

**Division of Natural Sciences and Horticulture**

**Department of Chemistry**

<http://learning.hccs.edu/programs/chemistry>

CHEM 1412: General Chemistry II | Lecture/Lab | #15441

**Course Modality: HL**

**Summer 2021 | 5 Weeks (6-7-2021 to 7-11-2021)**

### 4 Credit Hour Course

 ***Lecture online and Lab in Person***

**Class Meeting Times: Lecture Online**

**Lab: Tuesdays and Thursdays 8:00 AM – 10:52 AM**

**Location: Stafford Campus Scarcella Center Room S109**

***This course will be conducted ONLINE for the lecture portion of the course and in person for the lab portion of the course.***

***The first day of class will be on Tuesday June 8 from 8:00 AM to 10:52 AM. Attendance is mandatory.***

***Further instructions available in the Canvas Course Shell.***

### Instructor Contact Information

Instructor: Mahzad Iranpour

Office Hours :T, TH from 11:00 am to 12:00 pm room S107

HCC Email: mahzad.iranpour@hccs.edu

Preferred method of Contact: email (USING CANVAS INBOX)

***I will respond to emails within 24 hours Monday through Friday; I will reply to weekend messages on Monday mornings.***

**Chemistry Department Chairman: Dr. Emmanuel Ewane**

**Contact Information**

Office Phone: 713-718-5414

HCC Email: Emmanuel.ewane@hccs.edu

### What’s Exciting About This Course

You will learn so much about your life and the lives of those around you. Do you know how one learns? How memory works? Why we have different personalities? How health is related to stress? The course will look at how and why we develop from children that seem to have so much in common to adults that do and do not. What happens? Are there best practices in child rearing and in life-long development or is it just luck? Where are you in your development? And what about schizophrenia and other psychological disorders? Are they avoidable? What causes them? The information in this course will enable you to understand the people in your life as well as develop new habits to increase your personal success.

### My Personal Welcome

Welcome to Introduction to Chemistry—I’m delighted that you have chosen this course. One of my passions is mentoring my students 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 yourself and of human behavior. So please visit me or contact me whenever you have a question.

### Prerequisites and/or Co-Requisites

CHEM 1311 or1411; must be placed into college-level reading (or take GUST 0342 as a corequisite) and be placed into MATH 0312 (or higher) and be placed into college-level writing (or take ENGL 0310/0349 as a co-requisite). The minimum requirements for enrollment in CHEM 1412 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.](http://www.hccs.edu/resources-for/current-students/student-handbook/)

### Eagle Online Canvas Learning Management System

This section of CHEM 1412 will use [Eagle Online Canvas](https://eagleonline.hccs.edu/login/ldap) to supplement in-class assignments, exams, and activities. Your eagle online Canvas course is paired with your Pearson textbook for all the quizzes that you need to take during the semester. You will also have access to all the tutorial and homework/practices from the textbook. HCCS Open Lab locations may be used to access the Internet and Eagle Online Canvas. It is recommended that you **USE** [**FIREFOX**](https://www.mozilla.org/en-US/firefox/new/) **OR** [**CHROME**](https://www.google.com/chrome/browser/desktop/index.html) **AS YOUR BROWSER**.

### HCC Online Information and Policies

Here is the link to information about HCC Online classes including the required Online Orientation for all fully online classes: <http://www.hccs.edu/online/>

### Scoring Rubrics, Sample Assignments, etc.

Look in Canvas for the scoring rubrics for assignments, samples of class assignments, and other information to assist you in the course. <https://eagleonline.hccs.edu/login/ldap>

# Instructional Materials

### Textbook Information

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| --- | --- |
|  | The materials listed below are ***Required*** for this course. 1. Brown, LeMay Jr, Bersten, Murphy, Woodward, Stoltzfus. *Chemistry : The Central Science*, Pearson, MN.

ISBN: **9781323849996**1. LAB MANUAL: *Lab Manual for CHEM 1412 General Chemistry II*

ISBN - CHEM 1412: **9780136688273 *(Required)***The texts are included in a package that contains the text as well as an access code and are found at the [HCC Bookstore](http://hccs.bncollege.com). You may either use a hard copy of the book, or rent the e-book from Pearson. Order your book here: [HCC Bookstore](http://hccs.bncollege.com)1. Access code for MyLab and Mastering Chemistry (optional)
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### Temporary Free Access to E-Book

Follow these steps to get temporary free access to a digital version of the text for fourteen days:

* + Logon to [Canvas](http://www.mypsychlab.com/)
	+ Click “MyLab and Mastering”
	+ Click “Open MyLab & Mastering”
	+ Accept License Agreement
	+ Enter Pearson log-in credentials or create a new account
	+ Click “Get temporary access without payment for 14 days” near the bottom of the page
	+ Follow on-screen instructions from here.

