

Course Outline for CHEM 1305: Introductory Chemistry (57857) Spring-2018 Credit: 3

Course Title	CHEM 1305: Introductory Chemistry
Location	Online
Semester	Spring 2018; Jan 16 to May 13
Type of Instruction	◆ This is a lecture only course which is administered online on HCC 'Eagle Online Canvas' portal. Enrolled student should have an easy access to a computer and adequate computer skills to successfully complete this course. To access the course website, use 'Eagle Online' link to login: If you encounter any problems accessing the course website, contact EO Technical Support To get started with canvas follow the steps given at the end of syllabus or search Canvas Guides
	To succeed in an online course a student should demonstrate good self-discipline, excellent organization, and effective time management skills.
	HCC Online READINESS: (Refer to HCC Online Student handbook) Online learning requires motivation, self-discipline, and good computer proficiency, as well as effective time management. Strong study habits are also important because online courses require self-directed learning and time commitment. SmarterMeasure (SM) is a tool that helps students determine their level of readiness for taking online courses. Students are asked questions on their computer proficiency, motivation, organization, self-directedness, and learning style. Students are even able to measure their onscreen reading speed and comprehension.
	Before you enroll in HCC Online classes, be sure to look at these helpful resources to find out if you are a good candidate for distance learning.
	♦ Course textbook requires self-reading/self-teaching. To facilitate student learning chapter outlines, exam reviews, sample exam questions, online learning aides, and all course assignments will be posted on Eagle Online Canvas.
Instructor	Dr. Nupur Garg Office Phone: 713-718-5817 E-mail:nupur.garg@hccs.edu HCC Learning Web: http://learning.hccs.edu/faculty/nupur.garg Office Hours: TTh; 10:30 AM-11:00 AM; W 10:00 AM-11:00 AM. Please let me know if you are planning on seeing me at any of these times or would like to make an appointment.
Contact Information	Students can e-mail me at nupur.garg@hccs.edu concerning any issues related to this course. Students must use their HCC email account when communicating with the instructor. I aim to answer student e-mails in a timely manner. Certain e-mails (for example, which require explanation of chapter material) do take longer to answer. Please note: The instructor will only be able to send correspondence from Eagle Online to your HCC's student email account so please check it regularly. If e-mail doesn't answer your question, you can see me by appointment. Do not wait until the last minute to make any important or urgent request and do allow sufficient time when requesting for any accommodations.

Course Description	This course provides an introduction to modern chemistry. Science and engineering majors study atomic structure, chemical reactions, thermodynamics, electronic configuration, chemical bonding, molecular structure, gases, states of matter, and properties of solutions.	
Course Prerequisites	College-level reading (or take GUST 0342) and College Level writing (or take ENGL 0310/0349)	
Course Goals	This course is designed to enhance the following core Competencies of a student by using various instructional tools: Critical thinking, Communication Skills, Empirical and Quantitative Skills, Teamwork, Social and Personal Responsibility.	
Instructional Materials	Introductory Chemistry, Introductory Concepts & Critical Thinking by Charles H. Corwin, 8 th Ed., Prentice Hall.	
	Full Corwin text book OR Customized HCC paperback edition (Mastering Chemistry access code is not required, it's optional)	
Exams and	(Mastering Chemistry access code is not required, it's optional)	
Grading	♦ Grading Scheme: Three Regular Exams 20% each Quizzes/Homework 20% Final Exam 20%	
	90 and above A 80 – 89 B 70 – 79 C 60 – 69 D 59 and below F	
	♦ 60% of your course grade is based on three regular exams and these three exams will be administered online. Each exam will have 30-40 multiple choice questions and a 90 min duration. Details about the exam availability will posted on the course website. There are NO makeups for any missed exams, however one missed/lowest exam will be replaced by the final exam grade.	
	♦20% of your course grade is based on Quizzes and these quizzes will be administered online. Details about the quiz availability will posted on the course website. There are NO makeups for any missed quizzes, however one missed/lowest quiz will be dropped.	
	♦ Final exam is cumulative and 20% of your grade is from Final exam. Final exam will be administered online and details about the format and date/time will posted on the course website. All students enrolled in this course must complete the Final Exam. If you foresee any conflict with the final exam date, you must notify me at least two weeks prior to the final exam. No excuse will be accepted afterwards. Students will receive a score of zero for an unexplained or unexcused missed test, and the instructor reserves the right to disqualify your excuse.	
	♦ All Exams and quizzes will be available on 'Eagle Online Canvas' course website. Detailed information about the exam and quiz availability will be posted at the course website. Please follow	

