

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Topics in Frontier Physics (現代物理学の最先端) ILAS Seminar-E2 :Topics in Frontier Physics		Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,WENDELL,Roger	
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	2024 ・ First semester		Quota (Freshman) 15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors		Days and periods Mon.5
Classroom	36, Yoshida-South Campus Academic Center Bldg. North Wing			Language of instruction	English
Keyword	Modern Physics / Nobel Prize / Physics Discoveries				
[Overview and purpose of the course]					
This class will introduce students to new and exciting topics in modern physics. Recent discoveries and Nobel prize-winning research will be discussed in straight-forward terms such that anyone can understand and enjoy modern science. Lectures and discussions will be held in English and will cover a wide variety of topics in recent research. Even students with no previous physics experience are encouraged to join this class and learn about how we understand the world today. There will be in-class demonstrations to match some of the topics.					
[Course objectives]					
Students in this course will learn about the fundamental physics behind recent topics in modern research as well as how they are applied in the real world. In addition, students will be introduced to and practice speaking in scientific English. Understanding of the material will be probed using in-class discussions, in groups and as a class.					
[Course schedule and contents)]					
Each week a different topic in modern physics and cosmology will be presented. The following week will provide a review of material with discussion. Topics will include some of the following:					
-) From the birth of stars to supernovae -) The history of the universe and its expansion -) Dark Matter and Dark Energy -) Observation of gravitational waves -) Radiation in the modern world -) Quarks and CP symmetry -) Discovery of the Higgs boson -) Neutrinos and their oscillations -) Lasers for trapping atoms -) Superconductivity at low and high temperatures					
In addition to the above, students may request lectures on a few topics of their choice.					

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[Course requirements]

None

[Evaluation methods and policy]

This is a seminar course and the grade will be based on in-class participation (80%) and short reports (20%).
Coming to each class with questions and an open mind is essential.

[Textbooks]

Not used

[References, etc.]

(References, etc.)

Introduced during class

[Study outside of class (preparation and review)]

Instructions on material to review ahead of lectures and supplementary reading will be presented in class.

[Other information (office hours, etc.)]

Students curious about recent discoveries in modern physics are encouraged to attend this course.