# Computer Requirements:

You will need to have access to a computer with internet access and a contemporary web browser and needed plug-ins. You are responsible for maintaining your own hardware and software. **Chrome book will not work with Respondus LockDown Browser needed for test taking.** If you are incapable of maintaining your own system, please plan accordingly (perhaps borrowing a computer for test taking).

# LockDown Browser + Webcam Requirement:

This course requires the use of LockDown Browser and a webcam for online exams. The webcam can be the type that is built into your computer or one that plugs in with a USB cable.

Watch this brief video to get a basic understanding of LockDown browser and the webcam feature. <https://www.respondus.com/products/lockdown-browser/student-movie.shtml>

## Download Instructions

Download and install LockDown Browser from this link: <https://download.respondus.com/lockdown/download.php?id=355612798>

## Once Installed

* + Start LockDown Browser
	+ Log into to Canvas
	+ Navigate to the quiz

Note: You won't be able to access a quiz that requires LockDown Browser with a standard web browser. If this is tried, an error message will indicate that the test requires the use of LockDown Browser. Simply start LockDown Browser and navigate back to the exam to continue.

## Guidelines

When taking an online quiz, follow these guidelines:

* + Ensure you're in a location where you won't be interrupted-Do not talk during the exam
	+ Turn off all other devices (e.g. tablets, phones, second computers) and place them outside of your reach
	+ Before starting the test, know how much time is available for it, and also that you've allotted sufficient time to complete it
	+ Clear your desk or workspace of all external materials not permitted – **You are only allowed a periodic table, formula sheet, blank scratch paper, a writing utensil, and a calculator.**
	+ Remain at your computer for the duration of the test
	+ If the computer, Wi-Fi, or location is different than what was used previously with the "Webcam Check" and "System & Network Check" in LockDown Browser, run the checks again prior to the exam
	+ To produce a good webcam video, do the following:
		- Avoid wearing baseball caps or hats with brims
		- Ensure your computer or device is on a firm surface (a desk or table). Do NOT have the computer on your lap, a bed, or other surface where the device (or you) are likely to move
		- If using a built-in webcam, avoid readjusting the tilt of the screen after the webcam setup is complete
		- Take the exam in a well-lit room, but avoid backlighting (such as sitting with your back to a window)
	+ Remember that LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted

## Getting Help

Several resources are available if you encounter problems with LockDown Browser:

* + The Windows and Mac versions of LockDown Browser have a "Help Center" button located on the toolbar. Use the "System

& Network Check" to troubleshoot issues. If an exam requires you to use a webcam, also run the "Webcam Check" from this area

* + Respondus has a Knowledge Base available from support.respondus.com. Select the "Knowledge Base" link and then select "Respondus LockDown Browser" as the product. If your problem is with a webcam, select "Respondus Monitor" as your product
	+ If you're still unable to resolve a technical issue with LockDown Browser, go to support.respondus.com and select "Submit a Ticket". Provide detailed information about your problem and what steps you have taken to resolve the problem.

**CANVAS REQUIREMENTS (Online Teaching Platform)**

Here are the Canvas requirements and aids from HCC Online technical support website <https://www.hccs.edu/online/technical-support/>:

HCC uses the Canvas learning management system (LMS), which we call Eagle Online. To access Eagle Online, you will need a PC (Windows 7 sp1 or better), or Mac (OS X 10.8 or better) with a broadband connection to the Internet.

**Canvas Browser Requirements:**

* Canvas recommends the use of the latest version of any web browser.  It’s important to update your web browser regularly.
* Pop-ups must be enabled. Disable your pop-up blockers.
* Javascript must be enabled
* Cookies must be enabled
* Install the most commonly used internet plugins and keep them updated

**Eagle Online (Canvas) Video Introduction:**

[Part One of the Canvas Training for Students](https://edutube.hccs.edu/playlist/dedicated/1_tf7e0fn9/1_wlh7ooiv) follows the online training version found in Canvas. Topics covered include overview, settings, announcements, and notifications.

