

CHEM 105: General Chemistry I, Section 001 (4 credit hours)
Fall 2019

Class Meetings:

MW 8:00 – 9:15 and TR 9:30 – 10:45, Sims 105

Mondays, Tuesdays, and Thursdays will be devoted to lectures on new material. Wednesdays will typically be problem-solving (“recitation”) days, used to practice recent concepts and take quizzes.

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Office Hours: MTW 1:00-2:30 and by appointment

These are the hours you will be sure to find me in my Sims office (or labs). You’re also welcome to arrange another time to meet, or to just stop by; if my door is open, knock and come on in! Feel free to e-mail me with questions, too.

Required Course Materials:

Textbook: *Chemistry: An Atoms-Focused Approach*, by Gilbert, Kirss, Foster, and Bretz, 2nd ed.

Calculator: Any scientific or graphing calculator

Note: Phones and other electronic devices are prohibited during quizzes and exams. These may not be used as calculators.

Web page: Visit our course web page often to view answer keys, study guides, etc. Go to <http://chem.winthrop.edu>, choose the Courses link at left, and select our section of CHEM 105 from the list.

Course Goal: To provide an introduction to chemistry, targeted particularly toward students majoring in the sciences

Student Learning Outcomes:

- Developing critical-thinking and problem-solving skills
- Learning and using the chemical vocabulary to communicate about scientific subjects
- Understanding fundamental concepts of chemistry and their broad importance in the sciences
- Understanding the scientific methodologies employed in chemical discovery and appreciating the experimental history behind the concepts discussed
- Recognizing and appreciating chemistry and science in daily life

This course satisfies the Natural Science Component of the General Education Program. It encompasses University Level Competency 1 and General Education Goals 2, 3, and 5, as illustrated by the learning outcomes above.

Outline of Topics Covered:

Matter and Energy – Atomic and Electronic Structure – Bonding and Molecular Structure – Chemical Equations and Reaction Stoichiometry – Properties of Gases, Liquids and Solids – Thermodynamics – Kinetics – Equilibrium – Acid-Base Chemistry – Electrochemistry

Study Tips:

Chemistry is a challenging subject! You will probably encounter some concepts that seem foreign and difficult. You will also find that the topics we cover build on each other, each providing the foundation for the next. **Active participation in class and significant outside preparation before each meeting are crucial to success.** A few specific suggestions are provided below:

- Attend each meeting prepared to learn. Take complete notes, participate, and ask questions during class.
- **Don’t let yourself get behind!** Spend time working on chemistry before each class meeting. You should expect to spend at least 2 hours outside of class for each one hour of class time:
 - ✓ **Working and reworking assigned problems** – this is the best way to learn chemistry
 - ✓ Reviewing class notes, textbook material, and goals for student learning
- **Get help!! Don’t wait.** I’m happy to answer questions! Your classmates (dormmates, etc.) are a good source of assistance, too, as are the chemistry tutors available to you.

Assignments:

Exams:

Four 100-point exams will be given in class on the dates shown below. If you will be unable to take an exam at the scheduled time due to participation in a University-approved activity (such as an athletic meet), **you must make arrangements in advance to take the exam at another time**. If you are absent on the exam date without prior approval and do not provide a written doctor's excuse, you will receive a zero for that exam.

Exam I: Thursday, Sept. 12
Exam II: Monday, Oct. 7
Exam III: Thursday, Oct. 31
Exam IV: Monday, Nov. 25

A **cumulative** final exam (250 points) will be given during finals week. You must take the final in order to pass the course.

Final Exam: Tuesday, Dec. 10, 8:00-10:30 AM

Quizzes:

Eight quizzes will be given during recitation meetings on Wednesdays (see schedule), each worth 25 points. **No make-up quizzes will be given**. At the end of the semester, I will drop your two lowest quiz grades.

Exercises and Problem Sets:

Working and reworking problems is by far the best way to learn chemistry. **I strongly suggest that you work all assigned textbook and problem-set problems**, getting help as soon as possible with those you don't understand.

Odd-numbered Textbook Exercises: I have chosen odd-numbered exercises from the end of each textbook chapter to accompany the material covered in class, answers to (almost all of) which are provided in the back of the book. You should work these after each meeting to practice applying the concepts presented and to identify areas in which you need help. **Understanding these problems is the best preparation for quizzes, graded problem sets, and exams**. We will devote much of our time on Wednesdays to going over these and other practice problems (and taking quizzes); be sure to come prepared with your questions and your solutions to share with the class.

