

CHEM 105—General Chemistry I—Fall 2026

Section 001 (CRN 51072)	Section 002 (CRN 51073)
Lecture: MWF, 9:00-9:50, Science 138 Workshop: R, 9:30-10:45, Science 138	Lecture: MWF, 9:00-9:50, Science 138 Workshop: R, 2:00-3:15, Science 138

Instructor: Eric Glendening, glendening@indstate.edu, Science 053

Office Hours: M 1:00-1:50, W 1:00-1:50, F 1:00-1:50

Textbook: Chemistry 2e (OpenStax)

Homework System: Aktiv Chemistry (Aktiv Learning)

Supplemental Instructor: Lakshitha Sudhakar, lsudhakar@sycamores.indstate.edu

CHEM 105 is the first-semester course of a two-semester general chemistry sequence typically taken by science majors, engineering majors, and by students who seek admission to professional schools in the medical and health sciences. The second-semester course is CHEM 106. The CHEM 105/106 sequence satisfies the chemistry prerequisite for more advanced courses, such as organic chemistry (CHEM 351/352) and analytical chemistry (CHEM 321). Students in CHEM 105 are required to enroll concurrently in the laboratory course CHEM 105L.

Prerequisite: Students enrolled in the course should have an *adequate knowledge of algebra*, consistent with at least one of the following:

- SAT Math score of 510 or above
- ACT Math score of 21 or above
- Maple TA (math placement test) score of 12 or above
- ISU transcript credit for Math 035 or above

Students who have not taken high school chemistry within the past few years should expect to commit extra effort to this course in the early weeks of the semester.

Prerequisite for CHEM 106: A grade of C or higher in CHEM 105 is required to enroll in CHEM 106.

Lectures: *Regularly attend lectures.* Your attendance in class is required and essential to perform well. Each lecture focuses on a different topic. If you must miss a lecture, it is your responsibility to catch up.

Workshops (10% of Course Grade): Your attendance is required in workshop every Thursday. Students work in groups to complete problem-solving activities. *Bring lecture notes and a pencil to these workshops!* Electronic devices other than a calculator may not be used in workshop. Activities completed in the workshops contribute 10% of your raw grade.

Aktiv Chemistry (10% of Course Grade): You will be assigned problems to complete on this online electronic homework system. Create an Aktiv account for yourself by clicking the [Aktiv Login](#) link on the course Canvas site. *The account is free for two weeks.* You must enter an activation code within two weeks to continue using the software for the entire semester. There is a page of frequently asked questions about Aktiv on Canvas. E-mail me if you have any problems.

An Aktiv activation code is available for purchase at the ISU Bookstore or online. Every student must have their own activation code to use Aktiv—codes cannot be shared. The course code for our CHEM 105 Aktiv site is **J74TGU**.

Aktiv assignments are presented to you in sections, each section corresponding to a section of the textbook. You receive credit (points) for each of the problems, or series of problems, completed in the assignment. Aktiv problems can be repeated up to eight times to maximize your score, or just for practice.

You will receive credit for Aktiv assignments completed and submitted to me by the due date. Aktiv assignments are usually due at 9:00 am two class periods after the class in which the assignments are made. No credit is given for late Aktiv assignments.

A total Aktiv score that contributes to your final grade will be calculated by scaling the total number of Aktiv points you accumulate by 1.2. Your Aktiv score will not, however, exceed the total Aktiv points possible. The 1.2 scaling allows you to receive full credit for Aktiv assignments by successfully completing five out of every six Aktiv problems. Aktiv assignments will contribute 10% of the raw grade.

Quizzes (10% of Course Grade): A ten-minute quiz will be given during the last lecture period of every week, except during the first week of the semester, exam weeks, and the last week of the semester. These quizzes will collectively contribute 10% of the raw grade, with the *three quizzes of lowest score discarded*. If you expect to miss a quiz, let me know. I will arrange a time for you to take the quiz early. *Quizzes cannot be made up* after they have been given in class.

Exams (70% of Course Grade): There will be four hour exams and a final. The four hour exams will be given during the 50-minute lecture periods on *Fri Sep 11, Wed Sep 30, Fri Oct 30, and Fri Nov 20*. These exams will cover course-related material, including topics discussed in lecture, in workshop, textbook reading, quizzes, and Aktiv homework. The four exams will each contribute 14% of the final grade.

The final exam will be comprehensive and contribute 14% of the raw grade. The final exam will be given at *8:00 a.m. on Wed Dec 9*.

Improvement Incentive: Although the topics that you learn in chemistry will become increasingly challenging, it is possible to improve your performance as you proceed through the course material. This is principally accomplished by learning from your mistakes and committing extra effort to study material in which your understanding is weak. As an incentive to make the effort to improve your performance during this course, you will receive for each hour exam a bonus equal to 50% (rounded down) of the difference between the next exam score and the current exam score.

For example, if you get a 70 of the first hour exam and an 85 on the second hour exam, a 15 point improvement, you will receive a bonus of 50% of 15 points, which is 7 points (rounded down). Your first hour exam score of 70 will be effectively replaced then by a score of 77.

