Lectures:
9:10 – 10:00 AM (M/W/F) Strong Hall 101 (STR 101)

Office: Strong Hall 304

Office Hours: Mondays 10:15AM – 12:00PM, Thursdays 11:30AM-1:30PM, or by appointment.
Please send me an email with several days/times you are available to schedule an appointment.

Email: jkoubek@utk.edu. Given the massive amount of email I receive, you must include a subject that is informative and your name with course number. Please don’t hesitate to email me with updates, questions, or concerns. I will respond to all emails usually in no more than 24 hours. Please note that emails outside of Monday-Friday 8am - 5pm (or during breaks) may have a longer wait time. Check email etiquette on Canvas site under course policies.

Lecture TA: Zackary Hulsey. <zhulsey@vols.utk.edu>


Canvas: Class announcements, lecture notes, course documents, and grades will be posted on Canvas (utk.instructure.com). Students are responsible for monitoring their UTK e-mail account and the course site.

Clicker: A clicker is required for the course. You do not need to purchase a physical clicker since you can use a laptop or your mobile device as a clicker. Please register your clicker online (https://oit.utk.edu/teachingtools/clickers/), please note that you will need to use your @tennessee.edu email address. There will be clicker questions in many lectures. I will count the clickers out of 10 points for each day clickers are used, regardless of the number of questions that day. There are no make-up points for clickers.

Technical Support: For technical issues, contact the OIT HelpDesk by phone at (865) 974-9900 or at the Walk-in HelpDesk. For IT and Computing issues, use the online Contact Form

COVID-19 Guidelines: “We will follow the current university policy for COVID-19 at all times.”

Course Description: First course in a two-semester sequence covering fundamental principles of chemistry. Topics covered include atomic structure, the periodic table, Molecular bonding and structure, Chemical Stoichiometry, basic of thermochemistry, and properties of gases.
I expect from you the following: 1) Be prepared for all classes, 2) Be respectful of others, 3) Actively contribute to the learning activities in class, & 4) Abide by the UT Honor Code.
Grading:

Three exams: 45%
  (Exam 1: 15% - Exam 2: 15% - Exam 3: 15%)
Online Homework assignments 15%
Quizzes 15%
Participation (Clicker) 5%
Final Exam (comprehensive) 20%

Grading Scale:
- 93 and above: A
- 88.0 – 93.9: A -
- 84.0 – 87.9: B +
- 80.0 – 83.9: B
- 76.0 – 79.9: B -
- 72.0 – 75.9: C +
- 68.0 – 71.9: C
- 64.0 – 67.9: C -
- 60.0 – 63.9: D +
- 56.0 – 59.9: D
- 52.0 – 55.9: D -
- 51.9 and below: F

Note: These letter grade assignments are subject to change, but only in the direction beneficial to the students.

Exams: There will be three (3) 90 minutes evening exams and one (1) two hours Final exam. The three exams will be given on the selected days (see below) at 7:00 – 8:30 pm. The final exam will be given during the final exam period. No make-up exams will be given. If one of the three exams is missed due to excused absence, then the final exam will count as the excused exam grade. An excused of missed exam or absence will only be considered with the support of written documentation. The re-grading of an exam must be requested within 5 school days of receiving the graded exam. With regrades, the entire exam will be regraded. The final exam will be comprehensive and will count for 20% of the final grade and will be given during final exam week. The room will be announced later in the semester via Canvas and email. Every student is required to take a comprehensive final exam during the schedule exam period. If the final exam is a higher grade than the lowest exam grade then the final exam grade will replace the lowest exam grade as long as all 3 regular exams are taken.

Exam Schedule (All locations are TBA)
- Exam 1: Tuesday September 26th from 7:00-8:30 pm
- Exam 2: Tuesday October 24th from 7:00-8:30 pm
- Exam 3: Tuesday November 14th from 7:00-8:30 pm
- Final Exam: Friday December 8th from 1:00 pm – 3:00 pm

Quizzes: We will be having announced OWLv2 quizzes online. These quizzes will cover material from lecture notes, workshops, and reviews. These will count for 15% of your final grade. No makeup quizzes are given. If you miss a quiz due to a university approved excuse you will need to present official documentation to me; the missed quiz will be left out of your grade and the remaining quizzes will be used.

Online Homework: Online homework counts for 15% of the final grade, and no credit will be given after the due date. To access your course materials, you must first login to your Canvas account and click the link for Chem 102 course. Please use your vols account to login. If you see a message saying “you already have an account”, then click “forgot password” and reset your account. If you are still having problems then email Ms. Jennifer McCown, Jennifer.mccown@cengage.com. We will be using OWLv2 electronic homework system.