the online schedule carefully to complete and submit all assignments in a timely manner. You are strongly suggested to not wait until close to the deadline to take the exams or quizzes, in case you encounter any technical difficulties you won't have sufficient time to get help. There are NO makeups for the exams or quizzes and you are allowed only one attempt for each assignment, so prepare and plan wisely to finish them on time. Failure to complete any additional regular exam or quiz for any reason other than a technical issue by the fault of the College will result in a missed grade. Should you have a technical issue with Eagle Online, please contact the EO Technical Support. Take a screen shot of the error message and notify me immediately.

♦ Students are not allowed to copy or print any exam or quiz. Students must do their own work, neither give or receive any unauthorized aid during the exams and quizzes, nor violate HCC-scholastic academic policy. Doing so will be considered cheating and will result in disciplinary action.

HCCS 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
F= 59 and below	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. The grade of "I" (Incomplete) is conditional. An incomplete grade can be awarded under extraordinary circumstances, only when at least 90% of the course has been completed. For example, at the end of the semester, if a student misses the final exam due to sudden illness, family emergency, or other extenuating circumstances, they can request for an incomplete grade *in writing* with proper documentation. An Incomplete grade cannot be given to a student to gain more time to study or retake the entire course to improve their grade. If you receive an "I" you must arrange with the instructor to complete the course work within six months. After the deadline, the "I" becomes an "F". All "I" designations must be changed to grades prior to graduation. The changed grade will appear on your record as "I"/Grade (example: "I/A"). For ADA accommodations it's the responsibility of the student to submit an approved accommodation letter to the instructor.

Weekly Chapter and Exam Schedule

Please Note: There are no face to face lectures. Course textbook requires self-reading/self-teaching. Sufficient resources are provided in the online classroom to facilitate your learning. Please follow the course schedule carefully. Detailed course schedule is provided at the course website at HCC 'Eagle Online' portal.

Week	Online Course Schedule
01/16-01/21	Course Syllabus Quiz 1: Syllabus Quiz Chapter PSS
01/22-01/28	Chapter PSS
01/29-02/04	Chapter 2: The Metric System Quiz 2: Chapters PSS, 2
02/05-02/11	Chapter 3: Matter and Energy Quiz 3: Chapter 3
02/12-02/18	Review Chapters PSS, 2, 3 Exam 1: Chapters PSS, 2, 3

02/19-01/25	Chapter 4: Models of the Atom
	Quiz 4: Chapter 4
	Chapter 5: The Periodic Table
02/20-03/04	Quiz 5: Chapter 5
03/05-03/11	Chapter 6: Language of Chemistry
03/03-03/11	Quiz 6: Chapter 6
03/12-03/16	Spring Break
02/17 02/27	Review Chapters 4, 5, 6
03/17-03/25	Exam 2: Chapters 4, 5, 6
03/26-04/01	Chapter 7: Chemical Reactions (03/30: Spring Holiday)
03/20-04/01	Quiz 7: Chapter 7
04/02-04/08	Chapter 8: The Mole Concept
04/02-04/08	Quiz 8: Chapter 8
04/09-04/15	Chapter 9: Chemical Equation Calculations
04/09-04/13	Quiz 9: Chapter 9
04/16-04/22	Exam 3: Chapters 7, 8, 9
04/23-04/29	Chapter 10: Gases
04/23-04/29	Quiz 10: Chapter 10
	Chapter 12: Chemical Bonding
04/30-05/06	Quiz 11: Chapter 12
	Review All Chapters
05/07-05/09	Final Exam (all chapters covered in the course)

Please note that this is a tentative schedule and any changes will be notified in advance.

Class Policies

Please Note: All students are required to follow all policies and procedures as described in the HCC student handbook. http://www.hccs.edu/district/students/student-handbook/

- ♦ Students are expected to attend online classroom regularly. To complete this course successfully:
 - Log in to the course daily to read any messages or announcements.
 - Keep up with the Course Schedule and the due dates.
 - Read the assigned materials (presentations, articles, websites, or chapters).
 - Watch lecture videos
 - Complete the assignments and discussions according to the instructions and submit them on time.
 - Contact the professor if you have any questions or problems.

