科目ナンバリング	U-LAS12 10026 LE57						
授業科目名<英訳>	Physics for All-E2 Physics for All-E2			担当者所属職名・氏名	医生物学研究所 助教　　金　英寛		
群	自然科学科目群			分野(分類)	物理学(基礎)	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	水4	配当学年	主として1回生	対象学生	全学向

[授業の概要・目的]

The lecture will focus on enabling students, especially from non-physics majors, to grasp basic concepts and principles of physics, and to learn how to apply them to understand the physical world around us. Particular focus will be on problem solving in mechanics, which will be presented systematically so that students gain a deeper understanding of mathematical and logical treatment of familiar physical problems.

[到達目標]

1) To introduce students with little physics background to basic but important concepts in physics.
2) To nurture students' problem solving ability in physics.
3) To impact a deeper understanding of familiar physical phenomena.

[授業計画と内容]

The following topics will be introduced from the basics, assuming that students have little prior knowledge of physics.

1) VECTORS IN MOTION (2 weeks)
Here we will learn about vectors and how to use them to describe motion in terms of position, displacement, velocity and acceleration.

2) KINEMATICS (3 weeks)
We will learn how to use vectors to describe kinematics, such as linear, projectile and circular motions, and also be able to derive the kinematic equations of motion when given displacement, velocity and a constant acceleration.

3) NEWTON'S LAWS OF MOTION (3 weeks)
Newton's laws of motion are at the core of classical mechanics and the foundation of modern physics. In this topic, you will explore the relationships between force and acceleration described in Newton's laws and practice using them to solve common problems involving motion in nature.

4) MOMENTUM, WORK AND ENERGY (4 weeks)
In this chapter, we will introduce important physical quantities such as momentum, work and energy. By extending the Newton’s laws, we will learn the principle of conservation of linear momentum and the work-energy theorem. Concepts of potential energy and kinetic energy and the law of conservation of mechanical energy will be introduced.

5) GRAVITATION (2 weeks)
One of the goals of physics is to understand the gravitational force. Newton’s law of gravitation and gravitational potential energy will be explained and applied to relevant examples in dynamics. We will obtain deeper understanding of gravitation that we take for granted.

Physics for All-E2(2)へ続く↓↓↓

Physics for All-E2(2)

6) EXAM (1 week)

7) FEEDBACK (1 week)

[履修要件]

特になし

[成績評価の方法・観点]

Regular assignments:25%; End-term exam: 75%

[教科書]

使用しない

[参考書等]

（参考書）

David Halliday, Robert Resnick and Jearl Walker 『Fundamentals of Physics 12th Edition』（Wiley）ISBN:9781119801160（The eBook is available through Kyoto University's library. To find it, type the ISBN into the KULINE search bar.）

[授業外学修（予習・復習）等]

Students are encouraged to spare enough time for review of previous lectures and read ahead in preparation for future lectures.

[その他（オフィスアワー等）]

Office hour will be announced during class.

[主要授業科目（学部・学科名）]