CHEM 107 – 508 **Chemistry for Engineers** **Fall 2018**

Lecture Time & Location: MW 5:30 - 6:45 pm in HELD 100

Instructor: Dr. Nicholas Arnet **Email**: nicholas.arnet@tamu.edu
Office: HELD 116A
Office Hours: TWR 1:30 - 3:00 pm

Instructor's Assistant: Lindy Elrod **Email**: lcelrod1221@tamu.edu

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Course Description

This course is designed to teach incoming students the fundamentals of chemistry necessary to pursue a career as an engineer. Students who wish to pursue careers as chemical engineers, however, should enroll in the CHEM 101 and 102 courses. This course will cover material ranging from the nature of molecules and chemical bonds, to thermodynamics and equilibria. Through the use of lectures, guided online homework, and collaborative problem solving, this course aims to provide each student with the opportunity to think and talk accurately about chemistry as well as correctly calculate the solution to chemical problems. Students may substitute CHEM 107 for CHEM 101, but may not receive credit for both. Prerequisite: Concurrent enrollment in CHEM 117.

Required Materials

- Textbook – *Chemistry for Engineering Students*, Brown, L. S. and Holme, T. A. 4th Ed. Cengage Learning, 2017.
- Online Homework – OWLv2 online teaching and learning resources from Cengage Learning. A subscription can be purchased alongside the textbook or online.
- Response Device – The iClicker2 device will be used during every lecture. It can be purchased from the TAMU bookstore.
- Calculator – A non-programmable scientific calculator will be necessary for examinations. Recommended models include the TI-30X and TI-36X calculators. Cell phones will not be permitted during examinations.

Grading

ALEKs Module	30 pts.
Homework	60 pts.
Clicker Questions	60 pts.
Test 1	100 pts.
Test 2	100 pts.
Test 3	100 pts.
Final Exam	150 pts.

A: 540 - 600 pts. **B**: 480 - 539 pts. **C**: 420 - 479 pts. **D**: 360 - 420 pts. **F**: < 360 pts.

ALEKs Reinforcement Module

Over the summer, students should have received an email directing them to a reinforcement module that can be accessed through students' eCampus page. Part of this module is an ALEKs online assessment and training course to help ensure students have the basic math and chemistry knowledge necessary to excel in the course. The overall mastery of all topics (percent completion of the ALEKs pie) is worth 5% of students' overall grade. The initial due date for the assessment and online assignments is 11:55 pm on Friday, August 24th, with a final deadline of 11:55 pm on Friday, September 7th. There will be no extensions or late submissions past this final deadline.

Homework

Homework will be administered using the OWLv2 online program by Cengage Learning. A subscription can be purchased online from the Cengage website or through the bookstore. Enroll for this section (508) by following the instructions on the OWLv2 handout. There will be multiple types of assignments for each chapter available for students' own edification, but the only assignment that will be graded is the Chapter Mastery assignment. The assignment will be available when lecture on the chapter begins and is due one week after the final lecture of the chapter, before class (see course schedule for tentative dates). Performance on the Chapter Mastery assignments count as 10% of students' final grade.

NOTE: All homework assignments will be weighted equally, meaning that an assignment with 20 questions will be worth the same points as an assignment with 5 questions. The grade reported on OWLv2 does not calculate your homework grade this way, so to know your actual homework grade, you will need to recalculate it.

Clicker Questions

During lectures, multiple choice questions will be presented to which students are expected to respond using an iClicker2 device (available from the bookstore). Clicker questions are worth 10% of students' final grade. The correct answer to the question is necessary to receive full credit, but half credit is awarded for giving any answer. After the question is presented, students will be allowed and encouraged to discuss with fellow classmates before submitting an answer. If a student is absent from lecture, or does not respond to the clicker questions, the student will receive no credit for that day's clicker grade.