[Part Two of the Canvas Training for Students](https://edutube.hccs.edu/playlist/dedicated/1_tf7e0fn9/1_727jne9a) follows the online training version found in Canvas. Topics covered include modules, discussions, assignments, and grades.

**Eagle Online (Canvas) Student Guide:**

For information about navigating your online course and using Canvas’ tools, see the [Canvas Student Guide](https://community.canvaslms.com/docs/DOC-10701-canvas-student-guide-table-of-contents)

**Canvas Guides FAQs:**

* [How Do I Compose a Message?](https://community.canvaslms.com/docs/DOC-2670)
* [How Do I Find My Unread Messages?](https://community.canvaslms.com/docs/DOC-2667)
* [How Do I Set My Notification Preferences?](https://community.canvaslms.com/docs/DOC-10593-how-do-i-add-contact-methods-to-receive-canvas-notifications-as-a-student)
* [How Do I Add a Text Contact Method in Canvas?](https://community.canvaslms.com/docs/DOC-2896)
* [How Do I Submit an Online Assignment?](https://community.canvaslms.com/docs/DOC-1290)
* [How Do I Upload a File to My Assignment Submission?](https://community.canvaslms.com/docs/DOC-3128)
* [How Do I Reply to a Discussion Topic?](https://community.canvaslms.com/docs/DOC-1294)
* [How Do I Take a Quiz or Exam?](https://community.canvaslms.com/docs/DOC-3171)

### Other Instructional Resources

## MyLab & Mastering

You will have access to MyLab & Mastering from your canvas course. You will have access to the eBook and practices if you decide to purchase the access code. Instructions on how to get the code and how to use Mylab and Mastering are posted on Canvas as well.

 **Option A:** Students that purchase a new textbook (hard copy) from the bookstore may have an access code bundled with their textbook. Check with the bookstore to find out what they offer for your course.

**Option B:** An access code may be purchased on-line from Pearson by logging on to Canvas and clicking on My Lab /Mastering. This will help you purchase the access code from Pearson along with an ebook.

**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](http://www.hccs.edu/resources-for/current-students/tutoring/) 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](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 1412

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.

Science and engineering majors study atomic structure, chemical reactions, thermodynamics, electronic configuration, chemical bonding, molecular structure, gases, states of matter, and properties of solutions. The laboratory includes appropriate experiments.

***Note: Understanding the concepts requires a lot of practice. Some lab time may be spent on problem solving and teaching the concepts by the instructor. Class discussions and questions are always welcome.***

***You need to keep practicing everyday.***

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

CHEM 1412 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>

### Course Student Learning Outcomes (CSLOs) for CHEM 1412

Upon completion of CHEM 1412, the student will be able to:

**SLO 1. Distinguish between the different ways of measuring concentrations of solutions, and relate concentration to the colligative properties of solutions.**

1.1 Determine if two compounds will mix to form a solution or not based on their structures.

1.2 Given the mass of a solute and the volume of a solution or the mass of the solvent, calculate the relevant concentration (molarity, molality, percent concentration, mole fraction, or ppm). Convert a given concentration from one concentration unit to another.

1.3 Relate the concentration of solutions to their colligative properties.

1.4 Determine the molecular weight of an unknown solute, given the value of a colligative property.

**SLO 2. Determine and analyze the rates of chemical reactions.**

2.1 Determine the average rate and instantaneous rate of a reaction from concentration-time data.

2.2 Determine the order of a reaction with respect to each reactant and write the rate law for the reaction. Determine the value of the rate constant, k.

2.3 Write the integrated rate law of first and second order reactions and use the rate law to relate concentration of the reactant with reaction time, rate constant, and half-life.

2.4 Given different initial reactant concentrations and the respective initial rate of the reaction, determine the value of the exponents in the rate law and the value of the rate constant.

2.5 Relate the effect of temperature and activation energy to reaction rate using the Arrhenius equation.

2.6 Relate the rate law to the mechanism of the reaction and to the molecularity of the elementary reactions comprising the mechanism.

**SLO 3. Write equilibrium constant expressions for chemical reactions and calculate the value of the equilibrium constant and the concentration of reactants and products at equilibrium.**

3.1 Write the equilibrium constant expression for homogeneous and heterogeneous reactions.

3.2 Given one or more concentrations at equilibrium, calculate the value of the equilibrium constant for the reaction and/or the equilibrium concentrations of the other substances in the reaction.