Each homework set is comprised of a set of mastery assignments with three questions apiece. You just need to answer 2 of the 3 mastery questions correctly in order to master a group. For each mastery group, you get 10 attempts.
**Extra Help:** In addition to my office hours, two other resources are available for you:

1) TAs will have office hours that will be announced during the first week of class. All TA office hours will be in the Chemistry Learning Centers (Buehler 513, Strong 303, and on Zoom). It’s free and staffed by graduate teaching assistants. Check Canvas for more details about which center is open when.

2) Student Success Center. A supplemental Instruction (SI) is also free for all the students who want to improve their understanding of the course content. For more information, please see [https://studentsuccess.utk.edu](https://studentsuccess.utk.edu)

**Calculator policy:** Non-programmable scientific calculators such as TI 30 are allowed. No graphing calculators. Bring a calculator to lecture, and exam.

**ACADEMIC DISHONESTY:** An act of academic dishonesty may lead to such penalties as reduction of grade, probation, suspension, or expulsion from the University. I reserve the right to assign a grade of zero for actions involving violations of the following University of Tennessee Honor Code:

> An essential feature of The University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.”

IN summary, this course has a zero tolerance policy on cheating. Individual cases will be prosecuted to the full extent possible.

**Generative AI Tools:** In this course, it is expected that all submitted work is produced by the students themselves. Students must not seek the assistance of Generative AI Tools like ChatGPT. Use of a Generative AI Tool to complete an assignment constitutes academic dishonesty.

**Disability Services:** The University of Tennessee, Knoxville, is committed to providing an inclusive learning environment for all students. If you anticipate or experience a barrier in this course due to a chronic health condition, a learning, hearing, neurological, mental health, vision, physical, or other kind of disability, or a temporary injury, you are encouraged to contact Student Disability Services (SDS) at 865-974-6087 or sds@utk.edu. An SDS Coordinator will meet with you to develop a plan to ensure you have equitable access to this course. If you are already registered with SDS, please contact your instructor to discuss implementing accommodations included in your course access letter.

**Learning Objectives for Principles of Chemistry 102:**

1. Become familiar with units of measurement and their inherent uncertainty, as well as learn how to convert from one set of units to another.
2. Gain a basic understanding of the structure of an atom.
3. Learn about the difference between molecular and ionic compounds, including the bonding between the two types. Be able to identify and name both molecular and ionic compounds.
4. Become familiar with chemical reactions, as well as how to balance them and how to determine how much of a particular reactant is needed for a reaction or how much of a particular product is formed from a reaction.
5. Learn about the differences between solids, liquids, and gases.
6. Become familiar with the differences between solutions and colloids. Understand the properties associated with solutions. Learn about solubility and expressing concentrations.
7. Gain an understanding of reaction rates and what affects reaction rates. Learn about equilibrium and how to solve for the equilibrium constant, K.
8. Become introduced to nuclear chemistry, since it plays an intricate role in medicine. See how it is used for medical purposes.
9. Learn how to study and not just memorize material, but instead be able to apply it and gain a sound understanding of the material.

The instructor reserves the right to revise, alter, or amend this syllabus as necessary. Students will be notified in writing / email of any such changes.
<table>
<thead>
<tr>
<th>2023</th>
<th>August</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TENTATIVE SCHEDULE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>2023</strong></td>
<td><strong>September</strong></td>
</tr>
<tr>
<td><strong>October</strong></td>
<td><strong>November</strong></td>
</tr>
<tr>
<td><strong>December</strong></td>
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</tbody>
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**CHAPTER 1:** (8/23-9/1)
Scientific method, significant figures, unit conversions, density, specific gravity, energy

**CHAPTER 2:** (9/6-9/15)
Composition of matter, Dalton’s atomic theory, composition of atoms, periodic table, electron configuration, periodic properties

**CHAPTER 3:** (9/18-9/29)
Octet rule, nomenclature of ions, chemical bonds, nomenclature of ionic compounds, covalent bonds, Lewis structures, resonance, VSEPR model, polarity

**CHAPTER 4:** (10/2-10/13)
Balancing chemical equations, precipitation reactions, oxidation-reduction reactions, formula/molecular weights, mole, heat

**CHAPTER 5:** (10/16-10/25)
States of matter, pressures, gas laws, Dalton’s law of partial pressure, kinetic molecular theory, intermolecular forces

**CHAPTER 6:** (10/27-11/3)
Mixtures, characteristics of a solution, solubility, concentration, colloids, colligative properties

**CHAPTER 7:** (11/6-11/10)
Reaction rates, activation energy, equilibrium, Le Chatelier’s principle

**CHAPTER 8:** (11/15-11/27)
Acids and Bases, conjugate pairs, equilibrium, ionization constants, pH & pOH, titrations, buffers

**CHAPTER 9:** (11/29-12/1)
Radioactivity, half-life, detecting & measuring radiation, dosimetry, nuclear medicine, fusion, fission

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