A bonus will be added to the score of each hour exam if the next exam score is higher. The final exam score will be used when calculating the bonus for the fourth hour exam. There is no opportunity for a bonus on the final exam. Missing an hour exam voids any bonus.

Attendance: Your attendance in lectures and workshops is expected and will influence your final grade for this course through the calculation of an “attendance scale factor.”

Suppose T is the total number of times the class meets during the semester (likely 58 times). A student who attends (or is excused from) a total of N class meetings will be assigned the following attendance scale factor

$$\text{attendance scale factor} = \frac{N + 2}{T} \times 100\% \quad (\text{but not larger than } 100\%)$$

This scale factor will be used in the calculation of your final grade, as described below.

Students register their attendance by “signing in” either on an attendance sheet, a group problem set, a quiz, or an exam. Students may only sign in for themselves; a student who signs in for another student will be counted absent. Students who exit the classroom early, before the end of lecture or workshop, are counted absent.

Students may be excused from a lecture or workshop by informing me of the reason for the absence either prior to the absence or by noon on the day of the missed lecture or workshop. A brief e-mail to me will usually suffice. Note that the “+2” in the calculation of the scale factor effectively allows a student to have two unexcused absences with no penalty.

Grades: A raw grade will be calculated for each student based on their performance on workshop assignments (10%), Aktiv homework (10%), quizzes (10%), hour exams (56%), and the final exam (14%). *The final grade is calculated by multiplying the raw grade by the attendance scale factor* described above. The final grade is translated into a letter grade using the following scale:

Letter Grade	Final Grade (%)
A+	98-100
A	92-97
A–	88-91
B+	83-87
B	75-82
B–	70-74
C+	66-69
C	62-65
C–	58-61
D+	56-57
D	52-55
D–	50-51
F	<50

No extra credit is offered in this course.

Sample Grade Calculation: Sarah finishes CHEM 105 having earned 249 of 313 Aktiv points and 268 of 300 workshop points, and having completed nine quizzes, four hour exams, and the final exam.

The gradebook entries for Sarah show the following:

component	Points	fraction (f)	weight (w)	weighted fraction (w·f)
Aktiv	249 × 1.2	299/313 = 0.954	10%	9.5%
workshops	268	268/300 = 0.893	10%	8.9%
quizzes	8, 8, 9, 6 , 7 , 7 , 10, 9, 8	52/60 = 0.867	10%	8.7%
hour exams	84(+2), 89, 73(+6), 85	339/400 = 0.848	56%	47.5%
final exam	77	77/100 = 0.770	14%	10.8%
raw grade				85.4%

Note that Sarah’s Aktiv points are scaled by 1.2, her three lowest quiz scores are dropped, and the improvement incentive is applied (+2 and +6) to her exam scores.

Sarah was absent nine of the 58 times the class met. She attended class 49 times and had three excused absences. Her attendance factor is $(49+3+2) / 58 = 0.931$. Sarah's final grade is her attendance factor times the raw grade: $0.931 \times 85.4\% = 79.5\%$ for a B.

Dropping CHEM 105: If you drop CHEM 105, the registrar will also automatically drop you from the CHEM 105L laboratory. Beware: if you drop CHEM 105/L, your course load will be reduced by four credit hours, which may drop you below the 12-credit hour requirement for full-time student status.

Calculators: Departmental calculators will be used for all workshops, quizzes, and exams. These calculators are essentially equivalent to the Casio FX-200MSPlus. You may not use your own calculator or other device as a calculator during workshops, quizzes, or exams. Using any other devices will result in no credit for the quiz or exam (first offense) or course failure (second offense).

Cell phones: Cell phones should be turned silenced and may not be used in the classroom at any time.

Laptops: Laptops may not be used in the classroom, unless otherwise instructed. Bringing a pencil and notebook to class is sufficient. Tablets may be used in the classroom for note taking.

Artificial Intelligence: Use AI wisely. AI can help with problem-solving in CHEM 105, although it also makes mistakes. Ensure that you learn how to solve problems and don't rely on AI because you will not have access to AI during quizzes and exams.

Office Hours: Office hours are listed at the top of the syllabus. In addition, I am in my office (Science 053) most afternoons. Feel to stop by my office. If you favor an appointment, one can be arranged.

Supplemental Instructor: Lakshitha Sudhakar (lsudhakar@sycamores.indstate.edu) will serve as supplemental instructor for CHEM 105. She will work with you in our Thursday workshops and lead a help session each week.

Science Help Center: Assistance with your chemistry coursework is available in the Science Help Center. The Center is located on the first floor of the Science Building (Room 115) and is open approximately 10 hours per week. The Center is staffed by undergraduates who are currently enrolled in upper-division chemistry courses.

