



## **Division of Natural Sciences and Geology**

### **Department of Chemistry**

<http://www.hccs.edu/programs/areas-of-study/science-technology-engineering--math/chemistry/>

## **CHEM 1105: General Chemistry I | Lab | #12460**

Spring 2019 | 16 Weeks (1.14.2019 - 5.12.2019)

NL Room 322

1-hour lab course | 48 hours per semester

### **Instructor Contact Information**

Instructor: C. Karen Fortune

Office: Rm 323

HCC Email: [karen.fortune@hccs.edu](mailto:karen.fortune@hccs.edu)

Office Phone: 713-718-2431

Student Hours: M 11 -1 pm NL Rm 308

T 10 -11 am WHI Rm 329

Please feel free to contact me concerning any problems that you are experiencing in this course. Your success in my class is very important to me. I will respond to emails within 24 hours Monday through Friday; I will reply to weekend messages on Monday mornings.

### **What's Exciting About This Course**

This course is the lab component to CHEM 1305. It is intended for students majoring in one of the physical sciences or life sciences, engineering, or for students who are pursuing pre-professional programs in medicine, dentistry, pharmacy, veterinary medicine, or other health programs. The course is also beneficial to students who are preparing themselves for higher level science courses in their respective curricula. In this course you will put to practice the concepts and theories studied in CHEM 1305. As such, you must have already taken CHEM 1305 or are also enrolled in CHEM 1305. In this course you will learn the proper technique for using chemical equipment and observe amazing chemical reactions. This course is web-enhanced, so please log on to Canvas to see schedules, prepare for labs and to submit reports.

### **My Personal Welcome**

Welcome to General Chemistry I Lab—I'm delighted that you have chosen this course. One of my passions is learning about the chemistry around us and how it can be used to impact life. I cannot wait to pass this on to you. I will present the information in the most exciting way I know, so that you can grasp the concepts and apply them now and hopefully throughout your life. As you read and wrestle with new ideas and facts that may challenge you, I am available to support you. The fastest way to reach me is by my HCC email. The best way to really discuss issues is in person and I'm available during posted student hours or via conference to tackle any questions you may have. My goal is for you to successfully complete this class and walk out of the course with a better understanding of the chemistry around us. So please visit or contact me whenever you have questions.

## Prerequisites and/or Co-Requisites

CHEM 1103 requires college-level reading and writing skills. In addition, you must be co-enrolled in CHEM 1305 or have already taken CHEM 1305. Research indicates that you are most likely to succeed if you have already taken and passed Reading 0342, Math 0312 and Writing 0310 / 0349 or Math 0312 with INRW 0420. The minimum requirements for enrollment in CHEM 1105 include placement in college-level reading (or take INRW 0420). If you have enrolled in this course having satisfied these prerequisites, you have a higher chance of success than students who have not done so. Please carefully read and consider the repeater policy in the [HCCS Student Handbook](#).

## Eagle Online Canvas Learning Management System

This section of CHEM 1105 will use [Eagle Online Canvas](#) to supplement in-class assignments, exams, and activities. The course schedule, prelabs and other information are accessible via Eagle Online Canvas. Please check this site regularly and pay close attention to deadlines. HCCS Open Lab locations may be used to access the Internet and Eagle Online Canvas. It is recommended that you USE [FIREFOX](#) OR [CHROME](#) AS YOUR BROWSER. Instructional Materials

## Textbook Information

The materials listed below are **required** for this course:

1. CHEM 1105 Online Lab Manual Minneapolis, MN: Bluedoor. ISBN 9781599848952
2. A Lab coat
3. Safety goggles or glasses
4. A Nonprogrammable scientific calculator

## Other Instructional Resources

### Tutoring

HCC provides free, confidential, and convenient academic support to HCC students in an online environment and on campus. Tutoring is provided by HCC personnel in order to ensure that it is contextual and appropriate. Visit the [HCC Tutoring Services](#) website for details.

### Libraries

The HCC Library System consists of 9 libraries and 6 Electronic Resource Centers (ERCs) that are inviting places to study and collaborate on projects. Librarians are available both at the libraries and online to show you how to locate and use the resources you need. The libraries maintain a large selection of electronic resources as well as collections of books, magazines, newspapers, and audiovisual materials. The portal to all libraries' resources and services is the HCCS library web page at <http://library.hccs.edu>.

## **Supplementary Instruction**

Supplemental Instruction is an academic enrichment and support program that uses peer-assisted study sessions to improve student retention and success in historically difficult courses. Peer Support is provided by students who have already succeeded in completion of the specified course, and who earned a grade of A or B. Find details at <http://www.hccs.edu/resources-for/current-students/supplemental-instruction/>.

### Course Overview for CHEM 1105

CHEM 1105 is the lab component to a core curriculum course intended as a preparatory course to CHEM 1411 for science majors who have no prior knowledge of chemistry. The course is an introduction to the fundamental principles of chemistry. The course will introduce the principles of atomic structure, chemical formulas, molecules, reactions and basic thermodynamic calculations.

