科目ナンバリング	U-LAS15 10004 LE58						
授業科目名<英訳>	Introduction to Earth Science B-E2 Introduction to Earth Science B-E2			担当者所属職名・氏名	理学研究科　教授	ZWINGMANN, Horst Friedrich August	
群	自然科学科目群	分野(分類)	地球科学(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・後期	曜時限	水1	配当学年	主として1・2回生	対象学生	理系向

[授業の概要・目的]

The Earth System is divided into four subsystems: atmosphere, hydrosphere, geosphere and biosphere. This lecture focuses on the first three subsystems and introduces their interactions in the different time scales. In particular, this lecture will be outlined interaction and material circulation between these three subsystems, and transition and change in the global environment over the 4.6 billion year history of the Earth.

[到達目標]

The objective of this course is to develop an understanding of fundamental geological concepts and processes of plate tectonics and its influences on the dynamic Earth. The lectures comprise a general introduction to plate tectonics theory and selected detailed field case studies from Japan and the world.

At the end of the semester, students should be able to understand fundamental geological concepts and processes, within an Earth System context, and how the application of physical, chemical and biological sciences can be applied to solve geological problems.

Students will be able to (1) demonstrate understanding of basic geological processes and relationships at global to local scale including how this knowledge can be applied to issues of relevance to Japan; 2) identify and interpret common geological features and processes within the Earth System context and (3) demonstrate an understanding of the complex Earth System and its processes at a regional and global scale now, in the past, and in the future.

[授業計画と内容]

The Earth System is broadly divided into four subsystems: atmosphere, hydrosphere, geosphere and biosphere. There is exchange of both matter and energy within those subsystems, in different time scales.

The main contents of this lecture are:

1. Interactions and material circulation among these three subsystems of the Earth System
2. Consist of the global environment
    - Formation of the Earth
    - Environment of the early Earth
3. The climate change in Earth's history
    - Ice Age vs. No Ice Age
    - Glacial/Interglacial periods fluctuations
    - Climate change after the last glacial period

The above themes will be covered over 1 to 3 classes each.

Course will be offered in the second semester within 14 classes, one examination and one feedback class.

Introduction to Earth Science B-E2(2)へ続く↓↓↓

Introduction to Earth Science B-E2(2)

[履修要件]

特になし

[成績評価の方法・観点]

The evaluation method comprises (1) an in class assignment (50%) and (2) written examination during the official examination term (50%).

[教科書]

授業中に指示する
Instruction is given during class.

[参考書等]

（参考書）
授業中に紹介する
Instruction is given during class.

[授業外学修（予習・復習）等]

This course has been designed to allow students to integrate the concepts covered in lectures with own readings. A joint group project is developed by students based on data from a range of sources. Students will be supported throughout the project by discussions with your lecturer and associated students.

[その他（オフィスアワー等）]

Instruction of office hours is given in class.

[主要授業科目（学部・学科名）]

理学部