

科目ナンバリング		U-LAS15 20007 LE58									
授業科目名 <英訳>		Introduction to Engineering Geology Introduction to Engineering Geology				担当者所属 職名・氏名		工学研究科 准教授 ZHU Fan			
群	自然科学科目群			分野(分類)	地球科学(発展)			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	2024・後期		曜時限	火5		配当学年	主として2回生	対象学生	理系向		

### 【授業の概要・目的】

Geology comes from the Greek geo, "Earth", and logos, "discourse". This class provides a basic knowledge of our planet's components (matter, minerals, rocks, etc.) and their main processes (mineral formation, plate tectonics, volcanic activity, earthquakes, etc.) from the viewpoint of engineering.

The correct understanding of the Earth and its many interacting parts, in different physical and time scales, using the basic knowledge and principles of geology, will help us confirm that all important geological factors are adequately considered when designing, constructing, and operating engineering works.

**[到達目標]**

By the end of the semester, you should have a basic knowledge of geology, and be able to think about its application when designing, constructing, and operating engineering works, when using natural Earth resources, and when trying to solve geotechnical and geoenvironmental engineering problems.

**[授業計画と内容]**

This course consists of 15 classes including one feedback class.

The main contents of this lecture are:

1. Introduction to Engineering Geology [2 classes]  
(Guidance, Introduction, Earth Science, Plate Tectonics)
2. Earth Matter [4 classes]  
(Matter and Minerals, Igneous Rocks, Volcanic Activity, Weathering, Sedimentary Rocks, Metamorphism, Metamorphic Rocks)
3. Geologic Time [1 class]  
(Principles of relative dating and numerical dating)
4. Plate Tectonics and Structural Geology [4 classes]  
(Plate Boundaries, Mountains, Earthquakes, Crustal Deformation, Geologic Structures)
5. Water and Earth Resources [2 classes]  
(Groundwater, Energy and Mineral Resources)
6. Review and Student Presentation [1 class]
7. Feedback [1 class]

## Introduction to Engineering Geology(2)

### 【履修要件】

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### 【成績評価の方法・観点】

Grading will be based on a research report (25%), a final exam (50%), and performance during regular classes (such as quizzes, homework, class participation) (25%). Details will be explained in class.

### 【教科書】

使用しない

### 【参考書等】

（参考書）

Edward J. Tarbuck, Frederick K. Lutgens 『Earth - An Introduction to Physical Geology』 ISBN: 9780321814067

Stephen Marshak 『Essentials of Geology』 ISBN:9780393919394

Edward A. Keller 『Introduction to Environmental Geology』 ISBN:9780132251501

Lee R. Kump, James F. Kasting, Robert G. Crane 『The Earth System』 ISBN:9780321597793

Brian J. Skinner, Barbara Murck 『The Blue Planet : An Introduction to Earth System Science』 ISBN: 9780471236436

Kent C. Condie 『Earth as an Evolving Planetary System』 ISBN:9780123852274

All reference books are available at the Library of the School of Global Engineering, at the Main Yoshida Campus Library, and/or at other Kyoto University libraries. Previous editions of the same books can also be used.

### 【授業外学修（予習・復習）等】

Assignment may be given after a class and students are expected to complete the assignment before the next class. Additionally, submission of a research report will be required for this class. To complete the report, students will need to do additional research on a selected topic after the class.

### 【その他（オフィスアワー等）】

Consultation arrangement will be provided during the first lecture.