oep/third_attempt.cfm](https://www1.dcccd.edu/cat0506/ss/oep/third_attempt.cfm)

**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)

The drop date for this class is August 3rd, 2017.

**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 [https://www1.dcccd.edu/cat0506/admiss/hsi_requirements.cfm](https://www1.dcccd.edu/cat0506/admiss/hsi_requirements.cfm)

**Academic Honesty:**

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 Online Catalog. More information is available at [https://www1.dcccd.edu/cat0406/ss/code.cfm](https://www1.dcccd.edu/cat0406/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.aspx

Final Course Grade:

Final grades are available only on eConnect and touch-tone telephone at 972-613-1818. You will need your student ID number and use your birth date as your password.

eConnect http://econnect.dcccd.edu/econnect/st/stmenu.html

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 August 03, 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.