Chem 1312.01E: General and Quantitative Chemistry II
Spring 2024

Please, click on the following link to access A&M-Commerce Covid 19 Information, https://new.tamuc.edu/coronavirus/

Class Time and Location: **Lecture—** MWF 9-9:50am, STC #135 [***Please be sure to register in one of the 102 sections below***]

Chem 102.03E W 4-4:50pm, STC #135
Chem 102.04E R 4-4:50pm, STC #135

Instructor Information

Dr. Ben Jang — Office: Science 335
Email: Ben.Jang@tamuc.edu — Phone: 903-886-5383
Office Hours: MWF 10-11am & WR 2:30-3:30pm

Course Information and Course Materials

Lecture textbook: Registration would allow you to have access to the ALEKS system of McGraw Hill. The system comes with ebook of Burdge et al.: Chemistry: Atoms First, 4th Ed. (McGraw Hill) - ALEKS 360**.** Other preferred textbook is *General Chemistry*, 11th or 10th Edition, Ebbing, Gammon, Brooks/Cole Cengage Learning, Belmont, CA. ISBN: 978-1305580343. However, you can obtain any textbook with similar contents, either hard copies or digital ones.

Course Description: 3 Semester Hours. Lecture related materials will be posted weekly for students to review to enhance their learning. In addition, students are required to participate in group discussion/problem solving meetings in Chem 102 throughout the semester. 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 states pf matters, solution properties, chemical reaction rates, chemical equilibrium, acid-base concepts and properties, acid-base titration and equilibria, solubility and complex-ion equilibria, thermodynamics, electrochemistry. Chemists deal with these subject areas every day, but these concepts are also crucially important to other branches of science and technology. Prerequisite: The student must have completed Chem 1311 and Math 1314.

Lecture Learning Outcomes / Course Objectives

Upon completion of the course, I intend for my students to have realized a number of objectives.
1. Students will be able to analyze, evaluate, or solve problems when given a set of circumstances, data, text or art. Be able to critically analyze a chemical problem and deduce a solution to the problem utilizing step-wise processes.
2. Students will be able to interpret, test and demonstrate principles revealed in empirical data and/or observable facts. General chemistry requires good algebra skills. By the end of this course, you should be able to utilize algebraic skills to solve chemical problems.

3. In written, oral, and/or visual communication, A&M-Commerce students will communicate in a manner appropriate to audience and occasion, with an evident message and organizational structure.
4. Students will be able to work together toward a shared purpose relevant to the course or discipline with a sense of shared responsibility for meeting that purpose.

General Content Knowledge Students Should Obtain

1. Relate the structure found in a given molecule to its physical and properties.
2. Know the importance of chemistry and its relationship to other disciplines and our daily lives.
3. Understand the reactivity of compounds, ions, and molecules, and the various qualitative and quantitative methods for describing or depicting chemical reactions.
4. Understand the concept of chemical equilibrium, and the energies that drive chemical reactions: an introduction to the field of thermodynamics.
5. Use LeChatelier's Principle to predict the effects of concentration, pressure and temperature changes on equilibrium mixtures.
6. Understand oxidation-reduction reactions and be able to calculate voltage difference in voltaic cells. Understand how to balance oxidation-reduction reactions.

Course Requirements and Instructional Methods

Course Procedure: The intent of the course is for you to review textbook materials, review lecture related materials, and work individually and/or in small groups to complete assignments throughout the semester. You will work in discussion groups in Chem 102. The Instructor may change the groups periodically. You are required to work together as a team to answer or work out the questions in the assignments. The Instructor for the course is not present to answer the questions for you. Rather, the Instructor is present to guide you in your learning efforts. This has proven to be an effective way to learn Chemistry; we will be using methods similar to a National Science Foundation sponsored program called POGIL (Process Oriented Guided Inquiry Learning, www.pogil.org).

Student Responsibilities or Tips for Success in the Course: Pointers to Succeed

The content in this course will cover roughly chapters 12-20 of the textbook in ALEKS. This material will be covered at the rate indicated by the *Tentative Class Schedule. Be sure to read the textbook before attending the lecture classes***.** The course 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. Chemistry is a physical science and it is imperative to master calculations to pass the course.

Grading

Online ALEKS assignments: 30%
Exams: 50% (the lowest one will be dropped)
Final Exam: 20%
Spring Last Date to Drop is March 31, 2022

The final letter grade will be based on a standard scale 90-100% A, 80-89.9% B, 70-79.9% C, 60-69.9% D, and below 60% F. Incomplete grades may be given only if the student has a current

average ≥70% and is precluded from completion of the course by a documented illness or family crisis.

