

Course number	U-LAS70 10002 SE50					
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to Human Genetics and Genetic Disease (人類遺伝学 と遺伝病入門) ILAS Seminar-E2 :Introduction to Human Genetics and Genetic Disease		Instructor's name, job title, and department of affiliation	Graduate School of Medicine Senior Lecturer,Marco,Marques Candeias		
Group	Seminars in Liberal Arts and Sciences		Number of credits	2	Number of weekly time blocks	1
Class style	seminar (Face-to-face course)	Year/semesters	2025 ・ First semester		Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors		Days and periods	Wed.5
Classroom	04, Yoshida-South Campus Bldg. No. 1				Language of instruction	English
Keyword	Human Genetics / Genetic Disorders / Cancer Genetics / Genetics Research / Molecular Therapy					
[Overview and purpose of the course]						
An overview of human genetic disorders and how current research is creating new treatments. Topics include: single gene disorders, multifactorial disorders; cancer genetics; identification and analysis of human disease genes. Students will learn from recent research articles as well as from a recent text book on human genetics. After learning about the several subjects, the students will present recent research in class and active discussion will be encouraged.						
[Course objectives]						
The classes will be interactive. Recent exciting research discoveries about human genetics and genetic disease will be introduced and discussed. The students will learn about gene structure and function, mutations and diversity, inheritance, detection and treatment.						
[Course schedule and contents)]						
The following topics will be viewed during a total of 13 classes in the classroom:						
1. The Human Genome: Gene Structure and Function 2. Human Genetic Diversity: Polymorphism or mutation? 3. The Chromosomal and Genomic Basis of Disease: Disorders of the Autosomes and Sex Chromosomes 4. Single-Gene Inheritance 5. Complex Inheritance (known and unknown molecular mechanisms) of Common Multifactorial Disorders 6. Genetic Variation in Populations 7. Identifying the Genetic Basis for Human Disease 8. The Molecular, Biochemical, and Cellular Basis of Genetic Disease 9. The Treatment of Genetic Disease 10. Developmental Genetics and Birth Defects 11. Cancer Genetics						
One class will be in the laboratory to observe first-hand the power of gene mutations on human disease, in particular cancer.						
(Total: 14 classes and 1 feedback)						

Continue to ILAS Seminar-E2 :Introduction to Human Genetics and Genetic Disease (人類遺伝学 と遺伝病入門) (2)						

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on active participation and small assignments (~20 %), group presentations (~30%) and quizzes/tests (~50 %). Those who are absent more than four times will not be credited.

[Textbooks]

Robert L. Nussbaum, Roderick R. McInnes, Huntington F Willard 『Thompson & Thompson Genetics in Medicine』 (Elsevier Health Sciences) ISBN:0323392067, 9780323392068

[Study outside of class (preparation and review)]

Some time will be necessary weekly to prepare for the class. Handouts will be available to help with the preparation. During the assignment weeks extra time will be necessary in order to prepare for the presentation in class.

[Other information (office hours, etc.)]

Questions and discussions during class are highly encouraged.

Questions and discussions will also be addressed, happily, any other time, even outside the official office hours.

[Essential courses]