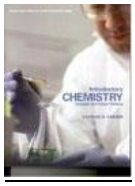
HOUSTON COMMUNITY COLLEGE SOUTHWEST
COURSE SYLLABUS FOR CHEM 1305 – INTRODUCTORY CHEMISTRY I
Fall 2016
Class Number 18190

Discipline/Program	Chemistry
Course Level	First Year (Freshman)
Course Title	General Chemistry I
Course Rubric and Number	CHEM 1305
Semester with Course Reference Number (CRN)	Fall 2016 CRN 18190
Course Location/Times	Stafford Scarcella Center, 10141 Cash Road Thursday, 5:30 – 8:30 PM, Room W121
Course Semester Credit Hours (SCH) (lecture, lab)	3 (3 lecture)
Total Course Contact Hours	48
Course Length (number of weeks)	16
Type of Instruction	In-person
Instructor contact information (phone number and email address)	Dr. Steven E. Dessens Office Phone: 713-718-6710 E-mail: steven.dessens@hccs.edu Learning Web: http://learning.hccs.edu/faculty/steven.dessens
Office Location and Hours	Room S107 Stafford Scarcella building, Tuesday 1:00-4:00 PM.
Course Description: ACGM or WECM	Survey course introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for non-science and allied health students.
Course Description: HCC Catalog Description	General introduction to fundamental principles of chemistry includes atomic structure, chemical formulas, molecules, reactions, and elementary thermodynamics. This course is intended to be preparatory to CHEM 1411 for science majors who have no prior knowledge of chemistry. Core Curriculum Course. Note: Only one of CHEM 1305, CHEM 1405, and/or CHEM 1411 can be used toward associate degree natural science requirements. Only one of the three will count as Natural Science core; the others may count as electives in the degree plan.
Course Prerequisite(s)	Must be placed into GUST 0342 (or higher) in reading and ENGL 0310/0349 (or higher) in writing.
Academic Discipline Program Learning Outcomes	1. To provide the student a basic and practical understanding of chemistry (formulas, reactions, and calculations) and recognize its relevance in our daily lives. 2. To prepare our students to meet with success in higher level chemistry and other science courses when they transfer to four-year universities. 3. To prepare our students for professional programs requiring a mastery of General Chemistry and Organic Chemistry, such as Nursing, Medicine, Dentistry, and Pharmacy. 4. To enhance class lectures with a meaningful, hands-on laboratory experience involving making measurements, observing reactions, evaluating the results, and drawing conclusions with the involvement of lab group or other class members.
Course Student Learning Outcomes (SLO)	1. Give names and formulas of elements, ions, and ionic and molecular compounds. 2. Categorize, complete, and balance chemical reactions. 3. Classify elements according to their location in the periodic table; identify periodic trends of selected properties of atoms; write the electron configuration of atoms and ions. 4. Do basic chemistry calculations involving reaction stoichiometry. 5. Relate the gas variables using the gas laws and apply Dalton's law of partial pressures to a mixture of gases.

	6. Depict chemical bonding with dot structures and predict the molecular shape (geometry) of molecules.
Learning Objectives (Numbering system linked to SLO)	1.1 Given the name, identify the formula and charge of positive and negative ions, and vice-versa. 1.2 Given the name, write the formula of ionic compounds, binary molecular compounds, and acids. Given the formulas of these types of compounds, name them. 2.1 Identify given reactions as combination, decomposition, single displacement, and double displacement. 2.2 Starting with the reactants, complete the reaction by writing the reaction products. 2.3 Given the reactants and products, balance the reaction. 3.1 Based on their location in the periodic table, classify elements by type. 3.2 State the periodic law and identify the periodic trend of atomic size, metallic character, and ionization energy. 3.3 Write electron dot formulas of representative elements; write the electron configuration of atoms and ions. 4.1 Convert amounts in units of mass or volume to moles, and vice-versa. 4.2 Given the amount of one substance in a reaction, calculate the amount of the other substances that react or form. 4.3 Identify the limiting reactant and excess reactant in a reaction where more than one reactant amount is given. 5.1 Relate and calculate the pressure, volume, temperature, or amount of gas using Boyle's law, Charles' law, Gay-Lussac's law, Avogadro's law, the combined gas law, and the ideal gas law. 5.2 Use Dalton's law to perform calculations involving gas mixtures. 5.3 Explain the assumptions of the kinetic-molecular theory of gases. 6.1 Draw the Lewis dot structure of molecules containing two to four atoms. 6.2 Based on the dot structure of the molecule, determine its geometry and molecular shape based on VSEPR theory.
SCANS and/or Core Curriculum Competencies	Critical Thinking, Communication Skills, Empirical & Quantitative Reasoning, and Teamwork
Course Calendar	**Weekly Schedule** Aug 25 Chapter 1 – Introduction to Chemistry Sept 1 Chapter 2 – The Metric System Sept 4 Chapter 1 Quiz Due, 11:55 PM Sept 8 Chapter 3 – Matter and Energy Sept 11 Chapter 2 Quiz Due, 11:55 P **Sept 15 EXAM 1 – Chapters 1-3** Sept 22 Chapter 4 – Models of the Atom Sept 25 Chapter 3 Quiz Due, 11:55 PM Sept 29 Chapter 5 – The Periodic Table Oct 2 Chapter 4 Quiz Due, 11:55 PM