## **Core Curriculum Objectives (CCOs) for all CHEM Core Courses**

CHEM 1105 satisfies the chemistry lab requirement in the HCCS core curriculum. The HCCS Chemistry Discipline Committee has specified that the course address the following core objectives:

1. Demonstrate basic mastery of chemistry by writing formula and equations for chemical reactions, performing chemical calculations and recognizing the application of chemistry in our daily lives
2. Demonstrate a mastery of introductory and intermediate level chemistry to promote success in higher level chemistry and other science programs in four year universities
3. Demonstrate a mastery of General and Organic Chemistry in preparation for allied and professional health programs and engineering
4. Conduct laboratory experiments by making measurements, performing chemical reactions and analyzing the results in a group or individual setting.

## **Program Student Learning Outcomes (PSLOs) for all CHEM Courses**

Can be found at <http://learning.hccs.edu/programs/chemistry>

## **Course Student Learning Outcomes (CSLOs) for CHEM 1105**

Learning Objectives for each CSLO can be found at [Learning Objectives for CHEM 1105](#). Specifically, they are:

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 for CHEM 1105**

- 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.

### Student Success in CHEM 1105

Expect to spend **at least three (3) hours per week** outside of class working on pre and post labs. Successful completion of this course requires a combination of reading the textbook, completing assignments and submitting in Eagle Online, and participating in class discussions. There is no short cut for success in this course; it requires reading, solving problems and studying the material using the course objectives as your guide.

## Instructor and Student Responsibilities

As your Instructor, it is my responsibility to:

- Provide the grading scale and detailed grading formula explaining how student grades are to be derived
- Facilitate an effective learning environment through class activities, discussions, and laboratories
- Provide a description of any special projects or assignments
- Inform students of policies such as attendance, withdrawal, tardiness and make up
- Provide the course outline and class calendar which will include a description of any special projects or assignments
- Arrange to meet with individual students before and after class as required

To be successful in this class, it is the student's responsibility to:

- Participate in class discussions and activities
- Read and comprehend the textbook
- Complete the required assignments
- Ask for help when there is a question or problem
- Keep copies of all paperwork, including this syllabus, handouts, and all assignments
- Attain a raw score of at least 70% in the course
- Be aware of and comply with academic honesty policies in the HCCS Student Handbook

### Exams and Assignments

#### Exams

No exams are given in this course. Assessments are based solely on submitted lab reports. Lab reports are graded as follows:

PreLab	20%
Report	60%
PostLab	20%



#### Policy Regarding Making Up Missed Labs

Makeups are allowed only in the event of extreme emergency accompanied by appropriate documentation. Only one makeup lab is allowed per semester. The date and time for the makeup lab is provided on the schedule below.

## Grading Formula

The HCC Grading Scale can be found on this site under HCC Grading System: <http://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-procedures/>

## Course Calendar

Week #	Lecture
<b>Week 1</b> 1/14	Syllabus / Introductions
<b>Week 2</b> 1/21	Lab 2: Lab Techniques <b>Note:</b> 1/21 MLK Day Campus closed
<b>Week 3</b> 1/28	Lab 2: Lab Techniques cont'd
<b>Week 4</b> 2/4	Lab 3: Classification of Matter
<b>Week 5</b> 2/11	Lab 4: Investigating Density
<b>Week 6</b> 2/18	Review <b>Note:</b> 2/18 President's Day – Campus closed
<b>Week 7</b> 2/25	Lab 5: % Water in a hydrate
<b>Week 8</b> 3/4	Lab 6: Limiting Reagent & Theoretical Yield
<b>3/11</b>	<b>*** Spring Break – No School ***</b>
<b>3/14</b>	<b><math>\pi</math> - Day</b>
<b>Week 9</b> 3/18	Lab 7: Emission Spectra
<b>Week 10</b> 3/25	Lab 8: Heat Transfer
<b>Week 11</b> 4/1	Lab 9: Titration of Vinegar
<b>Week 12</b> 4/8	Lab 10: Generation of H <sub>2</sub> gas
<b>Week 13</b> 4/15	Lab 11: Analysis of Carbohydrates
<b>Week 14</b> 4/22	Lab 12: Copper Cycle  <i>Happy Earth Day</i> 

<b>Week 15</b> 4/29	<b>Make up Lab:</b> Dot Structures and Geometries of Molecules
<b>Week 16</b> 5/6	<b>Final Exam Week – No Labs</b>

## Syllabus Modifications

The instructor reserves the right to modify the syllabus at any time during the semester and will promptly notify students in writing, typically by e-mail, of any such changes.

## Instructor's Practices and Procedures

### Missed Assignments

Makeups are allowed only in the event of extreme emergency accompanied by appropriate documentation. If possible, inform me of any conflicts with your schedule ahead of due dates. In the event of unavoidable conflicts, a makeup exam will be scheduled prior to the scheduled exam date.