3.3 Given one or more initial concentrations, calculate the concentrations of the reactants and products at equilibrium and/or the value of the equilibrium constant, using the "ICE" table method.

3.4 From the value of the reaction quotient, Q, determine whether a reaction is at equilibrium, and if not, which direction the reaction will initially proceed in order to reach equilibrium.

3.5 Apply LeChâtelier’s Principle to determine the effects of changes in concentrations, temperature on compositions of equilibrium mixtures.

**SLO 4. Demonstrate proficiency in acid-base and solubility product calculations.**

4.1 Know the three different definitions and principles of acids and bases (Arrhenius, Bronsted-Lowry, and Lewis).

4.2 Calculate [H+ ], [OH– ], pH, and pOH.

4.3 Use dissociation constants for weak monoprotic acids and bases to determine the pH of their aqueous solutions.

4.4 Differentiate between acidic, basic and neutral salts and determine the pH of aqueous solutions of salts.

4.5 Understand the common ion effect and its relevance to buffers; determine the pH of buffered solutions using the Henderson-Hasselbalch equation.

4.6 Calculate the pH at various stages of titration curves for (i) strong acids & strong bases, (ii) weak acids & strong bases, (iii) strong acids & weak bases.

4.7 Write solubility product expressions and interconvert between the solubility constant, Ksp and concentrations of dissolved ions in saturated solutions of slightly soluble salts. 4.8 Given Ksp, determine whether precipitation will occur when two aqueous solutions of salts are mixed that react to form a sparingly soluble salt.

**SLO 5. Express the three laws of thermodynamics and interrelate the enthalpy, free energy and equilibrium constant for the reaction.**

5.1 Express the concept of entropy and predict the sign of the entropy change for a given reaction.

5.2 Calculate the entropy change of a reaction using Hess's law or standard entropies.

5.3 From the Gibbs equation, relate and calculate the values of the entropy, enthalpy, free energy, and temperature of a reaction.

5.4 Relate and calculate the value of the equilibrium constant to the entropy, enthalpy, free energy and temperature of the reaction.

**SLO 6. Based on the principles of oxidation and reduction, balance oxidation-reduction reactions, calculate cell potentials of voltaic cells based on oxidation-reduction reactions, and make quantitative calculations based on electrolysis.**

6.1 Determine the oxidation state of elements in compounds.

6.2 Based on changes in oxidation states, determine which substance in a reaction is oxidized and which is reduced.

6.3 Balance oxidation-reduction reactions in acidic and basic solution using the method of half-reactions.

6.4 Sketch voltaic and electrolytic cells, identifying the anode, cathode, anode compartment, cathode compartment, salt bridge, and direction of electron flow.

6.5 Calculate standard cell potentials from standard reduction potentials.

6.6 Rank reducing agents and oxidizing agents based on standard reduction potentials.

6.7 Determine non-standard cell potentials from standard cell potentials using the Nernst equation.

6.8 Interconvert between time, current, and masses of reactants and products in electrolysis processes.

**SLO 7. Identify modes of radioactive decay, balance nuclear reactions, calculate energy changes associated with nuclear reactions, and relate quantities of radioactive elements with time based on the kinetics of nuclear processes.**

7.1 Identify common modes of radioactive decay.

7.2 Write balanced nuclear reactions.

7.3 Differentiate between the different modes of decay and predict the likely mode of decay.

7.4 Interconvert between rates of nuclear decay, half-lives of radioactive nuclei, and amounts of radioactive nuclei.

7.5 Determine energy changes of nuclear reactions and stability of nuclei using Einstein’s equation.

7.6 Distinguish between subcritical, critical, and supercritical masses; contrast nuclear fission with nuclear fusion processes.

7.7 Identify the major components and principle of operation of nuclear reactors.

**SLO 8. Classify, name, and draw the structure of basic organic compounds; student can write chemical reactions of alkanes, alkenes, and alkynes.**

8.1 Given the structure, name alkanes using the IUPAC rules of nomenclature, and vice-versa.

8.2 Classify organic compounds based on the functional group present in their structures.

8.3 Given the structure, name alkenes and alkynes using the IUPAC rules of nomenclature, and vice-versa.

8.4 Optional if time permits. Write combustion and halogenation reactions of alkanes; write addition reactions of alkenes and alkynes.

