



University of
Pittsburgh
Bradford

College in the High School

Concepts of Chemistry
CHEM 0089
3 credits

Description: This course is designed for non-majors or students intending to take CHEM 0101 and CHEM 0102 who require additional preparation. The course emphasizes stoichiometry (chemical calculations), chemical equations, gas laws, elementary atomic structure and periodic properties of elements.

Prerequisite: None

Textbook: The recommended text for the course is Open Stax Chemistry Atoms First 2e (see link below). Open Stax is a free online textbook which has been adopted to help students save money. Hard copy versions are available online for a reasonable price.

<https://openstax.org/details/books/chemistry-atoms-first-2e>

Previous years we have suggested the following textbook and it is still fine to use: *Basic Chemistry, 5th Edition*, Timberlake and Timberlake, Pearson, 2017. Other textbooks will be considered by the faculty liaison on case-by-case basis.

The following topics should be covered in this course:

1. Scientific method, measurements, significant figures
2. Conversions
3. Matter, elements and compounds, atomic structure & weight, energy
4. Light, electron configs., periodic trends (TEST)
5. Naming and formulae, ionic and covalent bonding
6. Formulae, moles, % composition
7. Reactions, balancing, organic groups (TEST)
8. Stoichiometry
9. Limiting reagents and yields
10. Lewis structures, formal charges, shapes
11. resonance structures, valence bond theory
12. intermolecular forces (TEST)
13. Gas laws
14. Solutions, molarity, dilution
15. Solutions stoichiometry, colligative properties
16. Rates, equilibrium, Le Chatelier's principle, Acids/bases (TEST)

Course objectives: To acquaint students with computational methods and concepts that are commonly used in General Chemistry I and II.

Grading: The final grade will be determined using a variety of assessment methods.

Pitt Grading System:

All courses required to satisfy associate and baccalaureate degree requirements-including all courses required for a major, a minor, or general education-must be taken for letter grades, with the exception of those courses designated as graded S and NC only. Pitt-Bradford uses 13 earned letter grades. They are listed below with their equivalent quality point values.

A+	4.00
A	4.00 superior achievement
A-	3.75
B+	3.25
B	3.00 meritorious achievement
B-	2.75
C+	2.25
C	2.00 adequate achievement
C-	1.75
D+	1.25
D	1.00 minimal achievement
F	0.00 failure

Academic Integrity and Plagiarism: Members of a university community, both faculty and students, bear a serious responsibility to uphold personal and professional integrity and to maintain complete honesty in all academic work. Violations of the code of academic integrity are not tolerated. Students who cheat or plagiarize or who otherwise take improper advantage of the work of others face harsh penalties, including permanent dismissal. The academic integrity guidelines set forth student and faculty obligations and the means of enforcing regulations and addressing grievances.

Grades: Grade criteria in the high school course may be different from the University standards. A CHS student could receive two course grades, one for high school and one for the University transcript. In most cases, the grades are the same. Grading standards should be explained at the beginning of the course.

Transfer Credits: Grades earned in CHS courses appear on an official University of Pittsburgh transcript and the course credits may be eligible for transfer to other colleges and universities. Students should contact potential colleges and universities in advance to be sure their CHS credits will be accepted. If students will attend any University of Pittsburgh campus, grade earned in the course will count toward the student grade point average at the University. At the University of Pittsburgh, the CHS course supersedes any equivalent AP credit.

Drops and Withdrawals: Students should monitor their progress in a course. A CHS teacher can contact the program administrators to request a drop or withdrawal. Dropping or withdrawing from the CHS course has no effect on enrollment in the high school credits.