



Instructor contact information

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Welcome to

Course Title:	General Chemistry I	Semester and Year:	
Course Prefix:	CHEM		
Course Number:	1411.81001	Class Days & Times:	
Credit Hours:	4		
Lecture Hours:	3	Class Room Location:	Lecture: HSC- 130
Lab Hours:	3		Laboratory: HSC- 238
External Hours:			
Total Contact Hours: (All hrs. x 16)	96		

Course overview

Catalog Description:

GENERAL CHEMISTRY I		
4 Credit Hours	3 hrs. lec.	3 hrs. lab.
Topics include a mathematical introduction (metric system, significant figures and scientific notation), discussion of atoms, molecules and ions, stoichiometry, electronic structure, periodic relationships, bonding, molecular geometry's and properties of gases, liquids, solids and solutions. Appropriate lab experiments are included. (4005015203)		

Core Competencies:

Core Competencies	Coverage			
	Extensive	Moderate	Basic	None
Foundations				
1. Retrieve, organize, interpret, and analyze information.	X			
2. Use oral and written communication as appropriate to audience, occasion and purpose.		X		
3. Solve problems using qualitative and quantitative strategies.	X			
4. Appreciate and respect differing points of view/philosophies.				X
5. Formulate hypotheses and evaluate arguments logically.	X			
6. Understand how disciplines are inter-related.		X		

7. Develop the ability to make aesthetic judgements.				X
Intrapersonal				
8. Set realistic personal and career goals including the ability to prepare for career choices and assess individual strengths/capabilities.		X		
9. Continually expand and renew knowledge base.		X		
10. Accept responsibility for self.	X			
11. Value self, and others.		X		
12. Establish a work ethic.	X			
13. View learning as a life long process.	X			
14. Manage personal time and resources effectively.	X			
Interpersonal				
15. Interact with others, cooperate, collaborate, and communicate.	X			
16. Recognize and attend to ideas, needs and biases of self and others.			X	
17. Practice responsible citizenship in a multi-cultural world.			X	
18. Use technologies as tools at school, work, and home.	X			
19. Live and maintain a healthy life style.				

Course Learning Outcomes:

- Solve standard problems by applying basic principles, and novel problems by extrapolation from basic principles.
- Characterize the states of matter and the transitions between them.
- Explain the transitions between states of matter and the behavior of gases using the Kinetic Molecular Model.
- Apply the Law of Conservation of Matter to the analysis of chemical reactions.
- Apply the Law of Conservation of Energy to analyze the interchange of heat and work between a chemical system and its surroundings.
- Determine atomic structure and chemical properties of an element based on its position in the periodic table.
- Demonstrate proficiency with IUPAC rules of nomenclature for simple inorganic compounds.
- Describe preparation and standardization of a solution.
- Describe Lewis Structure, bonding, shape, polarity and chemical properties of a simple compound from its formula.
- Characterize electromagnetic radiation and explain how it was used to elucidate atomic structure.
- Demonstrate ability to carry out simple laboratory experiments using common chemical measuring devices and safety precautions. Demonstrate ability to accurately read and record data from laboratory measurements, m laboratory measurements, perform calculations on data and report results with correct significant figures.

SPECIFIC LEARNING GOALS:

➤ Lecture

- 1) Students should read lesson material for a chapter before it is covered in class to gain familiarity of the topics as the class discusses them.
- 2) Students should notes on the emphasized topics, and understand and copy correctly the calculations and other materials written on the board.
- 3) Follow-up the lecture by reading the class notes over and be sure that you know how to solve the illustrative examples that your instructor solved in class without looking at the solutions in your notes. Be able to know

the definitions of "key terms" and state all laws, principles and theories and to explain experimental observations or facts by laws, theories or principles.

- 4) Note: Descriptive and non-mathematical facts, may not all be taken up in class. All text materials should be considered as test material whether taken up during discussion in class or not.
- 5) Students should submit all written assignments (or homework) on the day that they are scheduled to be submitted.
- 6) Course content will include:
Four Major Exams, "end of section pop quizzes" and final exams. Major Exams and the finals will include laws, theories and principles, and chemical calculations &/or analytical models.

