**Course Objectives**

This course is intended to provide engineering students with a background in important concepts and principles of chemistry. (A few non-engineering majors, including physics and geophysics, also take this course.) Emphasis will be placed on those areas considered most relevant in an engineering context, and practical applications in engineering and technology will be examined.

In designing this course, we considered various reasons why engineering students should learn chemistry and tried to express them as specific learning objectives. Many of these objectives deal with particular topics or skills, and a detailed listing can be found online at [http://chem107.chem.tamu.edu/brown/reading.htm](http://chem107.chem.tamu.edu/brown/reading.htm). Some of the most important goals, though, are more “global” in nature. These goals deal with the overall relationship between chemistry (or science in general) and engineering rather than with the details of any particular chemical principle. The list below summarizes my general aims for the course. I will try to keep these overall objectives in mind throughout the course, and you should, too.

Students successfully completing CHEM 107 should be able to:

- use your knowledge of molecular structure and properties in describing and solving real technological problems.
- explain and appreciate the relationship between experiment and theory in science in general and chemistry in particular.
- demonstrate quantitative problem-solving skills in many aspects of chemistry, including stoichiometry, thermochemistry, chemical equilibrium, and reaction kinetics.
- describe the modern theoretical basis for understanding important areas of chemistry, including atomic structure, chemical bonding, and molecular structure.

**Relationship to CHEM 117 Lab**

CHEM 107 is a 3-credit *lecture only* course. CHEM 117 is a separate 1-credit lab course. These courses are co-requisites for one another, so in most cases you will be required to take both classes concurrently.
**Required Textbook & Supplies**

  
  - Traditional hardcover textbook (ISBN 978-0-357-02699-1, available directly from the publisher at [https://www.cengage.com](https://www.cengage.com) for $150.95; should also be available at local bookstores, Amazon, etc.)

The looseleaf/e-book option includes an OWL access code, which is not absolutely required. But that option is much less expensive than a new hardcover book, and probably less expensive than a used copy of the hardcover book. You should choose whichever format you believe would work best for you. Additional practice problems will be available in OWL, but those will not count for course credit.

Other options also exist. One that may be attractive is the Cengage Unlimited subscription package, which is available from either of the websites listed above. This includes all available Cengage materials (in all subjects). A list of TAMU courses using Cengage textbooks is available at [https://tinyurl.com/y2wq97ol](https://tinyurl.com/y2wq97ol). There are also rental options offered by Cengage and other vendors.

- iClicker classroom response device, usually called a “clicker.” You should be able to use either an iClicker2 device (ISBN #978-1-498-60304-1) or the iClicker REEF app. The clickers should be available at the various bookstores in town, or you can also find them online. The iClicker REEF app is available for iOS and Android, and there should be a web version that can be used from any browser, meaning you could use your laptop, etc. For more information on iClicker REEF, see [https://www.iclicker.com/students](https://www.iclicker.com/students). Whichever option you choose, you will need to bring it with you to class each day.

**Class Information and Announcements**

Announcements regarding schedule changes or other developments will be made in class at the earliest possible time. Much of this information will be available electronically.

**Website:** [http://chem107.chem.tamu.edu/brown](http://chem107.chem.tamu.edu/brown)

The class website can be found at the above URL. This site offers a broad array of class information, including copies of the slide files used in class, old exams, and announcements.

**Electronic Mail**

I will often send out class information through the TAMUDirect system, which lets me send mail to the entire class roster. Any such announcements will always go to your TAMU email address. Please be sure to check that account regularly, or to set up a forwarding instruction if you prefer to read a different account.
Grading

Grades will be determined based on the following criteria.

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiz</td>
<td>50 pts</td>
</tr>
<tr>
<td>3 Hour exams @ 100 pts each</td>
<td>300 pts</td>
</tr>
<tr>
<td>1 Final exam @ 150 pts</td>
<td>150 pts</td>
</tr>
<tr>
<td>Reinforcement module</td>
<td>30 pts</td>
</tr>
<tr>
<td>Clicker questions</td>
<td>20 pts</td>
</tr>
<tr>
<td>Homework</td>
<td>50 pts</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td><strong>600 pts</strong></td>
</tr>
</tbody>
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Note that things other than exams (i.e., homework, clicker questions, and the reinforcement module) account for ~17% of your grade. Failure to do homework assignments or to attend class and respond to the clicker questions can drastically lower your course grade! Conversely, good scores on homework and clicker questions can also raise your course grade substantially.