### Learning Objectives for CHEM 1412

Learning Objectives for each CSLO can be found at [Learning Objectives for CHEM 1](http://learning.hccs.edu/programs/chemistry)412. Specifically, they are:

1.1. Relate the concentration of solutions to their colligative properties.

1.2. Determine if two compounds will mix to form a solution or not based on their structures.

1.3. Given the mass of a solute and the volume of a solution or the mass of the solvent, calculate the relevant concentration (molarity, molality, percent concentration, mole fraction, or ppm).  Convert a given concentration from one concentration unit to another.

1.4. Determine the molecular weight of an unknown solute, given the value of a colligative property.

2.1. Determine the average rate and instantaneous rate of a reaction from concentration-time data.

2.2. Determine the order of a reaction with respect to each reactant and write the rate law for the reaction.  Determine the value of the rate constant, k.

2.3. Write the integrated rate law of first and second order reactions and use the rate law to relate concentration of the reactant with reaction time, rate constant, and half-life.

2.4. Given different initial reactant concentrations and the respective initial rate of the reaction, determine the value of the exponents in the rate law and the value of the rate constant.

2.5. Relate the effect of temperature and activation energy to reaction rate using the Arrhenius equation.

2.6. Relate the rate law to the mechanism of the reaction and to the molecularity of the elementary reactions comprising the mechanism

3.1. Write the equilibrium constant expression for homogeneous and heterogeneous reactions.

3.2. Given one or more concentrations at equilibrium, calculate the value of the equilibrium constant for the reaction and/or the equilibrium concentrations of the other substances in the reaction.

3.3. Given one or more initial concentrations, calculate the concentrations of the reactants and products at equilibrium and/or the value of the equilibrium constant, using the "ICE" table method.

3.4. From the value of the reaction quotient, Q, determine whether a reaction is at equilibrium, and if not, which direction the reaction will initially proceed in order to reach equilibrium.

3.5. Apply LeChâtelier’s Principle to determine the effects of changes in concentrations, temperature on compositions of equilibrium mixtures.

4.1. Know the three different definitions and principles of acids and bases (Arrhenius, Bronsted-Lowry, and Lewis).

4.2. Calculate [H+], [OH–], pH, and pOH.

4.3. Use dissociation constants for weak monoprotic acids and bases to determine the pH of their aqueous solutions.

4.4. Differentiate between acidic, basic and neutral salts and determine the pH of aqueous solutions of salts.

4.5. Understand the common ion effect and its relevance to buffers; determine the pH of buffered solutions using the Henderson-Hasselbalch equation.

4.6. Calculate the pH at various stages of titration curves for (i) strong acids & strong bases, (ii) weak acids & strong bases, (iii) strong acids & weak bases.

4.7. Write solubility product expressions and interconvert between the solubility constant, Ksp and concentrations of dissolved ions in saturated solutions of slightly soluble salts.

4.8. Given Ksp, determine whether precipitation will occur when two aqueous solutions of salts are mixed that react to form a sparingly soluble salt.

5.1. Express the concept of entropy and predict the sign of the entropy change for a given reaction.

5.2. Calculate the entropy change of a reaction using Hess's law or standard entropies.

5.3. From the Gibbs equation, relate and calculate the values of the entropy, enthalpy, free energy, and temperature of a reaction.

5.4. Relate and calculate the value of the equilibrium constant to the entropy, enthalpy, free energy and temperature of the reaction.

6.1. Determine the oxidation state of elements in compounds.

6.2. Based on changes in oxidation states, determine which substance in a reaction is oxidized and which is reduced.

6.3. Balance oxidation-reduction reactions in acidic and basic solution using the method of half-reactions.

6.4. Sketch voltaic and electrolytic cells, identifying the anode, cathode, anode compartment, cathode compartment, salt bridge, and direction of electron flow.

6.5. Calculate standard cell potentials from standard reduction potentials.

6.6. Rank reducing agents and oxidizing agents based on standard reduction potentials.

6.7. Determine non-standard cell potentials from standard cell potentials using the Nernst equation.

6.8. Interconvert between time, current, and masses of reactants and products in electrolysis processes.

7.1. Identify common modes of radioactive decay.

7.2. Write balanced nuclear reactions.

7.3. Differentiate between the different modes of decay and predict the likely mode of decay.

7.4. Interconvert between rates of nuclear decay, half-lives of radioactive nuclei, and amounts of radioactive nuclei.

7.5. Determine energy changes of nuclear reactions and stability of nuclei using Einstein’s equation.

7.6. Distinguish between subcritical, critical, and supercritical masses; contrast nuclear fission with nuclear fusion processes.