➤ **Laboratory**

- a) Laboratory safety should be observed and practiced in this class. Safety glasses or goggles must be worn at all times in the lab. Students should be aware of hazardous chemicals, which may be flammable, toxic or very reactive. The lab exercise includes warnings about these chemicals. Students should note the special handling of these chemicals at the beginning of each laboratory exercise. Additionally, a list of hazardous chemicals will be posted on the bulletin board in each lab room for student use.
- b) Prelab assignments (if assigned) should be turned in at the beginning of the lab period.
- c) Students are expected to read assigned experiments (background and procedure) before coming to the laboratory. Experiments should be performed accurately by following the instructions carefully and efficiently. Any changes to the procedure, as announced by the instructor, should likewise be noted and duly followed.
- d) Laboratory work is a mandatory component of the Chemistry 1411 course. Students must complete assigned activities in order to earn credit for this course.
- e) Laboratory activities are noted down in official Laboratory Notebook, and a report is to be submitted for each experiment (except Experiment # 4 and # 8 when a complete report is required for each), according to the following format and within the context of the guidelines provided, specifically:
 - Fill-up all header
 - Experiment # and Title
 - Objective(s) - primary objective(s) or purpose of experiment
 - Comprehensive/Complete Data & Results
 - Calculations & Graphical Analysis, when applicable
 - Conclusions - itemization of response(s) to objective(s)
 - Proper pagination on the footer
 - Properly stapled

For experiments # 4 and #8, a complete report will be submitted according to the following format and within the context of the guidelines provided:

- Typewritten on white bond-paper using 12 font Arial or Times New Roman (Observe margins and indentions. Use Sub-titles, if necessary)
- Follow the guidelines provided by the instructor. Include the following:
 - Experiment or Exercise No.
 - Title
 - Purpose - primary objective of experiment
 - Background / Concept - theoretical background relating to subject being studied
 - Procedure -detailed discussion of methods and techniques (in past tense and passive form). This should be in paragraph form... do not enumerate, number or list down as stepwise instructions. (Refer to guidelines)
 - Comprehensive/Complete Data & Results
 - Calculations (include all data and results that have not been measured or given)
 - Conclusions
 - Proper pagination (footer)
 - Properly stapled

Getting ready

Prerequisites: CHEM 1405 or One year of high school chemistry or equivalent (taken within the last 3 years). **and** MATH 0310 or equivalent with grades of C or better

Co-requisites: Math. 1314 (College Algebra), Engl 0305 (Dev. Reading II) or 0316 (ESI Reading and Vocabulary VI) and Eng 0307 (Dev. Writing II) or higher-level courses, -- Engl 1301 (Composition & Rhetoric), or placement by testing.

Required Material:

- Textbook: General Chemistry, 7th OR 8TH Edition, by Ebbing and Gammon.
- Lab. Manual: The Lab Connections by L.L. Cruz
- Scientific Calculator (Should have log, ln, 10^x , e^x , y^x , square root and EE or exponent functions.
- Separate notebooks for Lecture and Laboratory. Lab Reports are to be submitted on graphing-paper (or grid) sheets.
- Safety goggles or glasses for laboratory. ← These will be provided in the laboratory, but each student can have personal glasses to use. (NO COLORED LENSES OR SUNGLASSES ALLOWED)

Optional Materials or Reference Texts:

- Course Website in *eCampus*
- Any other textbook as needed.

Instructor guidelines and policies

Attendance: Attendance for both lecture and laboratory classes are mandatory. A student accumulating six total absences or more should withdraw from the class or receive an F. Three tardy marks will be equivalent to one absence. Coming to class 10 minutes after regular schedule or leaving class 15 minutes before regular schedule will be considered "tardy". No student will be admitted to the laboratory sessions 10 minutes after start of official laboratory period. (The laboratory doors will be locked). No student will be allowed to leave earlier than regular dismissal schedule unless with permission from the professor.

Assignments: Assignments should be submitted when due. No late homework or assignments will be accepted.

Make-ups: NO MAKE-UPS WHATSOEVER for quizzes, exams and/or laboratory activities.

Cell phones and beepers: All cell phones and pagers should be set on "silent" or "vibrate" during class times. A student who receives a page or phone call during class time will not be re-admitted for the rest of the class period.

Personal Computers Lap-tops, Cameras, I-Pods, Recorders: No other multi-media electronic devices of this type will allowed (turned-on) in class, unless the student has special accommodation to use any of these devices. When these multi-media devices will be needed, the entire class will utilize the Computer Labs.

GRADE DETERMINATION:

Your grade will be determined by the following	Details	Percent of Final Average
Quizzes	Pop quizzes and some graded homework. There will be 11-13 quizzes/homework. (The lowest score(s) in excess of 10 quizzes will be "dropped" at the end of the semester).	20%
Major Exams	End of Chapter Tests (there will be four exams for the semester. The lowest grade for an exam may be "dropped" at the end of the semester).	20%
Final Exams	This is mandatory WITH NO EXEMPTIONS	20%
Laboratory Reports	Required for every laboratory experiment performed. There will be 9-10 experiments for the semester. Two experiments (Experiment #4 and #8 will require a full or comprehensive type-written report. The rest of the experiments will need only a partial hand-written report using the prescribed Laboratory Notebook and format. (The lowest report grade will be "dropped" at the end of the semester.)	20%
Laboratory Test	Two tests for the semester; <u>both test grades</u> will be counted for grading. Some Laboratory Worksheets will be counted as Lab Test.	20%
Total:		100%

