科目ナンバリング	U-LAS14 10011 LE69				
授業科目名<英訳>	Introduction to Biology and Life Science -E2 Introduction to Biology and Life Science-E2	担当者所属職名・氏名	理学研究科　講師	BRANDANI, Giovanni・Bruno	
群	自然科学科目群	分野(分類)	生物学(総論)	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	木3	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]

This course is designed to provide an introduction to the vast field of biology to undergraduate students coming from all backgrounds, even without prior knowledge of biology. I will cover a wide range of topics, starting from the structure and function of biomolecules, passing through the organization of cells and the key principles governing life, and finally concluding with evolution and the history of life on Earth. The use of case studies will allow students to learn how past discoveries shaped our current views of biology.

[到達目標]

Students will be able to explain how organisms continuously transform energy and matter to grow and maintain their internal order, to recognize structure-function relations over the many levels of biological organization, to understand the mechanisms underlying the expression and transmission of genetic information and to illustrate how evolution explains both the unity and the diversity of life.

[授業計画と内容]

Schedule:
1. Introduction to the course and introduction to chemistry
2. Biomolecules
3. Cell structure and cell division
4. Membrane transport and neurons
5. Metabolism
6. Inheritance
7. DNA structure and replication
8. Gene transcription and translation
9. Gene regulation and development
10. Viruses and the immune system
11. Darwin and the tree of life
12. Mechanisms of evolution
13. The history of life on Earth
14. Extra biology topic
15. Introduction to ecology
16. Feedback

[履修要件]

Although helpful, having taken natural sciences courses (such as Chemistry and Biology) at high school is not necessary, as essential knowledge for the course will be provided as needed in class.

[成績評価の方法・観点]

Participation (40%) and final exam (60%).
Participation is based on class attendance and submission of weekly multiple choice tests.

Introduction to Biology and Life Science-E2(2)へ続く↓↓↓

Introduction to Biology and Life Science-E2(2)

[教科書]

Urry, Cain, Wasserman, Minorsky, Reece. 『Campbell Biology』（Pearson）ISBN:9781292170435

[授業外学修（予習・復習）等]

Presentation slides are uploaded before each class.
Study at home may be based on the students notes, the uploaded presentation slides, and the weekly tests.
At the end of each class, the students will also have the opportunity to work on extra activities to explore various biological topics.

[その他（オフィスアワー等）]

Please feel free to contact me by email any time at brandani@biophys.kyoto-u.ac.jp

[主要授業科目（学部・学科名）]

理学部