This course cannot be completed successfully if a student fails to participate actively or never logs into online classroom.

How to Succeed in the Course:

Here's a word of caution for those of you who are taking your first online course. This course will require you to spend at least the same amount of time as a class that meets three hours a week in a classroom (nine hours of study/three lecture hour), and some students find that an online course takes more time.

This is **not** a self-paced course. **You must meet the established deadlines** for completing the assignments and tests. The flexibility of an online course allows you to choose the time of day or night to "enter" the virtual classroom.

♦ If a student needs to drop the course, it is the responsibility of the student to consult the HCC's academic calendar and withdraw from the course by appropriate deadline. (details for dropping a course are available in the HCCS student handbook).

Last day for Administrative/student withdrawals: Check HCCS Calendar

Students who stop attending class and do not withdraw themselves prior to the withdrawal deadline may either be dropped by their professor for excessive absences or be assigned the final grade of "FX" at the end of the semester. Students who stop attending classes will receive a grade of "FX", compared to an earned grade of "F" which is due to poor performance. A grade of "FX" is treated exactly the same as a grade of "F" in terms of GPA, probation, suspension, and academic progress.

◆ Students should work independently (unless instructed to work in-groups) on all the assignments and all exams delivered in the class. In case of scholastic dishonesty (any type of cheating, copying etc.), no credit will be given for the particular assignment involved and for repeated violations the student will receive an "F" in the course.

HCC-Scholastic Dishonesty Policy includes, but is not limited to, cheating on a test, plagiarism, and collusion. (from HCC Student Handbook)

http://www.hccs.edu/district/students/student-handbook/

- a. Cheating on a test includes:
 - o Copying from another student's test paper;
 - o Using materials during a test not authorized by the person giving the test;
 - o Collaborating with another student during a test without authority;
- o Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of an un-administered test;
 - o Bribing another person to obtain a test that is to be administered.
- b. Plagiarism means the appropriation of another's work and the unacknowledged incorporation of that work in one's own written work for credit.
- c. Collusion means the unauthorized collaboration with another person in preparing written work offered for credit.
- ◆TITLE IX OF THE EDUCATION AMENDMENTS OF 1972, 20 U.S.C. A§ 1681 ET. SEQ.

Title IX of the Education Amendments of 1972 requires that institutions have policies and procedures that protect students' rights with regard to sex/gender discrimination. Information regarding these rights are on the HCC website under Students-Anti-discrimination. Students who are pregnant and require accommodations should contact any of the ADA Counselors for assistance.

It is important that every student understands and conforms to respectful behavior while at HCC. Sexual misconduct is not condoned and will be addressed promptly. Know your rights and how to avoid these difficult situations.

Log in to: <u>www.edurisksolutions.org</u>. Sign in using your HCC student e-mail account, then go to the button at the top right that says **Login** and enter your student number.

- ♦ Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable us to provide any resources that HCC may possess.
- ♦ HCC-ADA Policy: (from HCC Online Student Handbook)

ABILITY SERVICES RESPONSIBILITIES OF STUDENT WITH ADA ACCOMMODATION:

Step 1. Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Ability Services office.

- Professors are authorized to provide only the accommodations requested by the Ability Support Services Office.
- Step 2. Students are strongly encouraged to contact the Ability Services office before the start of each semester to request accommodations early, at least one week prior to a quiz or exam to allow sufficient time for accommodations to be arranged. Once accommodations are approved, the Ability Services office will email a PDF copy of the student's accommodation letter to the student. It is the student's responsibility to forward the accommodation letter to all HCC Online instructor(s) on the first day of class.
- Step 3. Students should log into their course through Eagle Online at the start of class and email the accommodation letter to the instructor.
- Step 4. Students should contact their professor's HCC Online Instructional Support Specialist one week prior to all on-campus exams to make arrangements: 713.718.5275 Option 1.
- Step 5. Students should prepare for on-campus exams and be aware of College Campus Testing Center and HCC Online Testing Locations' hours and procedures: For Extended Time and/or Special Seating accommodation, students can test at one of the three HCC Online Testing Locations. For Distraction Limited Environment, Reader/Scribe, and/or Assistive Technology accommodation, students should schedule an appointment with a College Campus Testing Center and make arrangements with their professor to drop off their exam with the College Campus Testing Center.
- Step 6. It is recommended that students take a copy of their accommodation letter with them to on-campus testing locations to better facilitate the accommodation.
- ♦ All students are required to exhibit responsible behavior in the virtual classroom.
 - -Be respectful when communicating or interacting with the professor or classmates.
 - -Have classroom discussions which are relevant to the topic
 - -Work independently on all online assignments