Examinations

There will be three tests administered during the semester focusing on material from the preceding chapters and one comprehensive final examination administered at the end of the semester. They will require a No. 2 pencil, a non-programmable calculator, and student I.D. Seating will be assigned and use of cell phones, tablets, or any electronic device besides the calculator is strictly forbidden.

A make-up exam may be taken with a university-approved excused absence (http://student-rules.tamu.edu/rule07). Make-up tests must be taken within one week of the original test.

Attendance

Attendance itself will not factor into students' grade, but attendance is required to respond to clicker questions. If a student is able to provide a university-approved excuse for an absence, the student will not be penalized for any missed clicker questions. See Rule 07.

Learning Outcomes

Upon completion of this course, students will be able to: describe the properties of atoms and molecules, identify chemical changes in matter, balance and calculate stoichiometry of chemical reactions, understand and utilize the ideal gas law, understand thermodynamics and its role in determining spontaneity, determine rate laws for given reactions, and calculate concentrations of a system at equilibrium.

Instructor's Assistant

The instructor's assistant (IA) is a graduate chemistry student assigned to work with the course instructor to teach the course. The IA will attend some lectures to help students answer clicker questions, hold optional weekly review sessions for students, and assist with writing examinations.

Electronic Devices

Cell phones should be silenced or powered down during lecture and should remain out of sight. Use of laptops and tablets will be permitted for the purposes of note-taking and following along with the lecture. If these devices are found being used for other purposes, the privilege of their use will be revoked for the entire class.

Academic Honesty

"An Aggie does not lie, cheat, or steal, or tolerate those who do." Please review the Honor Council Rules and Procedures at http://aggiehonor.tamu.edu. Those who fail to follow the code will be reported for academic dishonesty.

Texas A&M Services for 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 believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit http://disability.tamu.edu/

Tentative Course Schedule (Subject to Change)

Date	Lecture Topic	Homework Due
Mon. 8/27	Syllabus and Chapter 1 - Part I	
Wed. 8/29	Chapter 1 - Part II	
Mon. 9/3	Chapter 2 - Part I	
Wed. 9/5	Chapter 2 - Part II	Chapter 1
Mon. 9/10	Chapter 3 - Part I	
Wed. 9/12	Chapter 3 - Part II	Chapter 2
Mon. 9/17	Chapter 4 - Part I	
Wed. 9/19	**TEST 1 - Chapters 1-3**	Chapter 3
Mon. 9/24	Chapter 4 - Part II	
Wed. 9/26	Chapter 5 - Part I	
Mon. 10/1	Chapter 5 - Part II	Chapter 4
Wed. 10/3	Chapter 6 - Part I	
Mon. 10/8	Chapter 6 - Part II	Chapter 5
Wed. 10/10	Chapter 7 - Part I	
Mon. 10/15	**TEST 2 - Chapters 4-6**	Chapter 6
Wed. 10/17	Chapter 7 - Part II	
Mon. 10/22	Chapter 9 - Part I	
Wed. 10/24	Chapter 9 - Part II	Chapter 7
Mon. 10/29	Chapter 10	
Wed. 10/31	Chapter 11 - Part I / Halloween Spooktacular	Chapter 9
Mon. 11/5	**TEST 3 - Chapters 7, 9, 10**	Chapter 10
Wed. 11/7	Chapter 11 - Part II	
Mon. 11/12	Chapter 12 - Part I	
Wed. 11/14	Chapter 12 - Part II	Chapter 11
Mon. 11/19	Special Topics!	
Wed. 11/21	Thanksgiving Break! Eat yourself silly.	

Date	Lecture Topic	Homework Due
Mon. 11/26	Chapter 13 - Part I	Chapter 12
Wed. 11/28	Chapter 13 - Part II	
Mon. 12/3	No Class - Attend Friday Lectures	
Wed. 12/5	Review / Special Topics	Chapter 13
Fri. 12/7	**FINAL EXAM 7:30 - 9:30 am**	