科目ナンバリング	U-LAS70 10002 SE50						
授業科目名<英訳>	ILAS Seminar-E2 :Topics in Frontier Physics（現代物理学の最先端） ILAS Seminar-E2 :Topics in Frontier Physics			担当者所属職名・氏名	理学研究科　教授　WENDELL,Roger		
群	少人数群	単位数	2単位	週コマ数	1コマ	授業形態	ゼミナール（対面授業科目）
開講年度・開講期	2026・前期	受講定員(1回生定員)	20 (15) 人	配当学年	主として1回生	対象学生	全学向
曜時限	月5	教室	共北36			使用言語	英語
キーワード	Modern Physics / Nobel Prize / Physics Discoveries						

[授業の概要・目的]

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 and we will frequently work in groups to approach interesting problems in current research.

[到達目標]

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. We will discuss these as both large and small groups. Students will work together and with the lecturer to understand new and challenging ideas at the forefront of physics.

[授業計画と内容]

Each week a different topic in modern physics and cosmology will be presented. The following week will include small and large group discussion on that material and related topics. 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.

Total：14 classes, 1 Feedback class.

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ILAS Seminar-E2 :Topics in Frontier Physics（現代物理学の最先端）(2)

[履修要件]

特になし

[成績評価の方法・観点]

This is a seminar course and the grade will be based on in-class participation (50%) and short reports (50%). Coming to each class with questions and an open mind is essential. Be ready to discuss in English with other students and the lecturer.

[教科書]

使用しない

[参考書等]

（参考書）
授業中に紹介する

[授業外学修（予習・復習）等]

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

[その他（オフィスアワー等）]

Students curious about recent discoveries in modern physics are encouraged to attend this course. No prior knowledge of physics is required.

[主要授業科目（学部・学科名）]