PURDUE UNIVERSITY FORT WAYNE

CHM 111: Dual Enrollment 2025-2026

Course Title: General Chemistry

Course Code: CHM 11100

Instructor Name:

Instructor Email:

Office Hours: 2:25-3:10pm; Room C201

Last Updated: August 2025

Course Description: In this course, students study a series of fundamental concepts and chemical principles in General Chemistry. They are expected to be able to use the basic knowledge to explain some phenomena related to chemistry and to solve some practical problems in daily life. Students will learn about elements, atoms, the periodic table and the quantitative nature of chemistry. They will learn to name and describe ionic and covalent compounds. They will learn about chemical reactions and their stoichiometry, energies, rates and equilibria, properties of solutions including acids and bases, and properties of gases, liquids and solids. Fundamental concepts of nuclear chemistry will also be introduced.

Course Prerequisites: Algebra (prefer Algebra II)

Course Access: All assignments will be posted daily on Schoology. Keys to test reviews and laboratory handouts may also be found on Schoology. Students are expected to view Schoology regularly.

Course Goal: The learning outcome to be assessed this year is **4.3:** Apply foundational knowledge and discipline-specific concepts to address issues or solve problems. The method of assessment will be on tests and/or quizzes. We will employ a rubric determined by course instructors with consideration given to the norms on American Chemical Society national examinations. We will use a statistically significant sampling of student responses.

Students Learning Objectives:
Students in this class will be required to use and understand the language of chemistry. Some memorization is necessary, but rote memorization is not recommended. Students should learn to be critical thinkers and problems solvers.
Upon completion of this course, students should be able to:

- Demonstrate skill in carrying out mathematical procedures and should be able to efficiently solve problems
- Explain how scientific explanations are formulated, tested and modified or validated
- Distinguish between scientific and non-scientific evidence and explanations
- Apply foundational knowledge and discipline-specific concepts to address issues or solve problems
- Apply basic observational, quantitative, or technological methods to gather data and generate evidence-based conclusions
- Use current models and theories to describe, explain or predict natural phenomena
- Locate reliable sources of scientific evidence to construct arguments related to real world issues

Learning Resources & Texts:
Textbook: **Brown, LeMay, Bursten, Murphy, Woodward and Stolzfus, Chemistry: The Central Science, 14th Edition, Pearson Education 2018. ISBN 13: 978-0-13-465095-1**
Textbooks will be provided in class and online.

Scientific Calculator: Scientific calculators are available for all students in class. You are strongly encouraged to buy your own calculator (ask the instructor for recommendations).

Assignments: Students will receive daily assignments that will primarily be completed during class time. Homework assignments are checked for completion and then discussed. Homework is worth 20% of the grade. Tests and Quizzes

account for the remaining 80% of the grade. Quizzes may be retaken. Students may only take tests once. Labs may be counted as homework grades or test grades depending on the situation.

Grading Scale:
Grades are 80% summative (tests, quizzes, laboratory reports) and 20% formative (homework, informal labs and activities)
Grades will be determined using the FWCS grading scale:
98-100 A+, 93-95.9 A, 90-92.9 A-
87-89.9 B+, 84-86.9 B, 80-83.9 B-
77-79.9 C+, 73-76.9 C, 70-72.9 C-
67-69.9 D+, 63-66.9 D, 60-62.9 D-
59.9-0 F

Course Evaluation: Near the end of the course, students will be provided with a link to a course evaluation. Students should be honest and specific when evaluating the course and the instructor. All data is collected anonymously and will be shared with instructors during the summer after the course is completed.

Academic Misconduct/ Plagiarism / AI:
Academic Misconduct, including plagiarism (using other people's ideas/words and not giving them credit thus implying the work is your own original work) or using your own work from a previous course without the express permission of the instructor, is taken very seriously at any learning institution. It is taken very seriously in this class. Please be aware of what behaviors constitute academic misconduct (See Bulletin, Code of Students Rights, Responsibilities and Conduct Part II. A.) If caught cheating or plagiarizing, a student may receive no credit on the assignment and may result in an F for the course. Any instances of academic dishonesty will be reported to the Office of Student Conduct and Care and your Department Chair and may result in expulsion from the University. Additional potential consequences can be found under: potential consequences (See Bulletin, Code of Students Rights, Responsibilities and Conduct, Part III. A.: i.e., failure of the assignment, failure of the course and/or dismissal from the university) of such behavior.

