

## General and Quantitative Chemistry II CHEM - 1412-001

**Faculty:** Dr. Tasneem Hossain  
**Office Location:** STC 302  
**Office Phone:** 903-886-5399  
**Office Hours:** TR 11:00 AM – 11:30 AM and by appointment  
**Email:** [Tasneem.hossain-kumar@tamuc.edu](mailto:Tasneem.hossain-kumar@tamuc.edu)

4 Credit Hrs. (2.5 hrs. lecture and 3.9 hrs. lab)  
**Lecture:** MTWR 9.00AM – 10.45 AM STC 127  
**01 Lab:** MTWR 2.00 PM – 5.50 PM STC 310  
**02 Lab:** MTWR 2:00 PM - 5:50 PM STC 311

Lecture

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### Text/ Manual and other required material:

- **Text:** General Chemistry 10 th Edition Ebbing, Gammon, Houghton Mifflin Company, New York, NY ISBN: 978-1-285-05137-6
- **Lab Manual:** Experiments in General Chemistry, 10 th Edition, by R.A.D. Wentworth, published by Houghton Mifflin Company, New York, NY ISBN: 9781111989422
- **Supplies:** **Safety Goggles** with side shields and a **Padlock** are a Must for the lab work (**No Exception**); Appropriate lab attire. Lab coats (optional) on lab day.
- Buy online homework OWL v1 on the OWL webpage at [www.cengage.com/owl](http://www.cengage.com/owl). You will have 21 days free access then you will be required to buy that. You can buy from the cengage or through the bookstore. They have a package with the lab manual and access code for the homework or just the access code for the homework. The bundle lab manual and the access code for online homework (ISBN 9781305247666); \$ 126 or a standalone access code for the homework (ISBN 9781133942399); \$ 64

**Course Description:** This course is part of the university studies core courses and will meet criteria for laboratory science credits. This is the second part of a two-course sequence of general chemistry. The course is designed primarily for the students majoring in sciences or in pre-professional programs. By the end of the course you will be familiar with a range of fundamental chemistry topics including chemical reaction rates, chemical equilibrium, acid base chemistry, solubility, thermodynamics, electrochemistry, nuclear chemistry, organic chemistry, inorganic chemistry and biochemistry. Chemists deal with these subject areas everyday, but these concepts are also crucially important to other branches of science and technology.

**Course Outcome:** Upon successful completion of the course the student should be able to do the following:

- Use LeChatelier's principle to predict the effects of concentration, pressure and temperature changes on equilibrium mixtures.
- Balance Oxidation-Reduction reaction.
- Write simple structures of the organic compound and name the compound.

**Prerequisite:** The student must have completed Math 141 or be concurrently enrolled in Math 142 or other higher-level courses in mathematics. Student who had adequate high school preparation in mathematics or were exempted from Math 141 will be allowed to enroll with the instructor's consent. Concurrent enrollment of Math 141 with CHEM 1412 generally is not encouraged. Students who are

currently enrolled in math remediation courses such as PJCM 300, PJCM 306, or Math 131 will not be eligible for enrollment in CHEM 1412.

**Class Procedure:** The course is mainly a lecture oriented and will focus on important chemistry concepts but will not serve as a substitute for reading the textbook. The textbook is a more detailed presentation with a more extensive set of example problems. You are expected to read your textbook ahead of time. That will give you a jump-start on the classroom material. Homework will be assigned after completion of each chapter. **If power point is used in the lecture, that will be sent to the students through email at the end of the class day.**

**Communication:** If the instructor needs to contact an individual student, it will be via the student's e-mail account. Students should check e-mail frequently, especially after absence. E-mail is the best, easiest and fastest way to communicate with me since I check my email daily.

### Course Requirements:

1. **Exams:** Four unit exams (4 x 10%=40%) and one mandatory, comprehensive final exam (20%). **No Make-Up ANY Exams** If you missed an unit exam, the points for the missed exam will be replaced by final exam grade making the final exam count for 10% of missed unit exam percentage of your grade. All students must take the exams at the scheduled time. Exams cover lecture, quiz, homework problems, and work sheet given in tutorial class and chapter problems. The final comprehensive exam will comprise all the subject matter discussed during the semester.
2. **Quizzes:** There will be quizzes (announced or unannounced), which will be 5 % of the overall class grade every week, except the week of hourly exams. There are **NO** make-up quizzes. Lowest two quizzes scores will be dropped from the average. Do not use them up in the beginning of the semester, since you might need them for illnesses at the end. If you take all the quizzes, your two lowest scores will be dropped. The purpose of quizzes is to help you learn, make sure you keep up with the material and give you practice. They are **NOT** meant to torture you!! Quizzes will be given from the OWL homework material. Quizzes from each chapter designed to evaluate students understanding of basic subject matter and analytical skill.
3. **Homework:** There will be mandatory online Homework, which needs to be completed by due time to receive grades. Due time will be posted in the online homework page. Homework problems are provided online using OWLv1. There will be an assignment for each chapter. The grade for the homework is 10 % of the total grade.
4. **Lab:** The laboratory experiments are an integral part of this course and 25% of the total grade. They are designed to illustrate some of the principles and reactions that are presented in lecture with the hope that the chemistry will thus become more concrete and less abstract. There will be no make-up labs no matter what the excuse is for the absence. Total Twelve labs + check in and check out; All labs to be done in STC 310 and STC 311 under instructors' supervision. **Safety Glasses and appropriate attire must be worn at all times in the laboratory.** You must bring your own safety goggles and padlock in the laboratory. No open toe shoes, flip-flops or shorts are