7.7. Identify the major components and principle of operation of nuclear reactors.

8.1. Given the structure, name alkanes using the IUPAC rules of nomenclature, and vice-versa.

8.2. Classify organic compounds based on the functional group present in their structures.

8.3. Given the structure, name alkenes and alkynes using the IUPAC rules of nomenclature, and vice-versa.

8.4. Optional if time permits.  Write combustion and halogenation reactions of alkanes; write addition reactions of alkenes and alkynes

# Student Success in CHEM 1412

As with any four-semester hour course, expect to spend ***at least*** ***12 hours per week*** outside of class reading and studying the material. I will provide practice questions on canvas to help you use those hours (Per night/per week) wisely. Successful completion of this course requires a combination of reading the textbook and completing assignments. 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.

***For each chapter covered, one or two quizzes will be given on***

***Canvas.***

***You need to check the announcements on Canvas on a regular basis for information periodically.***

### 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 class and participate in class discussions and activities
* Read and comprehend the textbook
* Complete the required assignments and exams:
* 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 departmental final exam
* Be aware of and comply with academic honesty policies in the [HCCS Student Handbook](http://www.hccs.edu/resources-for/current-students/student-handbook/)

## Academic Integrity

## “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.” In this class, the penalty

## for willful cheating on exams is a grade of F in the course.

You are expected to be familiar with the University's Policy on Academic Honesty, found in the catalog. 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. Scholastic Dishonesty will result in a referral to the Dean of Student Services. See the link below for details.

Here’s the 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**

You are expected to attend all sessions regularly for the time mentioned on the syllabus. You are also responsible for materials covered during your absences. Instructors may be willing to consult with you for make-up assignments, but it is your responsibility to contact the instructor. Class attendance is monitored daily. Although it is your responsibility to drop a course for nonattendance, the instructor has the authority to drop you for excessive absences.

**Absences will be excused for illness accompanying a doctor’s note, death in the family or other reasons approved by the instructor.**

Departments and programs governed by accreditation or certification standards may have different attendance policies. Administrative drops are at the discretion of the instructor. Failure to withdraw officially can result in a grade of “F” in the course.

**The last day for dropping the course is June 28 2021.**

***Failure to withdraw officially can result in a grade of “F” in the course.***

# Exams and Assignments

### Exams

In the course, there are three non-cumulative regular exams taken ONLINE which count for 51% of your final grade.

Additionally, there is a mandatory comprehensive final also taken ONLINE for this course which counts for 20% of your final grade.

(See Grading Formula below).

For ALL exams taken online, students are asked to download the Respondus Lockdown Browser from Canvas and install it on their computer prior to the first graded assignment. Web cams are also required for quizzes and exams.There is going to be a practice quiz with Respondus first to make sure every student knows how to use it.

It is the students’ responsibility to ensure they have proper access to the technology and internet needed to take their exams. I highly recommend that you have a copy of the periodic table and the formula sheet available before you take any of the exams.

Please ensure your internet connection is secure and that your device is either plugged into a power source or properly charged to avoid disconnection from Canvas. Students are allowed one attempt at each exam. Students will only be able to access exams via the Respondus browser and no other applications should be open or utilized.

Online exams are to be taken by the student himself/herself without any collaboration with another individual. No communication, verbal, nonverbal, or electronic may be made. Ensure you have a quite space to test, without disruption, and have a dependable internet connection so that you do not have any issues during the exam. All assignments (quizzes and exams) are timed so please manage it properly. Students are allowed one attempt for each exam , but may have more than one attempt for the quizzes. No late assignments are accepted. No exam/Assignment extensions are given.

If you have any technical issues during the exam, please notify me RIGHT AWAY and document the issues so that I can be of better assistance. It is the student’s responsibility to ensure he/she can meet course requirements including technical ones necessary for successful completion of the course. Final exam dates are set by HCC. No early or late exams will be permitted.

***Your success is my priority and I am here to assist you in anyway I can!***

### Quizzes/Assignments

You are going to take one or two quizzes for each chapter covered. All quizzes/assignments will count for 9% of your final grade (see Grading Formula below) and are taken on CANVAS. Please notify me if there are any issues regarding using an electronic device. Quizzes may have different number of questions depending on each chapter and are timed. ***The lowest quiz grade or one missed quiz will be replaced with a higher quiz grade.***

**Laboratory Policy**

There will be 8 labs completed in the course. ***The lab manual has to be purchased***. Labs consist of prelab questions, data sheet with calculations shown completely, graphs if any and post lab questions. Lab reports worth 100 points each.