The use of AI tools, including ChatGPT, is permitted in this course for students who wish to use them as a study aid (e.g., brainstorming ideas, grammar and spelling checking). Students should indicate how AI tools informed their process and the final product, including how they checked the validity/accuracy of all AI-generated content. For example, students should include the source (AI tool used), the date of the query, content validation and editing summary, and any other relevant information. Assignment guidelines will provide additional guidance as to how these tools might be part of your process for each assessment this semester and how to provide transparency about the usage. If students are unclear whether an AI use is acceptable or not, assume that it is not and please contact me for a discussion.

Student Support Services:
Purdue University Fort Wayne is committed to your academic and personal success. Visit the Student Support Services page for a list of student support services, including academic services, technology services, health and wellness, and support from administrative offices. For help with technology, including Brightspace, visit the IT Services Student Technology Support page.

If you observe and/or are made aware of student behavior that leaves you feeling concerned, worried, and/or alarmed, trust your instincts and say something. The CARE Team can assist with the student of concern, whether that's you or someone you are referring. Report the concern through the online CARE referral form. Please note that this form is not for emergencies. If you know of a student who is injured, is injuring themselves or others, or is threatening injuries to themselves or others, please call 911 immediately.

Your emotional wellness and mental health are important. If you have a mental health disorder, are struggling with your mental health, your stress overwhelms your ability to cope with it, or you find yourself needing emotional support, please talk to someone. If you or someone you know is in a mental health crisis situation, call 911 or go to the local emergency room. Otherwise, please reach out to our Center for Student Counseling (CSC). All currently enrolled PFW and IUFW students have access to free counseling at the center. To make an appointment to talk with a counselor call 260-481-6200 or email csc@pfw.edu.

Course Schedule:

Topic	Textbook Chapter	Sections	Labs
Matter and Measurement	1: Introduction: Matter, Energy and Measurement	1.1-1.7	Making Scientific Measurements Chemical and Physical Changes
Atomic Theory; Isotopes	2: Atoms, Molecules and Ions	2.1-2.4	Online PhET Isotopes and Atomic Mass
The Periodic Table; Molecular Compounds; Ionic Compounds; Simple Organic Compounds; Naming	2: Atoms, Molecules and Ions	2.5 – 2.9	Periodic Table Trends Percent Carbon in Baking Soda Naming Practice with Ion Cards
Chemical Equations	3: Chemical Reactions and Stoichiometry	3.1 – 3.3	Developing the Activity Series Double Replacement Reactions Carousel
Stoichiometry	3: Chemical Reactions and Stoichiometry	3.4 – 3.7	Finding the Water of Hydration Empirical Formulas Crime Scene
Thermochemistry	5: Thermochemistry	5.1 – 5.6	Energy of Foods
Electronic Structure of Atoms	6: Electronic Structure of Atoms	6.1 – 6.9 (selected)	Looking at Atomic Spectra
Bonding	8: Basic Concepts of Bonding	8.1 – 8.5	"Electron Glue" Chemical Bonding Activity Molecular Modeling
Gases	10: Gases	10.1 – 10.4; 10.7	Boyle's Law Lab with pressure sensors Pressure-Temperature Relationship
Liquids and Solids	11: Liquids and Intermolecular Forces 12: Solids and Modern Materials	11.1-11.4 12.1 – 12.5	Evaporation and IMF's using temperature probes
Solutions	13: Properties of Solutions	13.1 – 13.5	"Drop In" Molecular Views Activity Making Solutions Practice

Kinetics and Equilibrium	14: Chemical Kinetics 15: Chemical Equilibrium	14.1 – 14.4 15.1 – 15. 7 (Selected)	Chemical Kinetics with Paperclips Lab
Acids and Bases	4: Reactions in Aqueous Solution 16: Acid-Base Equilibria	16.1 – 16.7	Percent Acetic Acid in Vinegar Acid – Base Titrations using pH probes
Final Project – Choose a Demonstration; Presentation; Poster	Various	Various	Various