allowed in the lab. Students must come prepared and on time for lab. Any students who is pregnant or has other special needs consult with his/her physician before taking a chemistry class involving laboratory work.

5. **Attendance and Class Participation:** Attendance in lecture is strongly recommended. You will find that you will learn a lot in lecture providing **you attend, engage, pay attention and stay awake**. It is definitely to your benefit to attend the lecture as additional material not contained in the text is given to help the student understand chemical principles. The Department of Chemistry adheres to the attendance policy set by the University as stated in the most current Undergraduate Catalog. The attendance record is taken from the daily sign-in sheet will be counted as a missing lecture. Excessive absence is defined as missing more than 10% of the lectures or more than 10% of the laboratory sessions without excusable reasons. Excessive absence will be reported to the Dean of the College and Dean of students. In addition, according to the TAMU-Commerce Procedure A13.02, if a student has excessive absences, the instructor may drop the student from the course. The instructor will only excuse an absence if the student provides, with appropriate document an excusable reason allowed by the TAMU-Commerce Procedure A13.02. Good class attendance will be necessary in order to pass this course.

**Methods of Student Evaluation and Grading Scale:** Four Unit Exams, Final Exam, Quizzes, online Homework and weekly labs will evaluate Students. Four Exams will be 40 % (Each 10%), Final Exam 20 %, Quizzes 5 %, Homework 10 % and the Labs will be 25% of the final grade. The grade is based on a weighted average. The borderline grades (0.5%) may be adjusted up at the instructor's discretion based on student's effort to use OWL system to learn the concepts and 100% attendance. Otherwise the grading criterion is firm.

The grade scale will be A= (86.0 - 100%), B = (85.0 – 73 %), C = (72 - 60%), D = (59 - 45%), F = <45 %.

**[However, you cannot pass this course with a “C” without doing at least “C” work on the hourly exams and the final, no matter how great you do in lab!!]**

**Class/Lab Etiquette:** Students are required to turn off all cell phones, MP3 players, PDA's, Pagers, computers and any other electronic devices such as computer before entering the class or in the laboratory. Students are expected to comply with the student code of conduct as stated Student's Guidebook, Policies and Procedures, Conduct. If the student is failed to comply with the code of conduct and being disrespectful, disruptive to the instructor or the students of the class, the instructor reserves the right to dismiss the student from the class on the first offense. A second offense may constitute dismissal from the course with a failing grade.

**Academic Integrity and Dishonesty Policy:** All students are expected to pursue their scholastic careers with honesty and integrity. Academic dishonesty includes (but is not limited to) cheating, falsification of date, plagiarism, and contracting/collusion with others to take your tests or do your work. Cheating is the use or acquisition of information (data, constants, formulas, textual material, etc.) from either unauthorized sources or in an unauthorized manner.

Examples include but are not limited to: -

- Exchanging information during a test or quiz
- Looking at another student's paper during a test or quiz
- Bringing information in any forms into a test or quizzes other than personal knowledge. This includes written notes (crib sheets) and digitally stored information (formulas, constants, textual, etc.) on calculators, cell phones, pagers etc.
- Looking at a book or other unauthorized source during the test or quiz.
- Accessing information by any electronic means (cellular phone, pagers, personal stereos, etc.)
- Processing data or information in an unauthorized manner using a programmable calculator or computer. In other words, unless you have received authorization, you are not to use any computer program. This includes specialty computers or calculators in which the programming is built in to the computer; you are permitted to use simple calculators, which perform arithmetical, Logarithmic, and trigonometric functions.

Disciplinary action will be pursued in all instances in which it is determined that academic dishonesty has occurred. Disciplinary action may include but is not limited to:

- Assignment of a failing grade for a test, examination, or assignment;
- Assignment of a failing grade for a course;
- Student disciplinary sanction.