VIRTUAL CLASSROOM CONDUCT (<u>from HCC Online Student Handbook</u>)

There are policies and procedures unique to the HCC Online student, but online students are also governed by HCC Policies and Procedures. The HCC Online Student Handbook is located on the HCC Online website at: hccs.edu/online

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Students who violate these policies and guidelines will be subject to disciplinary action that could include denial of access to course-related email, discussion groups, and chat rooms or even removal from the class.

Abuse of the policy can also result in disciplinary action or a grade of "F" in the course.

Tutoring Information

♦ HCC offers in-person as well as online tutoring:

To find a tutor at one of our campuses, please click the following link: www.hccs.edu/findatutor

To access our Online Tutors 24 hours a day, seven days a week, please click the following link: https://hccs.upswing.io/

You are also encouraged to ask the instructor for assistance as well and ask questions. Please be proactive and stay up to date with course materials and ask for help if you need it. We want to help you succeed!

Academic Discipline/C TE Program Learning Outcomes (from http://curric unet.com/H CCS)

- 1. To provide 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.
- 2. To provide the student a basic and practical understanding of chemistry (formulas, reactions, and calculations) and recognize its relevance in our daily lives.
- 3. To prepare our students to meet with success in higher level chemistry and other science courses when they transfer to four-year universities.
- 4. To prepare our students for professional programs requiring a mastery of General Chemistry and Organic Chemistry, such as Nursing, Medicine, Dentistry, and Pharmacy.

Course Student Learning Outcomes (SLO) (from http://curricunet.com/HCCS)

- 1. Give names and formulas of elements, ions, and ionic and molecular compounds.
- 2. Categorize, complete, and balance chemical reactions.
- 3. Do chemistry calculations involving reaction stoichiometry and energy changes.
- 4. Relate the properties of electromagnetic radiation (frequency, wavelength, and energy) to each other and to the energy changes atoms undergo which accompany electronic transitions.
- 5. Identify the parts of the periodic table and the trends in periodic properties of atoms.
- 6. Relate the properties of gases with the gas laws and extend the application of these relationships to reaction stoichiometry, gas mixtures, and effusion/diffusion of gases.
- 7. Depict chemical bonding with dot structures and valence bond theory and determine the molecular shapes (geometry) of molecules based on VSEPR and valence bond theory.

Learning Objectives (from http://curricunet.com/HCCS)

Give names and formulas of elements, ions, and ionic and molecular compounds.

- 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.

Categorize, complete, and balance chemical reactions.

- 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 equation for the reaction.

Do chemistry calculations involving reaction stoichiometry and energy changes.

- 3.1. Convert amounts in units of mass or volume to moles, and vice-versa.
- 3.2. Given the amount of one substance in a reaction, calculate the amount of the other substances that react and form.
- 3.3. Identify the limiting reactant and excess reactant in a reaction where more than one reactant amount is given.
- 3.4. Determine the amount of the excess reactant that remains as unreacted excess.
- 3.5. Calculate energy changes associated with chemical reactions using Hess's law, standard enthalpies of formation, or calorimetry.

Relate the properties of electromagnetic radiation (frequency, wavelength, and energy) to each other and to the energy changes atoms undergo which accompany electronic transitions.

- 4.1. Relate frequency, wavelength, and the speed of electromagnetic radiation.
- 4.2. From the frequency or wavelength of electromagnetic radiation, calculate its energy.
- 4.3. Relate the energy change in the hydrogen atom to its electronic transitions using the Bohr model.
- 4.4. Identify and relate the four quantum numbers that can be associated with electrons.
- 4.5. Write the electronic configurations of atoms and ions, including the box diagram method.

Identify the parts of the periodic table and the trends in periodic properties of atoms.