### Academic Integrity

You are expected to be familiar with the University's Policy on Academic Honesty, found in the catalog and in the [Student Handbook](#) (beginning on Pg. 61). What that means is: If you are charged with an offense, pleading ignorance of the rules will not help you. Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by College System officials against a student accused of scholastic dishonesty. "Scholastic dishonesty" includes, but is not limited to, cheating on a test, plagiarism, and collusion. There is a **Zero tolerance** for any type of academic dishonesty. Students found cheating will receive a zero on the assignment (1st offense) and F in the course (2nd offense). Please see the following link for further information: [Student Handbook](#). Here is another link to the HCC information about academic integrity (Scholastic Dishonesty and Violation of Academic Scholastic Dishonesty and Grievance):

<http://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-procedures/>

### Attendance Procedures

This is a face-to-face lab class. You are expected to log into the course at Canvas Eagle online each week and complete the prelabs specified. Pay particular attention to the schedule and due dates. Note that prelabs are due prior to your lab and post labs and reports are due the day following each lab. If your lab is on Tuesdays, that means that the complete lab report (pre, post and measurements) are due on Wednesday.

## Student Conduct

As your instructor and as a student in this class, it is our shared responsibility to develop and maintain a positive learning environment for everyone. I take this responsibility very seriously and will inform members of the class if their behavior makes it difficult for him/her to carry out this task. As a fellow learner, you are asked to respect the learning needs of your classmates and assist me to achieve this critical goal. Please refer to the HCC policy on Netiquette in the [Student Handbook](#) located under the Student Code of Conduct.

### Electronic Devices

Use of recording devices, including camera phones and tape recorders, is prohibited in classrooms, laboratories, faculty offices, and other locations where instruction, tutoring, or testing occurs. Students with disabilities who need to use a recording device as a reasonable accommodation should contact the Office for Students with Disabilities for information regarding reasonable accommodations. Please see refer to the Student Code of Conduct in the [Student handbook](#).

### HCC Policies

Here's the link to the HCC Student Handbook <http://www.hccs.edu/resources-for/current-students/student-handbook/> In it you will find information about the following:

Academic Information	Incomplete Grades
Academic Support	International Student Services
Attendance, Repeating Courses, and Withdrawal	Health Awareness
Career Planning and Job Search	Libraries/Bookstore
Childcare	Police Services & Campus Safety
disAbility Support Services	Student Life at HCC
Electronic Devices	Student Rights and Responsibilities
Equal Educational Opportunity	Student Services
Financial Aid TV (FATV)	Testing
General Student Complaints	Transfer Planning
Grade of FX	Veteran Services

### EGLS<sup>3</sup>

The EGLS<sup>3</sup> ([Evaluation for Greater Learning Student Survey System](#)) will be available for most courses near the end of the term until finals start. This brief survey will give invaluable information to your faculty about their teaching. Results are anonymous and will be available to faculty and division chairs after the end of the term. EGLS<sup>3</sup> surveys are only available for the Fall and Spring semesters. -EGLS3 surveys are not offered during the Summer semester due to logistical constraints.

<http://www.hccs.edu/resources-for/current-students/egls3-evaluate-your-professors/>

### Campus Carry

Open carry of handguns (or other firearms) is prohibited in designated areas on a college campus. Licensed handgun carriers are expected to be familiar with the policy of the



institution and the areas in which they are not allowed to carry a handgun (or other firearms) on campus. Please refer to the following link for the HCC information about Campus Carry: <http://www.hccs.edu/departments/police/campus-carry/>

### **HCC Email Policy**

When communicating via email, HCC requires students to communicate only through the HCC email system to protect your privacy. If you have not activated your HCC student email account, you can go [to HCC Eagle ID and activate it now](#). You may also use Canvas Inbox to communicate.

### **Housing and Food Assistance for Students**

Any student who faces challenges securing their foods or housing and believes this may affect their performance in the course is urged to contact the Dean of Students at their college for support. Furthermore, please notify the professor if you are comfortable in doing so.

This will enable HCC to provide any resources that HCC may possess.

#### [Office of Institutional Equity](#)

Use the link below to access the HCC Office of Institutional Equity, Inclusion, and Engagement (<http://www.hccs.edu/departments/institutional-equity/>)

### **disAbility Services**

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to <http://www.hccs.edu/support-services/disability-services/>

### **Title IX**

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual's fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross  
Director EEO/Compliance  
Office of Institutional Equity & Diversity  
3100 Main  
(713) 718-8271  
Houston, TX 77266-7517 or [Institutional.Equity@hccs.edu](mailto:Institutional.Equity@hccs.edu)

<http://www.hccs.edu/departments/institutionale-quity/title-ix-know-your-rights/>

**Chemistry Department Chair**

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