**Students with Disabilities:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

- Office of Student Disability Resources and Services Texas A&M University-Commerce Halladay Student Services Building Room 303 A/D Phone (903) 886-5150 or (903) 886-5835 Fax (903) 468-8148 [StudentDisabilityServices@tamu-commerce.edu](mailto:StudentDisabilityServices@tamu-commerce.edu)

**Student Withdrawal:** It is the student's responsibility to withdraw from class if so desired. However, the instructor reserves the right to administratively withdraw any student who is not actively fulfilling the objectives of the course before the final. **Last day to drop a 16-week class with a Q grade is March 25, 2014.**

**Incomplete:** An incomplete is given only when a student, for a valid reason, has been unable to complete course within the time allotted and has a current average  $\geq 70\%$ . This is not allowed except in documented illness.

**Tentative Exam and Lecture Schedule  
CHEM-1412-001; Summer 2014**

Week	Date	Monday- Thursday Lecture	Topic
1	Monday – Thursday 7/7/14 – 7/10/14	Class Syllabus, Policy and Online homework Evaluation Quiz, Ch.12 and Ch.13	Solutions Rates of Reaction
2	Monday –Thursday 7/14/14 – 7/17/14	<b>Exam I: (Chapter 12 - Chapter 13)</b> Ch. 14; Ch 15	Chemical Equilibrium Acids and Bases
3	Monday –Thursday 7/21/14 – 7/24/14	<b>Exam II: (Chapter 14 - Chapter 15)</b> Ch. 16; Ch 17	Acid-Base Equilibria Solubility and Complex-Ion Equilibrium
4	Monday –Thursday 7/28/14 – 7/31/14	<b>Exam III: (Chapter 16- Chapter 17)</b> Ch. 18; Ch 19	Thermodynamics and Equilibrium Electrochemistry
5	Monday –Thursday 8/4/14 – 8/7/14	<b>Exam IV: (Chapter 18- Chapter 19)</b> Ch.20, Ch23 and Ch.22 <b>Final Exam: (Chapter 12- Chapter 23)</b>	Nuclear Chemistry Organic Chemistry Main Group and Transition Elements (handout)

**Important dates:**

1. Exam I– 14<sup>th</sup> July, 2014
2. Exam II– 21<sup>st</sup> July, 2014
3. Exam III – 28<sup>th</sup> July, 2014
4. Exam IV – 4<sup>th</sup> August, 2014
5. Final Exam – 7<sup>th</sup> August (Thursday at 9.00 am-11.00 am), 2014

### Tentative Lab Schedule for Chem 1412L

<b>Date</b>	<b>Day of the Week</b>	<b>Name of the Experiments</b>
7/7/14	Monday	<b>Check in equipment, Safety Lecture &amp; Quiz</b>
7/8/14	Tuesday	Experiment 12B: Softening Hard Water
7/9/14	Wednesday	Experiment 12A: A Molar Mass From Freezing Point
7/10/14	Thursday	Experiment 13: The Rate of an Iodine Clock Reaction
7/14/14	Monday	<b>Exam I (Chapter 12 - Chapter 13)</b>
7/15/14	Tuesday	Experiment 14A: Le Chatelier's Principle
7/16/14	Wednesday	Experiment 14B: Determination of an Equilibrium Constant
7/17/14	Thursday	Experiment 15: The Relative Strengths of Some Acids
7/21/14	Monday	<b>Exam II (Chapter 14 - Chapter 15)</b>
7/22/14	Tuesday	Experiment 16A: Equilibria with Weak Acids and Weak Bases
7/23/14	Wednesday	Experiment 16B: An Acid-Base Titration Curve
7/24/14	Thursday	Experiment 17A: A Solubility Product Constant
7/28/14	Monday	<b>Exam III (Chapter 16 - Chapter 17)</b>
7/29/14	Tuesday	Experiment 17B: Qualitative Analysis of $\text{Ag}^+$ , $\text{Cu}^+$ , $\text{Zn}^{+2}$ , and $\text{Ca}^{+2}$ ions
7/30/14	Wednesday	Experiment 18: Spontaneity
7/31/14	Thursday	Experiment 19A: Oxidation-Reduction Reactions
8/4/14	Monday	<b>Exam IV (Chapter 18 - Chapter 19)</b>
8/5/14	Tuesday	Laboratory Check Out
8/6/14	Wednesday	<b>Review Session</b>
8/7/14	Thursday	<b>Final Exam (Chapter 12 - Chapter 23)</b>

**Disclaimer:**

Teaching policies and regulations for this course are not open for discussion or negotiation. This syllabus has been constructed to be as complete as possible but is by no means a binding document. I reserve the right to alter policies and regulations as needed.