Students will upload and submit the lab reports electronically via Canvas. **Reports are NOT accepted via email**. The lab report should be the individual work of the student and easy for the instructor to follow. All calculations must be clearly and neatly done. The pages of the lab report must be in order based on the lab manual. ***Your submitted work must be completely readable.***

Each lab report must be completed individually--no copying. If you need help, I am here to help you so there is support, but you must acquire it right way. Students found to be copying or engaging in academic dishonesty on quizzes or reports will face penalties described in that section of the syllabus. There will be no makeup labs. After we return to the campus the lab reports are going to be turned in by students individually.

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.

**COVID SAFETY PROTOCOL OUTLINE**

* **Any person (students, lab tech or instructors) who has ANY symptoms COVID-19 should stay home and contact their healthcare provider**
* **Any person who came in contact with a COVID -19 patient should stay home and self-quarantine at home at least 14 days**

 **LABORATORY ATTIRE UPON ENTRANCE TO THE LAB**

**The following MUST be worn the entire duration while in the laboratory**

* **Googles**
* **Laboratory Coat (Students & Instructors)**
* **Gloves**
* **Proper Lab Attire (I.E. closed toed shoes, no shorts, oversized loose clothing)**
* **To maintain and practice social distancing at least 3-6 feet apart.**

Be especially aware of the need for adequate eye protection and proper dress in the laboratory. ***Safety glasses or goggles must be worn at all times during the laboratory period.***

***Laboratory reports are due on the next lab day.*** Each report must be done individually, but of course you can work with your lab partners on it. Each report will be graded on a 100-point basis. I will not accept any lab submissions after the submission deadline. A grade of zero will be recorded for lab work that has not been turned in.

 **Come to the lab prepared**. Read through the experiment beforehand and do the pre-lab questions at the end of the lab report. You will be much better organized when doing the experiments, and your laboratory experience will be much more rewarding!

**NOTE** for pregnant students and students with health concerns as it pertains to the course, particularly lab: Please visit with the Abilities Service counselor to explore assistance and options for pregnant students and students with health concerns. The instructor will be happy to abide with counselor recommendations. With regards to labs and chemicals utilized, please consult with your physician (you may take your lab manual which lists the chemicals that will be used for the experiments conducted in class as a reference to your doctor) as the instructor is not as qualified on the subject and therefore cannot make any recommendations. The instructor will comply with doctor’s orders after the accommodation has been submitted and approved by the counselor and the Department Chair.

### CHEM 1412 Departmental Final Exam

All students will be required to take a comprehensive departmental final exam. The Final exam is comprehensive, and the amount of time given is going to be exactly **Two Hours**.

**Students who are absent from the final exam without discussing their absence with the instructor in advance or within 24 hours afterward will receive a final exam grade of zero.**

## Policy Regarding Making Up Missed Assignments

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.

## Grading Formula

The overall score is based on the following:

* Three regular exams 51%
* Assignments and Quizzes 9%
* Laboratory 20%
* Final Exam 20%

Overall Score = 0.51(Average of three regular exams) + 0.09( Average of Assignments and Quizzes) + 0.20(Laboratory grade) + 0.20(Final Exam)

|  |  |
| --- | --- |
| **Grade** | **Points**  |
| A | 100 – 90 |
| B | 89 – 80 |
| C | 79 – 70 |
| D | 69 – 60 |
| F | 59 and below |

## 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/](http://www.hccs.edu/programs/catalog/general-course-information/)**

 ***Failure to withdraw officially can result in a grade of “F” in the course.***

### Incomplete Policy

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**In order to receive a grade of Incomplete (“I”), a student must have completed at least 85% of the work in the course. In all cases, the instructor reserves the right to decline a student’s request to receive a grade of Incomplete.**

**HCC Eagle Early Alert:** The HCC Eagle Alert program is designed to provide timely intervention for students at risk of dropout or academic failure. On a regular basis an early alert for the areas of concern by the instructor will be conducted. Once the faculty sends the early alert, an email notification is sent to the student and the campus advising manager. The student will then need to set up an appointment with the advisor to discuss helpful resources such as tutoring, etc.

