

2025 Spring Semester

Syllabus for General Chemistry I-Chemical Principles

1. **Course:** **General Chemistry I (CH101)** [lecture: Experiment: Credit = 3:0:3]

2. Lecture Timetable

Time (Mondays and Wednesdays)	Class	Professor	Lecture Room(E11)
10:30-12:00	B	Chang Ho Sohn (Graduate School of Medical Science and Engineering)	202

3. Summary of Lecture

This General Chemistry I lecture offers an overview of fundamental chemistry topics, including a classical approach to chemical bonding, an introduction to quantum mechanics, and a quantum mechanical perspective on atomic and molecular structures. Additional topics are covered to enhance chemical knowledge and deepen understanding of core chemical principles. *Especially, this class will also introduce biomedical applications of frontier researches in chemistry and related fields using AI-based drug/protein design and spatial multiomics for the development of therapeutics. This additional topic emphasizes the importance of core-chemistry knowledge/research in future diagnosis, therapeutics studies in the biomedical area.*

4. Material for Teaching:

- o Principles of Modern Chemistry, 8th ed, Oxtoby/Gillis/Campion (Brooks/Cole)
- o Lecture materials will be provided through the KLMS website of each class (<https://klms.kaist.ac.kr/>).

5. General Guidelines

All basic lecture notes can be downloaded at the General Chemistry Website:

<http://www.gencheminkaist.pe.kr> or a link be found at <http://chem.kaist.ac.kr>.

- 1) Practice Sessions led by TAs are scheduled from 8:00 to 8:50 pm on Mondays. These sessions are optional, providing an opportunity for students who seek additional discussion and problem-solving to participate.

- 2) The grading system will be determined based on the total scores achieved by students. The distribution of A grades (including A+, A, and A-) will be less than 50% of the total class. A C+ grade will correspond to a total score of approximately 50 points. Students taking the course with a P/NR grading option must achieve a score higher than 50 points (equivalent to a C+).

Grading Criteria and Points Distribution (Total 100 points)

I. Mid-term Exam: 34 points II. Final Exam: 34 points

(Out of 8-10 questions: 1-2 will come from assignments, 1-2 from previous exams)

III. Homework: 16 points

- Chapter summary: 8 points (1 point for each chapter, maximum of 3 pages, only **handwritten assignments** will be accepted, each submission is awarded either 0.5 or 1 point, depending on the content)
- Chapter problem: 8 points (1 point for each chapter, each submission is awarded either 0.5 or 1 point, based on the answers provided)

IV. Attendance & Attitude: 16 points

- Maximum of 16 points (1 point for each attendance of lectures and practice sessions)
- This course does not penalize absences, so there is no recognized attendance.

V. Plagiarism of Homework:

- First instance: Warning with a deduction of 10 points, second instance: F grade

6. Waiver Examination

The waiver examination on General Chemistry I will be held at the beginning of the semester, but only for those, who did not take any previous General Chemistry I classes.

7. Lecture Schedule

Week (Mondays, Wednesdays)	Chapters	Topics	Due date for Homework (Chap. Summary & problem)	Practice session (Mon, 20:00 ~ 20:50)	Notes
1 st (2/24, 2/26)	3	Atomic Shells and Classical Models of Chemical Bonding	-	-	
2 nd (3/3, 3/5)	3, 4	Atomic Shells and Classical Models of Chemical Bonding / Introduction to Quantum Mechanics	-	O	3/3 No class (Samiljeol, - substitute holiday)
3 rd (3/10, 3/12)	4	Introduction to Quantum Mechanics	Chap3 (Fri, ~23:59)	O	
4 th (3/17, 3/19)	4, 5	Quantum Mechanics and Atomic Structure		O	
5 th (3/24, 3/26)	5	Quantum Mechanics and Atomic Structure	Chap4 (Fri, ~23:59)	O	
6 th (3/31, 4/2)	6	Quantum Mechanics and Molecular Structure	Chap5 (Fri, ~23:59)	O	
7 th (4/7, 4/9)	6	Quantum Mechanics and Molecular Structure	Chap6 (Fri, ~23:59)	O	
8 th (4/16)	Mid-term Exam	Chapter 3, 4, 5, 6			
9 th (4/21, 4/23)	12	Thermodynamic Processes and Thermochemistry	-		
10 th (4/28, 4/30)	12 and 13	Thermodynamic Processes and Thermochemistry / Spontaneous Processes and Thermodynamic Equilibrium	-	-	
11 th (5/5, 5/7)	13	Spontaneous Processes and Thermodynamic Equilibrium	Chap 12 (Fri, ~23:59)	O	5/5 No class (Children's Day)
12 th (5/12, 5/14)	17	Electrochemistry	Chap 13 (Fri, ~23:59)	O	
13 th (5/19, 5/21)	17	Electrochemistry	-	O	
14 th (5/26, 5/28)	18	Chemical Kinetics	Chap 17 (Fri, ~23:59)	O	
15 th (6/2, 6/4)	18	Chemical Kinetics	Chap 18 (Fri, ~23:59)	O	
16 th (6/11)	Final Exam				

8. Chapter Problems: To be announced