科目ナンバリング U-				LAS13 10037 LE60											
授業科目	名 F O	undan Outline	nentals)-E2 emistry I	s History &	担職	担当者所属 工学研究 職名·氏名			党科 准教授 Yi Wei					
群	自然	自然科学科目群 分				分野(分類)	化学(基	-(基礎)					使用言語 英語		
旧群	B群	B群 単位数 2単位		2単位		週コマ数	1コマ	•	授業	業形態 講		義(対面授業科目)			
開講年度・ 開講期	引講年度· 引講期 2024 •		期	曜時限	水2			配	当学年	主として1・2]生	対象学生		全学向
「授業の	概要	・目的	ካ 1												

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 gases [2]

Elements and compounds; pressure, temperature, volume and amount; ideal gas and real gas.

3.Liquid and solution [2]

Intermolecular forces; changes of state; properties of liquid and solution.

4. Solids and modern materials [3]

Crystal structure and defects; bonding and energy band; semiconductors and superconductors.

5.Chemical reaction [2]

Reaction types; energy and work; chemical thermodynamics, reaction direction and degree; chemical kinetics, reaction rate.

6.Chemical equilibrium [3]

Equilibrium constant and shift; physical and chemical equilibrium; acid-bases equilibrium; redox reactions and electrochemistry.

7.Material synthesis and characterization [1]

Solid state synthesis; measurement and characterization techniques.

8.Feedback [1]

[履	修要件
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特になし

Outline of Chemistry II(Its History & Fundamentals)-E2(2)
Attendance and class participation [70%], Short reports [30%]
[教科書]
Handouts will be provided as necessary.
[参考書等]
(参考書) Raymond Chang, Jason Overby 『General Chemistry, The Essential Concepts』(McGraw-Hill, 2011) ISBN:978.0.07.337563.2
[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)]