



General Chemistry

Unit of Study Outline

1. Unit of study information

General chemistry is a lecture course which introduced fundamental principles and concepts of chemistry and covers theories of atomic and molecular structure, quantum mechanics, statistical mechanics and thermodynamics. This course should ensure students know basic chemical concepts such as stoichiometry, states of matter, atomic structure, molecular structure and bonding, thermodynamics and equilibria and develop data analysis and report writing skills.

2. Pre-requisite units and assumed knowledge

Basic English reading and writing skills and prior completion of high school or introductory chemistry is highly recommended.

3. Learning aims and outcomes

When completion of this course, students should be able to:

- Understand knowledge and skills and solve chemistry related problems.
- Understand knowledge of the nature of matter, energy and its interaction with matter and nature of science.
- Identify and apply the basics of bonding and molecular structure, chemical reactions and stoichiometry.
- Use dimensional analysis to convert between measurement units.
- Recognize and classify specific types of chemical reactions.
- Demonstrate the key features of the periodic table and describe its development.

4. Weighting of final grade

Grading will be based on mid-term exam, final exam and participation in class, rate of each part is as below:

10% - Comments/questions on each day's readings

20% - Performance in discussion section

30% - Mid-term exams

40% - Final exam

5. Grading

A	100-95	A-	94-90	B+	89-87
B	86-83	B-	82-80	C+	79-77
C	76-73	C-	72-70	D+	69-67
D	66-63	D-	62-60	F	59 or lower

6. Policies

Attendance Policy

Attendance in class is mandatory for all students enrolled in the course. Any excused absence must be discussed directly with the teacher. Being late to class within 15 minutes will be recorded as 1 LATE and being late over 15 minutes will be recorded as 1 ABSENCE. 3 LATES equal to 1 ABSENCE. 20% absences of the total teaching hours will cause an F (a failing grade) directly. However, students are still welcome to continue to attend class. F students have no right to drop this course anymore. Each unexcused absence will result in the lowering of the attendance grade by 1 point. Each excused absence will result in the lowering of the attendance grade by 0.5 point.

Participation Policy

Students should participate in their chosen classes actively and effectively. The Participation Grade is related to the Attendance Grade. Students' final attendance grade is the maximum of their participation grade.

Participation grade will be based on a variety of factors including, but not limited to taking part in class discussions and activities, completing assignments, being able to answer questions correctly, obeying class rules, and being prepared for class, frequent visiting your instructors and chatting in English during their office hours is highly recommended.

Policy on Assignments and Quizzes

Students should finish their assignments completely and punctually.

Assignment should be submitted on the date appointed by the instructor. If a student cannot hand in the assignment on time, the reasonable excuse will be needed. Late assignments will receive a maximum grade of 80. An assignment that is late for 3 days will be corrected but receive 0.

You are recommended print all your assignment in the uniform format with the heading of Student's Pledge of no cheating. Written assignment or printed ones without the uniform heading of pledge will receive a maximum grade of 80.

It is mandatory to have weekend assignment every week. Any weekend assignment should be submitted on first class of next week.

It is mandatory to have holiday assignment on the public holidays. Any holiday assignment should be submitted on the first day on returning to school.

Students are required to do a multitude of presentations during the course.

Plagiarism

Any form of cheating is NEVER tolerated. Any student ONCE caught cheating on a quiz, assignment or examination will receive a 0 for that particular work of the whole semester. At the beginning of the semester the definition of plagiarism will be carefully explained. When any thoughts or writings of another person are used, the sources must be clearly identified (using quotes, bibliography and giving reference).

Classroom Policies

1. No eating, cellular phones, electronic dictionaries, smoking, chatting or drowsing in class.
2. Please speak in English rather than Chinese in class.
3. Students are not allowed to attend class without textbooks.
4. Stand up when answering questions.
5. Respect classmates' ideas, opinions, and questions of your classmates.
6. You are welcome to visit the instructor's office in his/her office hours.
7. Take good care of the laboratory facilities. Do not splash water on the desktop.
8. When each class is over, hang the earphone on the hanger. Put the trash into the trash-bin.
9. All your classroom involvement, performance and after-class communications with instructor will affect your participation score.
10. All communications with the teacher must be in English, both inside and outside class time.

7. Texts and other recourses

Pauling, Linus. (1988) General Chemistry, New York: Dover Publications.

8. Teaching methods

Lecture with class discussion based on assigned homework.

9. Week by week topic and study guide

Week 1	Chapter 1	The Nature and Properties of Matter
	Chapter 2	The Atomic and Molecular Structure of Matter
Week 2	Chapter 3	The Electron, the Nuclei of Atoms, and the Photon
	Chapter 4	Elements and Compounds; Atomic and Molecular Masses
Week 3	Chapter 5	Atomic Structure and the Periodic Table of the Elements
	Chapter 6	The Chemical Bond Part One
Week 4	Chapter 6	The Chemical Bond Part Two
	Chapter 7	The Nonmetallic Elements
Week 5	Chapter 8	Oxygen Compounds of Nonmetallic Elements
	Chapter 9	Gases: Quantum Mechanics and Statistical mechanics
Week 6	Chapter 10	Chemical Thermodynamics
Week 7	Mid-term Exam	
Week 8	Chapter 11	Chemical Equilibrium
	Chapter 12	Water
Week 9	Chapter 13	The Properties of Solutions
	Chapter 14	Acids and bases
Week 10	Chapter 15	Oxidation-Reduction Reactions, Electrolysis
	Chapter 16	The Rate of Chemical Reactions
Week 11	Chapter 17	The Nature of Metals and Alloys
	Chapter 18	Lithium, Beryllium, Boron, and Silicon and Their Congeners Part One
Week 12	Chapter 18	Lithium, Beryllium, Boron, and Silicon and Their Congeners Part Two
	Chapter 19	Inorganic complexes and the Chemistry of

		the Transition Metals
Week 13	Chapter 20	Iron, Cobalt, Nickel, and the Platinum Metals
	Chapter 21	Copper, Zinc, and Gallium and Their Congeners
Week 14	Chapter 22	Titanium, Vanadium, Chromium, and manganese and Their Congeners
	Chapter 23	Organic Chemistry
Week 15	Chapter 24	Biochemistry
	Chapter 25	The Chemistry of the Fundamental Particles
Week 16	Chapter 26	Nuclear Chemistry
	Review	Final exam review
Week 17	Final Exam	