LETTER GRADE ASSIGNMENT:

Letter Grade	Final Average in Percent
A	90 – 100
B	80 – 89
C	70 – 79
D	60 – 69
F	Below 60

Chem 1411.81001 - Proposed Instructional Outline:

6-Week Course

Week Number	Date	Course Topic for Lecture	Laboratory Activity
1		Chapter 1 – Chemistry and Measurements	Lab Orientation/Grouping and Start of Exp't #1 – Intro to Lab Exp'ts.
		Numbers, Sig.Figures & Sci. Notation	Finish Exp't # 1
2			
		Dimensional Analysis	Activity #2 – Dimensional Analysis Worksheet
3		Chapter 2 – Atoms, Molecules and Ions. Review Chemical Nomenclature	More lecture: Chapter 2
		Finish Chapter 2	Review for Lecture Exam # 1
4		Lect. Major Exam # 1	No Laboratory Experiment
		Chapter 3 – Calcs. - Formulas & Eqns	Exp't # 3 – Density
5		Finish Chapter 3	More lecture: start Chapter 4 Lab HW: Activity 3-A – Formula Worksheet
		More Chapter 4 – Chemical Equations	Exp't # 4 – Metathesis and Precipitation
6		Finish Chapter 4	Start Chapter 5 – Gas Laws
		Review for Lecture Major Exam #2	Exp't #5 – The Ideal Gas Law
7		Lecture Major Exam # 2	No Lab Experiment
		Finish Chapter 5	Review for Laboratory Test # 1
8		Chapter 6 – Thermochemistry	Laboratory Test # 1
		Finish Chapter 6	Exp't # 6 – Thermochemistry & Hess's Law
9		Finish Chapter 6 and start Chapter 8	Review for Lecture Major Exam #3
		Lecture Major Exam # 3	More lecture – continue Chapter 8
10		Finish Chapter 8 and Start Chapter 7	Exp't 7 – The Atomic Theory and (\bar{e} levels
		Finish Chapter 7 – Quantum Theory	More lecture on Chapter 7
11		Finish Chapter 7	Review for Lecture Major Exam # 4
		Lect. Major Exam # 4	No Laboratory Experiment
12		Chapter 9 – Ionic & Covalent Bonding	Exp't 7-A – The Rydberg Constant (<i>Use of spectrometer</i>)
		Finish Chapter 9, Start Chapter 10	Exp't 8 – Spectrophotometry of Colored Solutions
13		More on Chapter 10	Finish Chapter 10, Start Chapter 11
		Chapter 11 – States of Matter	Activity #9 – Workwheet #3: Lewis Structures
14		Chapter 12 – Solutions	Exp't 10 – States of Matter
		More on Chapter 12	Exp't 11 – Acetic Acid in Vinegar (Titration)
15		Colligative Properties of Solutions	Review for Laboratory Test # 2
		Review for Final Exams	Laboratory Test #2
16		Final Exams	

Lone Star College – CyFair and District Policies

Academic Integrity

Lone Star College - CyFair is committed to a high standard of academic integrity in the academic community. In becoming a part of the academic community, students are responsible for honesty and independent effort. Failure to uphold these standards includes, but is not limited to, the following: plagiarizing written work or projects, cheating on exams or assignments, collusion on an exam or project, and misrepresentation of credentials or prerequisites when registering for a course. Cheating includes looking at or copying from another student's exam, orally communicating or receiving answers during an exam, having another person take an exam or complete a project or assignment, using unauthorized notes, texts, or other materials for an exam, and obtaining or distributing an unauthorized copy of an exam or any part of an exam. Plagiarism means passing off as his/her own the ideas or writings of another (that is, without giving proper credit by documenting sources). Plagiarism includes submitting a paper, report or project that someone else has prepared, in whole or in part. Collusion is inappropriately collaborating on assignments designed to be completed independently. These definitions are not exhaustive. When there is clear evidence of cheating, plagiarism, collusion or misrepresentation, disciplinary action may include but is not limited to: requiring you to retake or resubmit an exam or assignment, assigning a grade of zero or "F" for an exam or assignment; or assigning a grade of "F" for the course. Additional sanctions including being withdrawn from the course, program or expelled from school may be imposed on a students who violate the standards of academic integrity.

