

科目ナンバリング		U-LAS15 10002 LE58									
授業科目名 <英訳>		Introduction to Earth Science A Introduction to Earth Science A				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(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	2025・前期		曜時限	金1		配当学年	主として1回生	対象学生	理系向		
【授業の概要・目的】											
Year after year, the effects of climate change (extreme heat waves, rising sea-levels, changes in patterns of precipitation, floods, droughts, intense hurricanes, etc.) are increasingly affecting--directly and indirectly--the physical, social, and psychological health of humans. As a student of sciences, you will be responsible--at some point of your future professional career, be it in the public or private sector--to device strategies, methods, and/or techniques to mitigate its effects, either globally or locally. But, in order to do so, you first need to understand how our planet works, how its diverse parts are interrelated, and how changes in the working of some of its elements could disrupt complete systems. This lecture will introduce, therefore, the tools needed to study the Earth as a system, and will focus on three of its main subsystems (Atmosphere, Hydrosphere, and Geosphere) and their interactions in different time scales.											
【到達目標】											
At the end of the semester, you should be able to understand the concept of systems, the basics of our planet's energy balance, and also the principles behind of the behavior--as systems and subsystems--of the Atmosphere, the Hydrosphere, and the Geosphere.											
【授業計画と内容】											
This course consists of 15 classes including one feedback class. The classes will be grouped into several topics. Each topic will be taught in two or three lectures as listed below: 1. Introduction to Earth Systems (2 sessions) Coupling and feedback loops in the Earth system. 2. Global Energy Balance (3 sessions) The greenhouse effect, umbrella effect, and climate change. 3. Atmosphere (3 sessions) Circulation of the atmosphere and precipitation. 4. Hydrosphere (3 sessions) Seawater properties, surface currents and deep ocean currents. 5. Geosphere (3 sessions) Anatomy of Earth and plate tectonics. 6. Feedback (1 session)											
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Introduction to Earth Science A(2)

[履修要件]

特になし

[成績評価の方法・観点]

Evaluation will be based on class attendance and participation (20%), in-class exercise and homework (30%) and a final report (50%). This class will have no mid-term or final exam. Submission of a final report is necessary for this class. Detailed requirements on the report will be explained during the lectures.

[教科書]

Handouts will be provided for each class.

[参考書等]

(参考書)

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

Frederick K. Lutgens, Edward J. Tarbuck 『The Atmosphere : An Introduction to Meteorology』 ISBN: 9780321756312

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

All additional reference books are available at the Library in Yoshida Campus, and also 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]

Handouts will be provided at the beginning of each session. You are expected to use them to follow the lectures, to take notes, and as a starting point to further your personal self-learning.

Before end of the semester you will be requested to submit a report summarizing the topics studied in class. Writing the report may also require doing additional research on the recommended bibliography or other resources.

[その他 (オフィスアワー等)]

Information will be provided during the first lecture.

[主要授業科目 (学部・学科名)]

理学部