Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :How to make scientific Breakthrough- Learning from Nobel discoveries（基礎生物学の発見から疾患の理解へ） ILAS Seminar-E2 :How to make scientific Breakthrough- Learning from Nobel discoveries	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,KIM MINSOO		
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・Second semester	Quota (Freshman)	12 (12)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	3C, Yoshida-South Campus Academic Center Bldg. North Wing	Language of instruction	English		
Keyword	Medical science / Molecular biology-related / Pharmaceutical chemistry and drug development sciences-related / Biomedical engineering-related / Human diseases				

[Overview and purpose of the course]

Since 1901, the Nobel Prize has served as an acknowledgement of major contributions to the life sciences. In this ILAS seminar, we will focus on several contributions to the fields of Medicine/Physiology and Chemistry that have been recognized by the Nobel Prize. The course will begin with two classes that review the philosophy and sociology of such scientific discoveries. Subsequent classes will shift to an exploration of the application of these theories to specific cases. By studying the work and careers of laureates, students will become familiar with the philosophies and methods that have led to great breakthroughs in twentieth-century science. The course will end with a discussion of the future prospects of medical innovations. During the course, students will practice to read research papers and actively participate in group discussions.

[Course objectives]

To understand the philosophy and methodology of the Nobel laureates
To gain basic knowledge of the life sciences and biotechnology
To improve critical thinking skills and the discussion and presentation of scientific topics

[Course schedule and contents)]

Week 1. Introduction of course: Nobel lecture
Week 2. History of scientific discoveries
Week 3-6. Nobel stories of “Gene to Cell”: Chromosome, Reverse Transcription, Protein folding, Protein degradation, cell division
Week 7. Student practice: Let's make a "3D-DNA model"
Week 8. Novel biotechnology in medicine: RNA interference, polymerase chain reaction, green fluorescent protein
Week 9. Student practice: Reading Nobel papers
Week 10-13. Discovery of the causes of diseases (and therapies): tuberculosis (and streptomycin), malaria, cancer, immune cells, and immune therapy
Week 14. Innovations in medical sciences: What is the next innovation?
Week 15. Student presentations on selected Nobel prizes

Continue to ILAS Seminar-E2 :How to make scientific Breakthrough- Learning from Nobel discoveries（基礎生物学の発見から疾患の理解へ）(2)↓↓↓

ILAS Seminar-E2 :How to make scientific Breakthrough- Learning from Nobel discoveries（基礎生物学の発見から医薬の理解へ）(2)

Week 16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and participation (60%) and a final presentation (40%).

[Textbooks]

授業中に「プリント配付」する。

[References, etc.]

（References, etc.）

Bruce Alberts　et al. 『Molecular Biology of the Cell』ISBN:978-0815344643

[Study outside of class (preparation and review)]

To achieve the course goals students review the course handouts.

[Other information (office hours, etc.)]

Please feel free to come to my office any time

[Essential courses]