	Oct 6 Chapter 6 - Language of Chemistry Oct 9 Chapter 5 Quiz Due, 11:55 PM Oct 13 Chapter 7 – Chemical Reactions Oct 16 Chapter 6 Quiz Due, 11:55 PM **Oct 20 EXAM 2 – Chapters 4-7** Oct 27 Chapter 8 – The Mole Concept Oct 28 ☞ **Last Day for Withdrawals (for grade of W)** ☜ Oct 30 Chapter 7 Quiz Due, 11:55 PM Nov 3 Chapter 9 – Chemical Equation Calculations Nov 6 Chapter 8 Quiz Due, 11:55 PM Nov 10 Chapter 10 – Gases Nov 13 Chapter 9 Quiz Due, 11:55 PM Nov 17 Chapter 11 – Liquids and Solids, Begin Chapter 12 - Chemical Bonding Nov 20 Chapter 10 Quiz Due, 11:55 PM **Nov 20 ONLINE EXAM 3 – Chapters 8-10, Due by 11:55 PM** **Nov 24** ☞ **Thanksgiving Holiday – No Class** ☜ Dec 4 Chapter 11 Quiz Due, 11:55 PM Dec 1 Chapter 12 – Chemical Bonding Dec 4 Chapter 12 Quiz Due, 11:55 PM Dec 8 FINAL EXAM – Chapters 1–12, 5:30-7:30 AM 
Instructional Methods	Standard class lectures using the whiteboard with occasional use of PowerPoints.
Student Assignments	Except for chapter quizzes, special assignments are not assigned. I will recommend practice problems but these are not graded. Practice problems, such as those at the end of the chapters, are highly beneficial to learning chemistry. Answers to the end of chapter problems are in the study guide/solutions manual. Online problems can be found on my Learning Web site. It is helpful to have a spiral leaf notebook just for working chemistry problems. That will keep your work more organized and you (or I) can more easily review your work.
Student Assessment(s)	The overall score is based on the following: • Three regular exams 60% • Quizzes on Canvas 20% • Final Exam 20% Overall Score = 0.60(Average of three regular exams) + 0.20(Quizzes) + 0.20(Final Exam)
Instructor's Requirements	**Exams and Make-up Policy** Examinations will consist of three non-cumulative regular exams plus a comprehensive final. Make-up exams will not normally be given, so make every effort to take the exams on their scheduled dates. In the event that you *must* miss a regular exam, I will count the grade made on the final exam as the grade for the missed exam (for one missed exam only), and calculate the final course grade accordingly. If you do not miss any of the regular exams, I will replace your lowest exam score with your final exam score if the final exam grade is higher. This is intended to

