HOUSTON COMMUNITY COLLEGE

Division of Natural Sciences
Department of Chemistry
http://learning.hccs.edu/programs/chemistry

CHEM 1111: General Chemistry I | Lab | # 13342

Summer 2019 | (6/3/2019-7/7/2019)
In-Person | Stafford-Scarcella Center | Rm S109 |
Tue, Thu, Fri 8:00-11:00 am
1-hours lab course | 48 hours per semester

Instructor Contact Information

Instructor: Gomathi Ramanoudjame
HCC Email: gomathi.ramanoudjame@hccs.edu

Please feel free to contact me concerning any problems that you are experiencing in this course. Your performance in my class is very important to me. I am available to hear your concerns and just to discuss course topics. 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

Chemistry is the central science that includes all other sciences. It connects with the society directly. We all want to know what we eat, drink, wear, and breathe etc. through chemistry. It is our responsibility to find all the positive and negative effects of chemicals when we use them. This is the main reason we want to learn chemistry. Designed for students in science or pre-professional programs. CHEM 1111 is a Core Curriculum Course.

My Personal Welcome

Welcome to General Chemistry I Lab - I'm delighted that you have chosen this course. One of my passions is to know as much as I can about General Chemistry, and I can hardly wait to pass that on. 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 office hours to tackle any questions you might have. My goal is for you to walk out of the course with a better understanding of chemistry. So please visit me or contact me whenever you have a question. In this course you will learn

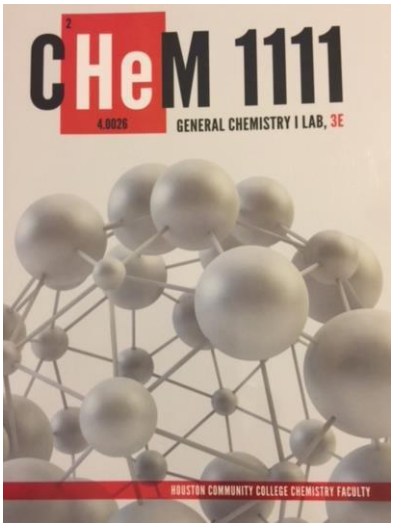
about General principles, problems, fundamental laws, theories, calculations and hands on experience on several experiments. Course content provides a foundation for work in advanced chemistry and related sciences.

Prerequisites and/or Co-Requisites

CHEM 1111 requires college-level reading and writing skills. Prerequisite for CHEM 1111 is that you must have passed CHEM 1311 or co-enroll in CHEM 1311 as co-requisite. Please carefully read and consider the repeater policy in the HCCS Student Handbook.

Eagle Online Canvas Learning Management System

This section of CHEM 1111 Lab course will use Eagle Online Canvas to supplement in-class assignments, and activities. PowerPoints on material related to the experiments, handouts for some experiments are also available on Eagle Online Canvas. You can also see your grades on Eagle Online. HCCS Open Lab may be used at any location to access the Internet and Eagle Online Canvas. It is recommended that you **USE FIREFOX OR CHROME AS YOUR BROWSER**.



Instructional Materials

1. LAB MANUAL: HCC Chemistry Faculty
Lab Manual for CHEM 1111 General Chemistry I Lab, 3E
Bluedoor, LLC
ISBN-13:978-1-68135-811-6

2. A Nonprogrammable scientific calculator

3. A Lab coat

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.

Course Overview for CHEM 1111

This course 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.

The laboratory includes appropriate experiments related to units of measurements, physical and chemical properties of substances, chemical stoichiometry, chemical reactions, chemical calculations, chemical bonding, molecular structure, and gas laws.

Core Curriculum Objectives (CCOs) for all CHEM Core Courses

CHEM 1111 satisfies the chemistry 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

Learning Objectives for General Chemistry I Lab CHEM 1111

Learning Objectives for each CSLO can be found at Learning Objectives for CHEM 1111. Specifically, they are:

SLO1. Learn Proper Safety Practice and Measures in the chemistry laboratory.