Only non-programmable calculators are allowed on assignments, quizzes or exams. I recommend purchase of one of the following calculators, which are available for approximately $10.00-$15.00: TI-30X IIS (solar) or TI-30X IIB (battery) or TI-30Xa. NO OTHER CALCULATOR TYPE IS ALLOWED. ALL calculators will be checked before quizzes or exams of the course.

TENTATIVE COURSE OUTLINE / CALENDAR

Week	date	Chapter[a]	ALEKS Assignments, quizzes & exams
1	Mon	Winter Break	
	Wed	Course Introduction & Ch 13 (*Ch 12)	
	Fri	Ch 13 (*Ch 12)	
2	Mon	MLK Holiday	
	Wed	Ch 13 (*Ch 12)	Pre-requisite review due, 1/21
	Fri	Ch 13/14 (*Ch 12/13)	
3	Mon	Ch 14 (*Ch 13)	HW 1 & Quiz 1 due
	Wed	Ch 14 (*Ch 13)	
	Fri	Ch 14 (*Ch 13)	
4	Mon	Ch 14 (*Ch 13)	
	Wed	Ch 14 (*Ch 13)	HW 2 & Quiz 2 due
	Fri	Review for Exam 1	
5	Mon	Exam 1	
	Wed	Ch 10 (*Ch 6)	
	Fri	Ch 10 (*Ch 6)	
6	Mon	Ch 10 (*Ch 6)	HW 3 & Quiz 3 due
	Wed	Ch 15 (*Ch 18)	
	Fri	Ch 15 (*Ch 18)	
7	Mon	Ch 15 (*Ch 18)	
	Wed	Review for Exam 2	HW 4 & Quiz 4 due
	Fri	Exam 2	
8	Mon	Ch 16 (*Ch 14)	
	Wed	Ch 16 (*Ch 14)	
	Fri	Ch 16 (*Ch 14)	HW 5 & Quiz 5 due
Spring Break (3/11-3/15/2024)			
9	Mon	Ch 17 (*Ch 15)	
	Wed	Ch 17 (*Ch 15)	
	Fri	Ch 17 (*Ch 15)	
10	Mon	Ch 17 (*Ch 15)	HW 6 & Quiz 6 due
	Wed	Review for Exam 3	
	Fri	Exam 3	
11	Mon	Ch 17 (*Ch 16)	

	Wed	Ch 17 (*Ch 16)	HW 7 & Quiz 7 due
	Fri	Ch 17 (*Ch 16)	
12	Mon	Ch 18 (*Ch 17)	
	Wed	Ch 18 (*Ch 17)	
	Fri	Ch 18 (*Ch 17)	HW 8 & Quiz 8 due
13	Mon	Review for Exam 4	
	Wed	Exam 4	
	Fri	Ch 19 (*Ch 19)	
14	Mon	Ch 19 (*Ch 19)	
	Wed	Ch 19 (*Ch 19)	
	Fri	Ch 19 (*Ch 19)	HW 9 & Quiz 9 due
15	Mon	Ch 20 (*Ch 20)	
	Wed	Ch 20 (*Ch 20)	
	Fri	Ch 20 (*Ch 20)	
16	Mon	Review	HW 10 & Quiz 10 due
	Wed	Prep. for Final Exam	
	Fri	Prep. for Final Exam	
17	**Final Exam (5/6-5/10/2024)**		

a: Burdge et al.: Chemistry: Atoms First, 4th Ed. (*Ebbing et al.: General Chemistry, 10th or 11th)

Chap 10 Energy Changes in Chemical Reactions
Chap 13 Physical Properties of Solutions
Chap 14 Chemical Kinetics
Chap 15 Entropy and Gibbs Energy
Chap 16 Chemical Equilibrium
Chap 17 Acids, Bases and Salts
Chap 18 Acid-Base Equilibria and Solubility Equilibria
Chap 19 Electrochemistry
Chap 20 Nuclear Chemistry

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements
LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm
YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

Communication for course correspondence will be via TAMUC email. It is expected that all responses should be within 48 hours.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.

http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx
Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03
Undergraduate Student Academic Dishonesty Form

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf

Graduate Student Academic Dishonesty Form

http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Students with Disabilities-- ADA Statement

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
Velma K. Waters Library Rm 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu

Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.