

Fundamentals of Chemistry II

Undergraduate / Graduate	Undergraduate	Registration Code	0054321
Course Category	Sciences Basic	Credits	2.0
Term (Semester) / Day / Period	G-II (1st year, Spring Semester) / Thu. / 3 (13:00~14:30)		
Instructor	SHIN Jiyoung		
Contact e-mail of the Instructor	jyshin321@gmail.com		

●Goals of the Course

This course is designed to promote an understanding of introductory chemistry and to grasp the fundamental principles and basic knowledge in various chemistry subjects. It is also substantial to foster independent decision-making capabilities.

●Objectives of the Course

Based on the knowledge educated with the course contents, the students are able to solve chemistry problems in each subject of physical, electro-, nuclear, inorganic, solid-state, organic, and biological chemistries, from pretty simple to significantly complex and hybrid.

●Course Content or Plan

Class 1. Solids and Solid-State Materials (Ch.12)

Class 2. Solutions and Their Properties (Ch.13)

Class 3. Chemical Kinetics (Ch.14)

Class 4. Chemical Equilibrium (Ch.15)

Class 5. Summary and Evaluation for the Classes 1-4 with Practice Problems and the Solution Process

Class 6. Aqueous Equilibria: Acids and Bases (Ch. 16)

Class 7. Applications of Aqueous Equilibria (Ch.17)

Class 8. Thermodynamics: Entropy, Free Energy, and Equilibrium (Ch. 18)

Class 9. Electrochemistry (Ch. 19)

Class 10. Summary and Evaluation for the Classes 6-9 with Practice Problems and the Solution Process

Class 11. Nuclear Chemistry (Ch. 20)

Class 12. Transition Elements and Coordination Chemistry (Ch. 21)

Class 13. The Main-Group Elements (Ch. 22)

Class 14. Organic and Biological Chemistry (Ch. 23)

Class 15. Summary of the Overall Classes (1-14)

Class 16. Summary and Examination for the Entire Chapters (Chs. 12-23) with Practice Problems

●Course Prerequisites and Related Courses

The students registering for this course should complete 'Fundamentals of Chemistry I'.

●Course Evaluation Method and Criteria

Examination [total 70%: two midterms (20% for each) and one Final (30%)], Attendance and Assignments (30%). This condition can be reconsidered following the pandemic condition.

GPA (Grade Point Average) grading system is based on 'six-step' grade scale: A+, A, B, C, C-, and F (A+: $x \geq 95$, A: $95 > x \geq 80$, B: $80 > x \geq 70$, C: $70 > x \geq 65$, C-: $65 > x \geq 60$, and F: $60 > x$). No attendance of the final examination leads to 'Withdrawal (W)' grade.

- Course withdrawal and failure: Students need to have the permission of the course instructor when students request course withdrawal during the semester. Withdrawal will be recorded when the students officially withdraw from the course or when the instructor has a legitimate reason for determining the student has no intention to continue the course, such as if the student did not submit a proper number of assignments or was absent from examinations. In such a case, the instructor will not assign a grade.

- Cautious information: Whoever provides any suspicious action in any exam will lose his/her total credits of all coursework in the current semester, based on the University law.

●Study Load (Self-directed Learning Outside Course Hours)

Each homework is vital for reviewing the corresponding class, whose submission is strongly encouraged before the beginning of the next class. NU general guideline considers the necessity of the average of 2~3 hours of personal study time per week for each credit.

●How to Respond to Questions

Students can communicate through emails (jyshin321@gamil.com). Students are recommended to review the lectures by solving the related homework questions. Each assignment is due by the start of the next class (if there is no special announcement). The corrections will be returned to the students. If any student wants to ask for tutorial time, he/she should email the instructor to arrange the appointment. Under the pandemic condition, online (Zoom) lectures will be the primary class style. However, classes in person will be considered when the condition changes.

●Message from the Instructor

Students are recommended to prepare each lecture by reading the scheduled chapters and to review it by solving the related homework questions. In principle, each assignment is due by the beginning of the next class. Late or no assignment submission is the deduction point of the grade.

Students can communicate with the course instructor face-to-face, either in classes or through appointments. Communications by email are also available. Participants will get lecture material for each class through the NUCT site. Sudden questions can be given to students during lectures to provide substantial feedback.

Textbook	Chemistry (Jill K. Robinson, John E. McMurry, and Robert C. Fay), 8th Edition: Global edition, Pearson, 2021 (ISBN-13: 9781292336206)
Reference Book	General Chemistry: Principles and Modern Applications (Ralph, H. Petrucci, F. Geoffrey Herring, Jeffrey D. Madura, Carey Bissonnette), 11 th Edition, Toronto, Pearson Canada, 2016 (ISBN 10: 0132931281) Chemistry (John E. McMurry, Robert C. Fay, and Jill K. Robinson), Seventh Edition: Global edition, 2016 (ISBN 10: 9781292092751)