1.1 Observe and learn proper reagent and glass disposal.

1.2 Be aware of common safety practices and locations of safety equipment throughout the lab.

SLO2. Practice Basic Lab Techniques of Measurement and Conversion

2.1 Identify proper equipment used for various measurements of temperature, mass, length, and volume.

2.2 Convert and assess temperatures in three scales of measurement: Celsius, Fahrenheit, and Kelvin.

2.3 Convert measurements of mass, volume, length between established units of official International (SI), Metric, and American systems.

2.4 Calculate density based on measurements of mass and volume.

SLO3: Perform separation of mixtures using proper technique

3.1 Determine the best means and technique of separating components of a mixture based on physical properties.

3.2 Calculate percentage composition and recovery for components of a mixture or a hydrate.

SLO4: Identify physical properties

4.1 Observe physical properties of solubility, density, boiling and melting point of known substances and utilize them to identify unknowns.

SLO5: Observe various chemical reactions and write supporting chemical equations

5.1 Perform single and double displacement precipitation, oxidation-reduction, and neutralization reactions and write balanced corresponding chemical equations.

5.2 Predict reactivity of metals based on the activity series.

SLO6: Calculate empirical and molecular formulas and reaction yield

6.1 Determine ratios using mass and mole values to determine empirical and molecular formula

6.2 Identify the limiting reagent in a reaction and calculate reaction yield

SLO 7: Apply thermochemical principles to evaluate energy relationships based on specific heat, calorimetry, and temperature changes.

7.1 Calculate heat based on mass, specific heat or heat capacity, and temperature change.

7.2 Understand the transfer of heat as it applies to a system and its surroundings, including calorimeters, by calculating one variable in an equation when presented with others including heat, mass, specific heat or heat capacity, and initial and final temperatures.

SLO 8. 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.

8.1 Utilize mass, volume, pressure and amount of a volatile gas to determine its molecular weight using the Ideal Gas Law.

SLO 9. 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.

9.1 Draw the Lewis dot structure of molecules containing two or more atoms.

9.2 Based on the dot structure of the molecule, determine its electron domain geometry and molecular geometry based on VSEPR theory.

9.3 Given the dot structure, identify the hybridization of and geometry about each atom.
9.4 Explain the nature of sigma and pi bonding using hybrid atomic orbitals.

Core Curriculum Competencies

Reading, Writing, Speaking/Listening, Critical Thinking, Computer/Information Literacy

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 lectures
- 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:

- Attend all the labs and participate in lab activities
- Read and comprehend the experimental procedures • Complete the required assignments and assessment:
- 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% on the final assessment
- Be aware of and comply with academic honesty policies in the HCCS Student Handbook

Student Conduct in the Classroom:

Responsible adult behavior is expected in the classroom. All students must respect the teaching and learning environment in the classroom. Students are required to perform all educational activities without any disruptions, arrive on time, participate in class discussions, be respectful to everyone, and turn off cell phones, cameras, laptops, and all electronic/recording devices. Please refer to HCC-ADA policies for reasonable accommodations.
Any student who does not follow the classroom rules and regulations and disrupts the teaching/learning environment may be asked to leave the classroom.
Abuse of the policy and/or repeated violations can also result in disciplinary action or a grade of "F" in the course.

Academic Integrity

You are expected to be familiar with the College's Policy on Academic Dishonesty, found in the catalog. 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 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. Please see the following link for further information: Student Handbook

Laboratory Policy

Lab safety will be reviewed before the first lab. Each student will then sign a statement affirming his or her commitment to following safe procedures in the laboratory and turn the form in to the instructor. Be especially aware of the need for adequate eye protection and proper dress in the laboratory.