# Course Calendar

|  |  |  |
| --- | --- | --- |
|  | **Chapters covered (each week** | **Lab (In Person)** |
| **Week #1****Jun 7 –Jun 13** | **Chapter 1- Solutions****Chapter 2- Chemical Kinetics**  | **Tuesday June 8: Lab Safety** ***Molarity, Dilution, and preparing Solutions Lab*** **Thursday June 10: *Freezing Point Depression Lab*** |
| **Week #2****Jun 14-Jun 20** |  **Chapter 3-Chemical equilibrium**  **Chapter 4- Acid-Base Equilibria** | **Tuesday June 15: Rates of Chemical Reactions Lab: A Clock Reaction** **Thursday June 17: Equilibrium: Le Chatelier’s Principle** |
| **EXAM I** |  **Chapter 1, 2, and 3** | **June 19-June 20** **Closes at 10:00 pm** |
| **Week #3****Jun 21-Jun 27** | **Chapter 5- Additional Aspects of**  **Aqueous Equilibria** |  **Tuesday June 22: Hydrolysis of Salts and pH of**  **a Buffer Solution Lab****Thursday June 24: Titration of Acids and Bases Lab** |
| **EXAM II** |  **Chapters 4, and 5** |  **June 26-June 27**  **Closes at 10:00 pm** |
| **Week #4****Jun 28-Jul 4** |  **Chapter 7- Chemical**  **Thermodynamics** **Chapter 8- Electrochemistry****Chapter 9- Nuclear Chemistry** |  **Tuesday June 29: - Determination of the dissociation Constant of a weak Acid** **Thursday July 1: Electrochemical Cells and**  **Thermodynamics** |
| **Week #5****Jul 5-Jul 11** |  **Chapter 10: The Chemistry of**  **Life: Organic Chemistry** **(you need to finish the chapter**  **before July 8)** |  **Tuesday July 6 :** Organic chemistry worksheet **Thursday July 8:** Final exam review questions (graded assignment) |
| **EXAM III** |  **Chapters 7,8,9,and 10** | **July 7-July 8****Closes at 10:00 pm** |
| **FINAL EXAM** |  **Comprehensive (all covered**  **chapters)** | **July 9- July 10****Closes at 10:00 pm** |

* ***Your lab report has to have the Pre lab questions, report sheet, Graphs if any, and the post lab questions for full credit. All pages must be in order and calculations must be done clearly (steps shown).***
* **Please pay close attention to the title of each lab in your lab manual.**
* **Some of the lab time may be spent on problem solving.**
* **The exam review questions are going to be counted as a graded assignment.**

## 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.

### 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://eagleonline.hccs.edu/login/ldap>

## HCC Online Information and Policies

<http://www.hccs.edu/online/>

## EGLS3

The EGLS3 ([Evaluation for Greater Learning Student Survey System](https://hccsaweb.hccs.edu:8080/psp/csprd/?cmd=login&languageCd=ENG&)) 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. EGLS3 surveys are only available for the Fall and Spring semesters. EGLS3 surveys are not offered during the Summer semester due to logistical constraints. <https://hccsaweb.hccs.edu:8080/psp/csprd/?cmd=login&languageCd=ENG&>

## 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](http://www.hccs.edu/district/students/student-e-maileagle-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/current-students/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/financial-aid/financial-coach/>

**Campus Carry Link**

Here’s the link to the HCC information about Campus Carry: http://www.hccs.edu/departments/police/campus-carry/

# 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/institutional-equity/title-ix-know-your-rights/>

**Social Justice Statement**

Houston Community College is committed to furthering the cause of social justice in our community and beyond. HCC does not discriminate on the basis of race, color, religion, sex, gender identity and expression, national origin, age, disability, sexual orientation, or veteran status. I fully support that commitment and, as such, will work to maintain a positive learning environment based upon open communication, mutual respect, and non-discrimination. In this course, we share in the creation and maintenance of a positive and safe learning environment. Part of this process includes acknowledging and embracing the differences among us in order to establish and reinforce that each one of us matters.  I appreciate your suggestions about how to best maintain this environment of respect. If you experience any type of discrimination, please contact me and/or the Office of Institutional Equity at 713-718-8271.

**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.

## Chemistry Department Chair

**Dr. Emmanuel Ewane,** emmanuel.ewane@hccs.edu; 713-718-5414