

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	2024・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 completely do not have or 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 and momentum (4 weeks) We will learn about Newton's laws of physics which form the foundation of modern physics. We will explore the relationship between force and acceleration, and extend the Newton's laws to momentum and conservation of momentum. Practical application to solving common motion problems in nature will be presented.											
4) Work and energy (3 weeks) Work and energy are important physical properties. We will learn about how work is done when a force moves from one point to another. We will derive the relationship between work and energy (work-energy theorem). Concepts of potential energy and kinetic energy and the law of conservation of mechanical energy will be introduced.											
5) Circular motions (2 weeks) Sometimes motion occurs in a circular path, like when you drive around a curved road. This topic will introduce you to forces involved in circular motion such as centripetal forces. We will make everything pretty simple so that by the end of this topic, you will be able to derive the basic equations of circular motion.											
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Physics for All-E2(2)

6) Exam and feedback (2 weeks)

【履修要件】

特になし

【成績評価の方法・観点】

- 1) Assignments will be given to gauge students' understanding of the lecture contents.
- 2) Evaluation: Assignments: 40%; End-term exam: 60%

【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 10th Edition』 （Wiley）

【授業外学修（予習・復習）等】

Students are encouraged to spare enough time for revision and 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.