Link for the LONE STAR COLLEGE SYSTEM Academic Integrity & Student Success brochure = <http://www.Lone Star College System.edu/Estrada.config?resource=23940>

Americans with Disabilities Act Statement



Lone Star College - CyFair is dedicated to providing the least restrictive environment for all students. We promote equity in academic access through the implementation of reasonable accommodations as required by the Vocational Rehabilitation Act of 1973, Title V, Section 504 and the Americans with Disabilities Act of 1990 (ADA) which will enable students with disabilities to participate in and benefit from all post-secondary educational activities.

If you require reasonable accommodations because of a physical, mental, or learning disability, please contact the Assistant Dean for Student Services who will provide you with forms you need to request accommodations. Upon completion of the forms, please notify your instructor as soon as possible and preferably before the end of the first two weeks of class to arrange for reasonable accommodations.

Computer Virus Protection

Computer viruses are, unfortunately, a fact of life. Using diskettes on more than one computer creates the possibility of infecting computers and diskettes with a computer virus. This exposes the computers of the college, your personal computer, and any others you may be using to potentially damaging viruses. The college has aggressive anti-virus procedures in place to protect its computers, but cannot guarantee that a virus might not temporarily infect one of its machines. It is your responsibility to protect all computers under your control and use and ensure that each diskette you use, whenever or wherever you use it, has been scanned with anti-virus software. Since new viruses arise continually, your anti-virus software must be kept current. And, since no anti-virus software will find every virus, keeping backup copies is extremely important.

Evaluation of Instructor

Instructors at Lone Star College - CyFair are evaluated in several ways. Students provide input for each course they take in a semester. The college deans review these evaluations. The deans also complete an evaluation of the instructor and may visit each instructor's class at some time during the semester to observe the instructional environment provided by the instructor.

Equal Opportunity Statement

It is the policy of the Lone Star College System to provide equal employment, admission and educational opportunities without regard to race, color, religion, national origin, sex, age, or disability.

LONE STAR COLLEGE SYSTEM Colleges strive to provide an excellent learning environment free from harassment or intimidation directed at any person's race, color, religion, national origin, sex, age, or disability. Any form of harassment will not be tolerated.

Final Examinations

A final evaluation activity will occur during the published final evaluation period. The appropriate associate dean must approve any variation to this schedule. All students are required to take the final exams without exemptions.

Guaranteed Graduate Policy

Lone Star College System guarantees that graduates of its Associate of Arts, Associate of Science, or Associate of Applied Science and all Certificate programs, providing under certain circumstances, additional education and training tuition free to students lacking appropriate mastery of specified competencies. For additional information, refer to the LONE STAR COLLEGE SYSTEM college catalog.

Internet and E-mail

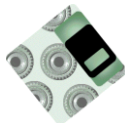


The District provides computing and network resources to students. You are encouraged to use the computers, software packages, and electronic mail (e-mail) for educational or District-related activities and to facilitate the efficient exchange of useful information. However, the equipment, software, and network capacities provided through the district computer services are and remain the property of the District. Use of the equipment and networks is to comport with the policies and procedures of the District and access may be denied to any student who fails to comply with the District's policies and procedures regarding its use.

Access to the District's e-mail and similar electronic communications systems are a privilege and certain responsibilities accompany that privilege. All users are expected to demonstrate the same level of ethical and professional manner, as is required in face-to-face or written communications. Anonymous or forged messages will be treated as a violation of this policy.

Any material included in the course website (e-classroom) are intended only for the use of the students enrolled in the course.

Software Piracy



Law strictly prohibits unauthorized copying of software purchased by Lone Star College - CyFair for use in laboratories. Lone Star College - CyFair administration will take appropriate disciplinary action against anyone violating copyright laws.

Withdrawal Policy

Withdrawal from the course after the official day of record and prior to "W" Day, (see current catalog for this date) will result in a final grade of "W" on your transcript. No credit will be awarded for a course earning a "W". If you stop attending class, you must withdraw at the registration office prior to "W" day. If you stop attending class and do not officially withdraw, you will receive an "F" for the course. Your instructor will NOT drop you from the class. PLEASE BE AWARE THAT YOU ARE RESPONSIBLE FOR WITHDRAWING FROM THE COURSE. For Fall 2007, the W-day is November 9th.



9191 Barker Cypress Road
Cypress, Texas 77433
281-290-3200

Student Memorandum of Agreement

I, (PRINT NAME): _____, a student in Chem. 1411.81001, acknowledge receipt of the Course Syllabus. I further acknowledge that I have read the syllabus and the instructor has thoroughly explained the content of the syllabus, including, but not limited to, course pre-requisites, student competencies, course objectives and outcomes, grading, policies and procedures prescribed by the instructor, Lone Star College - CyFair, and the LSCS.

I understand that I must comply with the policies and procedures for successful completion of the course.

Student Signature

Student ID or SS Number

Date

Preferred e-mail address

Telephone Number (Home)

Telephone Number (Cellular)