- 5.1. Identify the common regions of the periodic table. Identify by name selected groups of elements in the periodic table.
- 5.2. Using the periodic table, identify the trend (increasing or decreasing in value) of selected properties of atoms such as atomic radius, ionization energy, and electron affinity.
- 5.3. Identify reaction similarities of elements within the same group in the periodic table.

Relate the properties of gases with the gas laws and extend the application of these relationships to reaction stoichiometry, gas mixtures, and effusion/diffusion of gases.

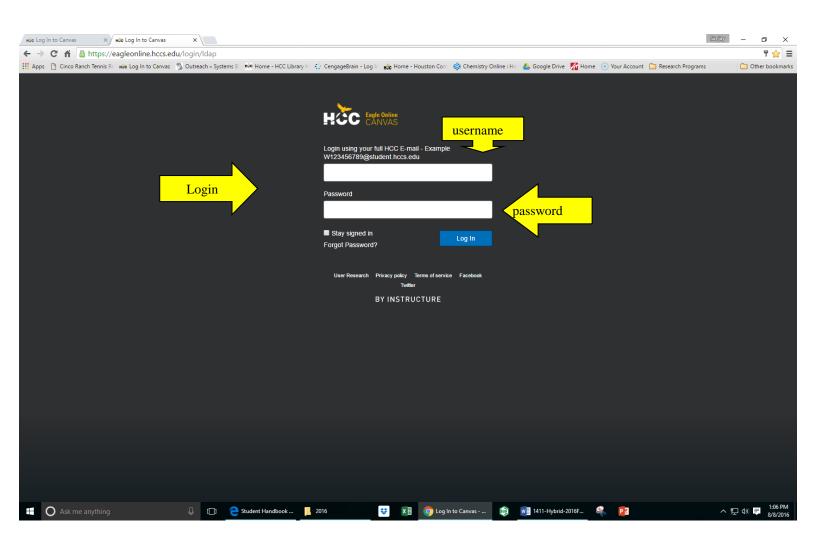
- 6.1. Relate and calculate the pressure, volume, temperature, or amount of gas using Boyle's law, Charles' law, Gay-Lussac's law, Avogadro's law, the combined gas law, and the ideal gas law.
- 6.2. Perform stoichiometry calculations which involve gaseous substances.
- 6.3. Use Dalton's law and Graham's law to perform calculations involving gaseous mixtures and effusion and diffusion of gases.
- 6.4. Explain the assumptions of the kinetic-molecular theory of gases.

Depict chemical bonding with dot structures and valence bond theory and determine the molecular shapes (geometry) of molecules based on VSEPR and valence bond theory.

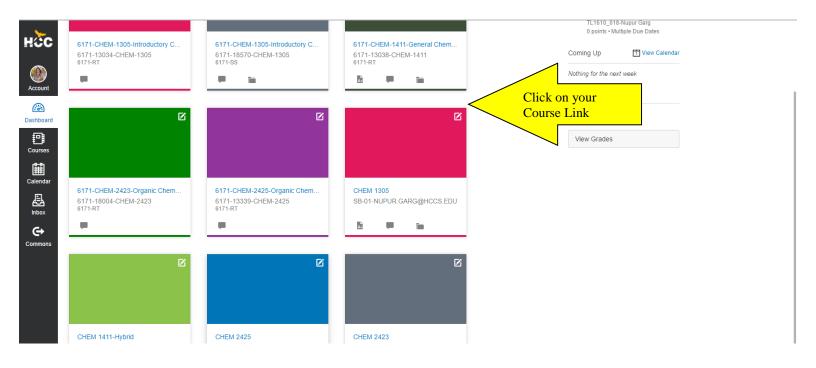
- 7.1. Draw the Lewis dot structure of molecules containing two or more atoms.
- 7.2. Based on the dot structure of the molecule, determine its electron domain geometry and molecular geometry based on VSEPR theory.
- 7.3. Given the dot structure, identify the hybridization of and geometry about each atom.
- 7.4. Explain the nature of sigma and pi bonding using hybrid atomic orbitals.

Steps to access online classroom:

-Go to Eagle Online (Canvas) and login:



-After you have logged in, go to the **Dashboard** and click on your course link to enter online classroom:



Sample of your online classroom:

Course information is arranged in a weekly format in modules. You can access these modules from the homepage by clicking on the weekly icons or directly from the modules link on the left-hand side task bar

