科目ナンバリング	U-LAS14 20034 LE68				
授業科目名<英訳>	Introduction to Genetics and Evolution-E2 Introduction to Genetics and Evolution-E2		担当者所属職名・氏名	生命科学研究科 准教授 Adam Tsuda GUY	
群	自然科学科目群	分野(分類)	生物学(各論)	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	月3	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]

This class will provide an introduction to genetics and evolution, starting with the most fundamental topics. What are chromosomes? What is the genetic code? Students will learn some of the basics about DNA, the genetic material, and the Central Dogma of Molecular Biology. Then we will progress to specific topics such as mitosis and meiosis, genetic variation, and cancer and other genetic diseases in humans.
The latter half of the course is devoted to topics in evolutionary biology. We will cover the basic concept of common descent with modification, and discuss the meaning of terms such as natural selection and fitness. We will learn about subjects like the classification of life, the genetics of evolution, conflict and cooperation, sex and reproductive success, and finish with some social and historical considerations of evolutionary theory and society. Students should come to appreciate that we can explain the apparent paradox of the great diversity and unity found in living things through understanding evolution, the "unifying theory of biology".

[到達目標]

Students will become familiar with molecular biology, classical genetics, central dogma, genetic diseases, and learn some basic principles of evolution including natural selection, adaptation, fitness, genetic drift, phylogenetics, and the last universal common ancestor.

[授業計画と内容]

1. Introduction
2. The Structure of DNA and Chromosomes
3. Coding and noncoding RNA
4. Gene Expression
5. Mitosis and Meiosis
6. Genetic Variation
7. Cancer and Genetic Diseases in Humans
8. Introduction to Evolutionary Biology
9. The Tree of Life: Classification and Phylogeny
10. Genes and Evolution
11. Conflict and Cooperation
12. Sex and Reproductive Success
13. A Brief History of Life on Earth
14. Evolution, Science and Society

≪Final Exam≫

15. Feedback Class

[履修要件]

This is an introductory course. There are no requirements but high school-level knowledge of biology is highly recommended. The course will be taught in English. Some students may have some knowledge of

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biology but maybe not in English language. Other students may have good English skills, but will have to learn some technical terms used in the study of genetics and evolution.

[成績評価の方法・観点]

Lectures will encourage student participation. There will be a final exam and some in-class quizzes to assess comprehension of the subjects taught. Final grades are assessed by: attendance and student participation: 20%; quizzes: 30%; final exam: 50%.

[教科書]

使用しない

Lecture handouts will be provided for each class.

[参考書等]

（参考書）

Futuyma & Kirkpatrick 『Evolution』（Sinauer）ISBN:9781605356051

[授業外学修（予習・復習）等]

Students may need 2-3 hours per week to review the lecture material and look up any background information as necessary. Some students may know the subject already, but need to learn the English vocabulary; others may need to learn both Biology and English.

[その他（オフィスアワー等）]

In principle, anytime. Please contact the instructor by e-mail if you have any questions. For consultations about course-related matters outside class hours, please make an appointment directly or by e-mail.

[主要授業科目（学部・学科名）]

理学部