Each Wednesday (beginning 8/28), 1-3 **groups of students will demonstrate solving assigned problems** of their choice (one solution per group, worth 10 points). A schedule of assigned groups and dates will be provided. The assigned problems from which groups may choose are underlined on the schedule; those with asterisks (*) are more challenging and carry the opportunity to earn extra credit.

Graded Problem Sets: I will assign approximately six (6) problem sets during the course of the semester that will be collected for grading. In total, these assignments will be worth 140 points.

"How Does It Work?" Reports

You will each select a different scientific "how-does-it-work" question, on which you will write a **1-2-page report** and give a **~3-minute, informal presentation**. Oral reports will typically be given on Mondays; your written paper is due by 5 p.m. on the day you present. More detail on topics, required content, and assigned presentation dates will be provided in class.

Daily In-class Review Questions:

At the beginning of each lecture, I will choose 1-3 students at random to answer brief questions related to material covered in the last meeting. Reviewing your notes should help you to answer these questions (and prepare you for class). Correct answers will be rewarded with extra credit.

Grading:

The distribution of points in this course and the guaranteed grading scale are shown below. Course grades will be determined based on the percentage of points earned. Cut-offs may be adjusted lower depending on class performance.

Midterm Exams (4 × 100)	400 pts
Quizzes (8 × 25; drop 2 lowest)	150 pts
Problem Sets	140 pts
In-class Solutions to Probs. (2 × 10)	20 pts
Reports (Oral & Written)	40 pts
Final Exam	<u>250 pts</u>

Total: 1000 pts

Guaranteed grading scale (cut-offs may be adjusted lower depending on class performance):

A: 93-100 % **A-:** 88-92 % **B+:** 85-87 % **B:** 80-84 % **B-:** 76-79 % **C+:** 72-75 % **C:** 66-71 % **D:** 56-65 % **F:** <56 %

Attendance:

You are expected to attend every class meeting (lecture and recitation) for the full scheduled time and are responsible for everything that occurs during that time. **If you miss class, it is your responsibility** to obtain a classmate's notes, as well as any other materials and/or information that may have been provided.

Phones and Electronic Devices:

If you keep your phone on during class meetings, it must be in **Silent/Vibrate** mode. If your phone rings during class, you may be asked to leave. **During quizzes and exams, phones and all personal electronic devices other than calculators are prohibited.**

E-mail:

I will use e-mail – via the addresses listed in Wingspan – to inform the class of course announcements and/or share answers to frequently asked questions. **Please be sure to check your (Wingspan-listed) e-mail regularly.**

Tutoring:

The Chemistry Department provides **free, walk-in tutoring in Sims**, led by upper-level chemistry majors and minors who are hand-selected by faculty. This service is typically available during the times listed below; times and locations for this semester will be finalized soon.

TR 11 a.m. – 12:30 p.m. (Common Time)

MTW 7 – 9 p.m.

The **Academic Success Center (ASC)** also offers free, one-on-one tutoring for this course. To request an ASC tutor, you must attend **one** of the tutee seminars offered on Tuesdays and Fridays through Oct. 18. Please contact the ASC at 323-3929 or success@winthrop.edu if you have questions; you may also stop by Dinkins 106 or visit www.winthrop.edu/success.

Students with Disabilities:

Winthrop University is committed to providing accessible learning experiences and equal access to education for all students. If you have a disability (including a mental health concern, chronic or temporary medical condition, or learning disability, etc.) which causes you to anticipate or experience academic barriers, please contact the Office of Accessibility (OA; 307 Bancroft Annex) at 323-3290 or accessibility@winthrop.edu for information on accommodations, registration, and procedures. After OA approves your accommodations, please make arrangements to discuss them with me as soon as possible, so that we can implement them promptly.

Academic Integrity:

Any instances of academic misconduct will be handled as outlined in the Student Conduct Code (Sect. V), found in the *Student Handbook* (<https://www.winthrop.edu/uploadedFiles/studentconduct/StudentConductCode.pdf>).

Syllabus Change Policy:

Changes to the policies listed here may be made at the instructor's discretion. You will be notified of any modifications.