- ***Safety goggles must always be worn during the laboratory period***
- ***No food or drinks are allowed in the lab***
- ***Open-toed shoes and shorts should not be worn in the lab***
- ***Lab coat is required in the lab***
- ***Admission to the lab may be denied for violation of any of these rules***

Normally, experiments will be performed in groups of two students. Students should arrive at the lab on time with their lab book and lab coat. After you have completed the experiment, clean and organize your working station and show your results to examine and initial your lab report before you leave. Complete laboratory reports are due on the next class day. Each report must be completed individually. Late lab reports will not be accepted. **There will be no make-up lab.** The lab reports are graded based on completeness, neatness, and the correctness of the calculations tied to the experimental result. The pre- and post-lab questions are also graded. Each lab report is graded on a 10-point scale. You should come prepared to the lab. Read the experiment and do the pre-lab questions before you come to the lab. You must turn in your pre-lab questions at the beginning of the lab.

In-Class Activities

All students will be required to be present to participate in class activities and complete the 12 laboratory experiments.

Grading Formula

The overall score is based on the completion of 12 laboratory experiments:

Grade	Percentage
A	90-100
B	80-89
C	70-79
D	60-69
F	<60

HCC Grading Scale can be found on this site under Academic Information:

http://www.hccs.edu/resources-for/current-students/student-handbook/

Course Calendar CHEM 1111

Week	Dates	Lab Experiments/Assessment
1	6/3	Introduction-Work Instructions-Review Lab Safety (Safety Video) Safety Quiz, Experiment 1- Safety
		EXPERIMENT 2 – Measuring Techniques and Calculations
		EXPERIMENT 3 – Separation of the Components of a Mixture
2	6/10	EXPERIMENT 4 – Formula of a Hydrate and Percentage of Water of Hydration
		EXPERIMENT 5 – Iron-Copper Molar Ratio, Limiting Reagent
		Quiz 1
3	6/17	EXPERIMENT 11 – Nomenclature Lab (Hand out)
		EXPERIMENT 6 – Double Displacement Rxns: Reactions of Aqueous Solutions
		Quiz 2
4	6/24	EXPERIMENT 7 – Single Displacement Rxns: Reactions of Metals, Activity Series
		EXPERIMENT 8 – Ideal Gas Law: Determination of Molecular Mass of a Volatile Compound
		Quiz 3
5	7/1	EXPERIMENT 12 – Titration Lab (Hand out)
		EXPERIMENT 9 – Heat of Acid-Base Neutralization
		EXPERIMENT 10 – The VSEPR Theory of Molecular Geometry

		Final Exam

Syllabus Modifications

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

Chemistry Program Information: Please visit the chemistry program page for more about our degree offering, requirements, employment prospects and more. https://www.hccs.edu/programs/areas-ofstudy/science-technology-engineering--math/chemistry/

HCC Policies Here's the link to the HCC Student Handbook http://www.hccs.edu/resources-for/currentstudents/student-handbook/

Other Course Information

Scoring Rubrics, Sample Assignments, etc.

Look in Eagle Online Canvas for the scoring rubrics for assignment, samples of class assignments, and other information to assist you in the course. https://hccs.instructure.com/

HCC Online Information and Policies http://www.hccs.edu/online/

EGLS^3

The EGLS^3 (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^3 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 Link: Here's the link to the HCC information about Campus Carry:
http://www.hccs.edu/departments/police/campus-carry/

HCC Email Policy

HCC prefers students to communicate only through the HCCS email system to protect your privacy. If you have not activated your HCCS student email account, you can go to HCC Eagle ID and activate it now. You may also use Canvas Inbox to communicate.

HCC Policy Statements

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

Academic Honesty
Academic Information
Academic Support
Attendance, Repeating Courses, and Withdrawal
Campus Carry

Career Planning and Job Search
Childcare
Course Etiquette
Disability Support Services
Electronic Devices
Equal Educational Opportunity
Financial Aid TV (FATV)
General Student Complaints
Grade of FX and International Students
Health Awareness
Incomplete Grades
International Student Services
Libraries/Bookstore
Police Services & Campus Safety
Student Life at HCC
Student Rights and Responsibilities
Student Services
Testing
Transfer Planning
Veteran Services

Basic Needs

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. Additional information may be found at:http://www.hccs.edu/applying-and-paying/financialaid/financial-coach/

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

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