	provide you a "second chance" if you do not do well on a particular exam. Remember that the final exam will be *comprehensive* (meaning that it will cover *all* of the material from the whole semester, not just the last part). Please note that all students are required to take the final (no student can be exempted). **Chapter Quizzes on Canvas** Chapter quizzes are on the Canvas section for this course (Canvas login: hccs.instructure.com). These are for practice and you can use your book, notes, or even do them with friends! They are set for multiple repeats, so you can resubmit your quiz as needed to get the best score. **The due dates are Sundays just before midnight each week – see the Weekly Schedule above for these dates.**
Program/Discipline Requirements	At the program level, the Chemistry Discipline strives to accomplish the Program Learning Outcomes, Student Learning Outcomes, and Learning Objectives as described above. We desire that you receive a challenging and rewarding experience in your chemistry classes at HCC which will prepare you well for future chemistry and related science courses that you may take in the future.
HCC Grading Scale	A = 100 – 90:……4 points per semester hour B = 89 – 80: ……3 points per semester hour C = 79 – 70: ……2 points per semester hour D = 69 – 60: ……1 point per semester hour 59 and below = F……0 points per semester hour IP (In Progress) ……0 points per semester hour W(Withdrawn)……0 points per semester hour I (Incomplete)……0 points per semester hour AUD (Audit) ……0 points per semester hour IP (In Progress) is given only in certain developmental courses. The student must re-enroll to receive credit. COM (Completed) is given in non-credit and continuing education courses. To compute grade point average (GPA), divide the total grade points by the total number of semester hours attempted. The grades "IP," "COM" and "I" do not affect GPA.
Instructor Grading Criteria	The course grade is based on the criteria according to the Assessment section above.
Instructional Materials	**Textbook**  **Introductory Chemistry: Concepts and Critical Thinking**, by Charles H. Corwin. Seventh Edition, Pearson Prentice Hall, 2013. Custom HCC Softcover Edition ISBN-13: 978-1-269-31320-9 .**Optional Study Guide and Solutions Manual** Study Guide & Selected Solutions Manual for Introductory Chemistry: Concepts and Critical Thinking, 7th Edition. Pearson Prentice Hall, 2014. ISBN-13: 978-0-321-80858-5 **Good Website with Notes and Practice Problems** http://chem.libretexts.org/Textbook_Maps/Introductory_Chemistry_Textbook_Maps/Map%3A_Introductory_Chemistry_(Tro)
HCC Policy Statement: **ADA** **Academic Honesty** **Student attendance** **3-peaters** **Withdrawal deadline**	Access Student Services Policies on their Web site: http://www.hccs.edu/district/about-us/procedures/student-rights-policies--procedures/ **Disability Support Services (DSS)** "Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at the respective college at the beginning of each semester. Faculty are authorized to provide only the accommodations requested by the Disability Support Services Office." If you have any special needs or disabilities which may affect your ability to succeed in college classes or participate in any college programs or activities, please contact the DSS office for

	assistance. At Southwest College, contact Dr. Becky Hauri, 713-718-7909. Contact numbers for the other HCC colleges are found in the Annual Schedule of Classes, and more information is posted at the HCC web site at Disability Services: http://www.hccs.edu/district/students/disability-services/ **Academic Honesty** "Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Disciplinary proceedings may be initiated by the college system against a student accused of scholastic dishonesty. Penalties can include a grade of "0" or "F" on the particular assignment, failure in the course, academic probation, or even dismissal from the college. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion." **Use of cell phones are not allowed during exams. Students are not permitted to leave the room during their exam.** **Attendance Policy** The HCCS attendance policy is stated as follows: "Students are expected to attend classes regularly. Students are responsible for materials covered during their absences, and it is the student's responsibility to consult with instructors for make-up assignments. Class attendance is checked daily by instructors. *Although it is the responsibility of the student to drop a course for non-attendance, the instructor has full authority to drop a student for excessive absences. A student may be dropped from a course for excessive absences after the student has accumulated absences in excess of 12.5% of the hours of instruction (including lecture and laboratory time).*" If circumstances significantly prevent you from attending classes, please inform me. I realize that sometimes outside circumstances can interfere with school, and I will try to be as accommodating as possible, but please be aware of the attendance policy. **Policy Regarding Multiple Repeats of a Course** "NOTICE: Students who repeat a course three or more times may soon face significant tuition/fee increases at HCC and other Texas public colleges and universities. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available." **Last Day for Administrative and Student Withdrawals** For 16-week Fall 2016 classes, this date is October 28. I urge any student who is contemplating withdrawing from the class to see me first! You may be doing better than you think. Either way, I want to be accessible and supportive. I do not believe in "weed out" classes, and we consider you to be much more than just a name or number! Note my office hours above; if you need assistance, I'm here to help. ☞ **Policy Regarding Withdrawals** ☜ Students desiring to withdraw from a class must do so by the above withdrawal date by filling out a **withdrawal form** at the registrar's office. *After this date, instructors can no longer enter a grade of "W" for the course for any reason*.
Distance Education and/or Continuing Education Policies	Access DE Policies on their Web site: http://de.hccs.edu/student-services/ Access CE information on their Web site: http://www.hccs.edu/continuing-education/

