科目ナンバリング	U-LAS13 10037 LE60				
授業科目名<英訳>	Outline of Chemistry II(Its History & Fundamentals)-E2 Outline of Chemistry II(Its History & Fundamentals)-E2		担当者所属職名・氏名	工学研究科　准教授　Yi Wei	
群	自然科学科目群	分野(分類)	化学(基礎)	使用言語	英語
旧群	B群	単位数	2単位	週コマ数	1コマ
授業形態	講義（対面授業科目）				
開講年度・開講期	2026・前期	曜時限	水2	配当学年	主として1・2回生
対象学生	全学向				

[授業の概要・目的]

Chemistry as the central science provides a framework for understanding the world around us. It is the study of matter and the changes that matter undergoes. This course intends to introduce the first- and second-year students on the fundamental understanding of the classification, states and properties of matter, and the process, equilibrium, and energy of chemical reaction. The general concepts, laws and principles of chemistry will be introduced, and the application of the knowledge in solving practical problem will also be trained.

[到達目標]

Students are expected to learn the basic concepts, laws and principles of chemistry, and understand the general physical and chemical properties of matters. Moreover, they will learn various applications of materials and chemical reactions in real world.

[授業計画と内容]

The number of lectures is shown in【】.
1.Introduction and orientation of Chemistry【1】
Basic concepts of chemistry; description and classification of matter.

2.Properties and behavior of gas【2】
Elements and compounds; ideal gas laws (pressure, temperature, volume, and amount); real gas.

3.Liquid and solution【2】
Intermolecular forces; changes of state; properties of liquid and solution.

4.Solids and modern materials【3】
Solid structures; energy band; semiconductors and superconductors; chemical periodicity; chemical bond.

5.Chemical reaction【3】
Reaction types; chemical thermodynamics (energy, work, and heat); reaction direction and degree (free energy).

6.Chemical equilibrium【3】
Reaction rate; chemical kinetics; reaction mechanisms; equilibrium constant and shift; acid-bases equilibrium.

7.Feedback【1】

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[履修要件]

特になし

[成績評価の方法・観点]

Attendance and class participation [70%], Short reports [30%]

[教科書]

授業中に指示する
Handouts will be provided as necessary.

[参考書等]

（参考書）
授業中に紹介する

[授業外学修（予習・復習）等]

Students are required to read assigned materials before the class. Preparation before class helps to follow and understand well. Short reports writing after class would take your around 1 hour.

[その他（オフィスアワー等）]

[主要授業科目（学部・学科名）]