CHEM 105L Laboratories: *Labs do meet the first week of classes!*

Academic Integrity: The ISU Code of Student Conduct applies to all work done in this class. You can find this document at <https://www.indstate.edu/code-of-student-conduct>. Academic Integrity is a core value of our community of learners. Every member of the academic community (students, faculty, and staff) is expected to maintain high standards of integrity in all facets of work and study. The Student Guide to Academic Integrity (<https://www.indstate.edu/sites/default/files/media/Documents/PDF/academic-integrity-2012-StudentGuide-AcademicIntegrity.pdf>) describes appropriate academic conduct in research, writing, assessment, and ethics.

Academic dishonesty is not tolerated at Indiana State. The penalties can be severe and may include (i) failing the assignment, (ii) failing the course, and (iii) referral to Student Judicial Programs to face formal conduct charges. Students found in violation may be suspended or expelled and can have a permanent notation affixed to their official transcript indicating that an academic integrity violation occurred. First time offenses typically result in all points being lost on the assignment or exam where the offense occurred. Second time offenses typically result in a zero on the assignment or exam, and Student Judicial Programs is notified.

Academic Freedom: “Teachers are entitled to freedom in the classroom in discussing their subject, but they should be careful not to introduce into their teaching controversial matter which has no relation to their subject.” The preceding comes from the American Association of University Professors statement on academic freedom. Though the entire statement (<http://www.aaup.org/AAUP/pubsres/policydocs/contents/1940statement.htm>) speaks to many issues, it is this portion on the conduct of the course that is most relevant. For the purpose of Foundational Studies courses this means that faculty have the right to conduct their class in a fashion they deem appropriate as long as the material presented meets the learning objectives laid out by the entire faculty.

Americans with Disabilities Act Statement: Indiana State University seeks to provide effective services and accommodation for qualified individuals with documented disabilities. If you need an accommodation because of a documented disability, you are required to register with Disabled Student Services within the Center for Student Success, <http://www.indstate.edu/services/student-success/cfss/student-support-services>. You can contact the Center at 237-2700, located in Normal Hall.

Statement on Non-Discrimination, Harassment, and Sexual Misconduct: Indiana State University is committed to inclusive excellence. To further this goal, the university does not tolerate discrimination in its programs or activities based on race, color, national origin, gender, age, sexual orientation, gender identity or expression, disability, veteran status, or any other protected class. Title IX of the Educational Amendments of 1972 prohibits discrimination based on sex in any educational institution that receives federal funding. This includes sexual violence, sexual misconduct, sexual harassment, dating violence, domestic violence, and stalking. If you witness or experience any forms of the above discrimination, you are asked to report the incident immediately to Public Safety (812-237-5555) or to the Equal Opportunity & Title IX Office (812-237-8954).

With respect to sexual discrimination, instructors, faculty, and some staff are required by law and institutional policy to report what you share with them to the Equal Opportunity & Title IX Office. You do, however, have the option of sharing your information with the following confidential resources on campus that are not required to share:

ISU Student Counseling Center: 812-237-3939; Gillum Hall, 2nd Floor
Women’s Resource Center/Victim Advocate: 812-237-3829; HMSU 7th Floor
Associate Dean of Students/Respondent Advocate: 812-237-3829; HMSU 8th Floor
Campus Ministries – <https://www.indstate.edu/student-affairs/campus-life/campus-ministries>

For more information about discrimination and the support resources to you through the Equal Opportunity & Title IX Office, visit this website: <https://www.indstate.edu/equalopportunity-titleix>. Please direct any questions or concerns to: Assistant Vice President for Equal Opportunity and Title IX Director; 812-237-8954; Rankin Hall Suite 426; ISU-equalopportunity-titleix@indstate.edu

CHEM 105 Course Schedule (Fall 2026):

<i>Dates</i>	<i>Lectures</i>	<i>OpenStax</i>	<i>Topics</i>
8/19 – 8/24	3	Chapter 1	Introduction, Measurement, Uncertainty, Dimensional Analysis
8/26 – 9/4	4	Chapter 2	Atoms, Molecules, Periodic Table, Chemical Formulas, Nomenclature
		Chapter 19	Radioactive Decay, Nuclear Transformations
9/7	1	Chapter 3	Mole and Molar Mass

First Hour Exam - Friday, September 11

9/14 – 9/16	2	Chapter 3	Chemical Composition, Solutions, Molar Concentration
9/18 – 9/25	4	Chapter 4	Chemical Reactions and Equations, Stoichiometry, Quantitative Analysis

Second Hour Exam – Wednesday, September 30

9/28 – 10/9	4	Chapter 9	Gas Laws, Gas Stoichiometry, Gas Mixtures, Kinetic Theory of Gases
10/12 – 10/21	4	Chapter 5	Thermochemistry, Energy, Enthalpy, Calorimetry, Hess's Law

Third Hour Exam - Friday, October 30

10/23 – 11/6	5	Chapter 6	Light, Atomic Structure, Quantum Mechanics, Atomic Properties
11/9 – 11/16	4	Chapter 7	Chemical Bonds, Lewis Structures, Resonance, Molecular Geometry

Fourth Hour Exam - Friday, November 20

11/30 – 12/2	2	Chapter 8	Valence Bond Theory, Hybridization
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Final Exam - Wednesday, December 9, 8:00 a.m.