Letter grades will be assigned based on the percentage of the total course points earned, using the following scale. Note that your grade depends only on your scores, and not on class averages.

- $\geq 87 = A$
- $75—86 = B$
- $63—74 = C$
- $51—62 = D$
- $< 51 = F$

Exams

We will have a quiz on Friday, 9/6. Regular exams will be given on September 20, October 18, and November 13, all during our regularly scheduled class time. Exams may include questions or problems in any format: multiple choice, short answer, numerical problems, etc.

Missed Exams

There will be no regularly scheduled make-up exams. In the event that you miss an exam due to a university-approved absence, you should consult with me as soon as possible to discuss your situation. If possible, you should discuss your absence with me before the exam is given.

Final Exam

The Final Exam will be a two-hour, 150-point test covering all material taught during the semester. Final exams are scheduled at the following times.

- **Section 501:**
  - Monday, December 9, 8:00 AM—10:00 AM
- **Section 502:**
  - Wednesday, December 11, 10:30 AM—12:30 PM

Homework

Problem sets will be assigned approximately weekly throughout the semester and will be handled by the LON-CAPA electronic homework system. (There is no additional cost or registration needed for this system, and I will explain how to access it in class.) The homework points to be added to your grade will be determined by calculating the percentage of the assigned problems for which you have received credit. If you have done all the problems, you will receive 50 homework points. Doing half of the problems will get you 25 points, and so on. Please note that the homework counts for almost 10% of your grade, so if
you don’t do any of the problems, it will probably cost you a letter grade! More importantly, if you are not working problems regularly you are extremely unlikely to be prepared to do well on exams. Additional practice problems will be available through the Cengage/OWL homework system, but these will not be for credit.

**Clicker Questions**
Starting the week of September 2, each class will include one or more clicker questions. Most of these questions will be designed see how well the class understands something we have been working on. Credit for such questions will be awarded partially for responding at all and partially for responding correctly.

The number of points added to your final grade will be based on the fraction of the clicker questions for which you receive credit. In order to allow for a reasonable number of class absences, technical issues, etc., you will receive the full 20 points if you receive credit for at least 80% of the clicker questions over the course of the semester. Those who receive credit for less than 80% of the questions will earn points as determined by the following formula:

$$\frac{\# \text{ pts earned}}{0.8 \times \text{total } \# \text{ of clicker questions}} \times 20$$

**Reading Assignments and Class Coverage**
A detailed calendar showing reading assignments associated with each day’s class is posted on the class website, and can be accessed directly at [http://chem107.chem.tamu.edu/brown/reading.htm](http://chem107.chem.tamu.edu/brown/reading.htm).

**Absences**
You are responsible for all material presented in class, even if you should happen to be absent. The slide files from the website and/or notes from a classmate can help you to be sure you know what you might have missed.

If you miss an exam, you will be required to provide suitable documentation that your absence should be excused according to University rules and regulations (Student Rule 7). Whenever possible, you should discuss any upcoming absences with me in advance.

**Course Materials and Copyright Issues**
The handouts and other materials used in this course are copyrighted. Here “handouts” means all materials generated for this class, including but not limited to syllabi, quizzes, exams, lab material, class slide files, learning objectives, problem sets, and assorted materials appearing on the class website. Because these materials are copyrighted, you do not have the right to copy them for any purpose other than your own personal academic use unless I expressly grant permission. In particular, course materials are not to be given or sold to any profit-seeking enterprise.

**Academic Honesty**

“An Aggie does not lie, cheat, or steal or tolerate those who do.”
Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow
the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit: https://aggiehonor.tamu.edu.

**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, http://disability.tamu.edu, 845-1637. The Disability Services office is especially busy in the fall, so please make an appointment with them **today** if you feel you require assistance.

**Student Counseling Services**

As a student you may experience a range of issues that challenge your academic commitment, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to reduced classroom performance or decrease your ability to perform daily activities. Texas A&M University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. You can learn more about the broad range of confidential mental health services available on campus via https://scs.tamu.edu/services.

**Title IX and Statement on Limits to Confidentiality**

Texas A&M University and the College of Science are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees — including instructors — cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report (per Texas A&M System Regulation 08.01.01) the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:

- Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff, or third parties visiting campus.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Student Counseling Service (https://scs.tamu.edu/).

Students and faculty can report non-emergency behavior that causes them to be concerned at http://tellsomebody.tamu.edu.