Test Bank	Extra practice problems by chapter, sample exams, and sample finals may be found at the following web sites: http://learning.hccs.edu/faculty/steven.dessens http://swc2.hccs.edu/pahlavan
Scoring Rubrics	Regular exams and the final will consist of multiple-choice and show-work questions. These are graded in the standard manner. The regular exams will include some extra questions for extra credit. The lab reports are graded on the basis of completeness, neatness, and the correctness of the calculations tied to the experimental result. The pre- and post-lab questions are also checked. Each report is graded on a 10 point basis.
Sample Assignments	N/A
Sample Instructional Methods/Activities	See the Powerpoints on the instructors Learning Web site for an overview of the content of each chapter: http://learning.hccs.edu/faculty/steven.dessens

☞ **Important Dates** ☜

Aug	22	Monday	Classes Begin
Oct	28	Friday	Last Day for Administrative/ Student Withdrawals with a grade of "W" **After the withdrawal date no W can be given,** ***you must receive a regular grade (A-F) in the course*.**
Dec	4	Sunday	Instruction Ends
Dec	8	Thursday	**Final Exam** (No deviation from the printed schedule is permitted.)
Dec	12	Monday	Grades Available to Students

Other Information

Free chemistry tutoring is available. A tutoring schedule will usually be posted in the classroom and lab.

Upswing In addition to "face to face" tutoring, HCC also offers online tutoring from Upswing. It is also free and is available for chemistry and many other subjects. The login page is at https://hccs.upswing.io.

A great website that has many notes and practice problems for different textbooks is **LibreTexts.org**. The materials for the Tro textbook (similar to our Corwin book) is at http://chem.libretexts.org/Textbook_Maps/Introductory_Chemistry_Textbook_Maps/Map%3A_Introductory_Chemistry_(Tro).

There are many interesting chemistry resources on the Internet which can be found by using keyword searches. But your best immediate source of information is your *textbook* - make thorough use of it!

The publisher of your textbook has an extensive online site called **Mastering Chemistry** at http://www.masteringchemistry.com/. The site contains practice problems and tutorials, accessible with a passcode that is packages with the new custom-published Corwin textbook available at HCC bookstores.

Evaluation for Greater Learning Student Survey System (EGLS3)

"At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term." http://www.hccs.edu/EGLS3

Meningitis Vaccination Requirement

Texas Senate Bill 1107 passed in May 2011, requires that new HCC students and former HCC students returning after an absence of at least one fall or spring semester who are under the age of 30 are required to present a physician-signed certificate showing they have been vaccinated against bacterial meningitis. The immunization must be administered at least 10 calendar days before the start date of your classes and must have been received within the last five years.

http://www.hccs.edu/district/students/apply/meningitis/

General Suggestions

Chemistry is a vast field, ranging from the study of simple inorganic salts to enormously complex molecules such as enzymes and nucleic acids in living organisms. In this course, we will be covering atomic structure, chemical bonding, gram-mole conversions and reaction stoichiometry, gases, and intermolecular forces. Here are some general suggestions:

- Learning chemistry takes time. A reasonable guide is to plan for two hours of study for each hour of lecture. Heavy work and/or class loads are not compatible with learning chemistry!
- Attend class regularly and make notes.
- When beginning a new chapter, I recommend that you first read through it quickly, just to give yourself a good feel for what it is about. Once you begin working practice problems, you will necessarily examine sections in detail.
- Next, start tackling the end of chapter problems or other available problem sets. Often, working problems facilitates understanding much better than just reading and rereading the chapter itself. Chemistry is a "hands on" course - working problems is essential. However, do not spend an inordinate amount of time on a single problem - skip it for the time being and go on to another. Try working some of the sample exercises. They are worked out in the chapter and are very helpful.
- You should have a good, scientific calculator that has scientific notation ("EE" or "EXP" key), log, ln, x^2, $\sqrt{}$, etc. Business calculators usually do not have all of these features. As noted above, the use of programmable calculators is not allowed when taking exams.
- Review basic math operations such as logarithms for pH calculations, if you are rusty.
- Study groups can be very helpful. Keep the group fairly small though, so everyone gets a chance to participate.
- Finally, keep a positive outlook! Chemistry can be hard, but with a good approach, you will succeed in mastering it!

I hope you find chemistry to be an interesting and rewarding subject which will not only be useful in your academic major, but will give you a better insight into the many scientific challenges we are facing today. I look forward to working with you this semester!

Steve Dessens
August 2016