

Course number		U-LAS12 10012 LE57					
Course title (and course title in English)		Elementary Course of Physics A-E2 Elementary Course of Physics A-E2		Instructor's name, job title, and department of affiliation		Graduate School of Science Associate Professor,PETERS,Robert	
Group	Natural Sciences		Field(Classification)		Physics(Foundations)		
Language of instruction	English		Old group	Group B		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture (Face-to-face course)		Year/semesters	2025・First semester	
Days and periods	Mon.3		Target year	All students		Eligible students	For science students
[Overview and purpose of the course]							
<p>This course gives an introduction to classical mechanics in English. Using simplified models, we will describe the motion of particles and learn the physical meaning of force, energy, work, and potential. In particular, we will study Newton's laws and apply them to several simple systems. After this, I will introduce the concepts of work, energy, and potential and explain how to solve problems in classical mechanics using these concepts.</p> <p>In principle, this course is given in English. However, if there are parts that the students cannot understand in English, I can and will explain those in Japanese.</p> <p>このコースでは古典力学を英語で学ぶ。簡単なモデルを用いて粒子の運動を記述し、力、エネルギー、仕事、ポテンシャルの物理的意味を学ぶ。特にニュートンの法則を学び、いくつかの簡単な系に応用する。その後、仕事、エネルギー、ポテンシャルの概念を紹介し、これらの概念を用いた古典力学の問題の解き方を説明する。</p> <p>原則として授業は英語で行う。ただし、英語で理解できない部分があれば、日本語で説明することも可能。</p>							
[Course objectives]							
<ul style="list-style-type: none"> - Learning the fundamentals of classical mechanics (Newton's laws, work, energy) - Being able to solve problems in classical mechanics - 古典力学の基礎（ニュートンの法則、仕事、エネルギー） - 古典力学の問題を解く 							
[Course schedule and contents)]							
<p>In principle, the course will be offered as the following plan. However, there may be changes depending on the progress of the course.</p> <p>The course will be adapted to the level of the students!</p> <p>1-2. Introduction to necessary mathematics: curves and coordinate systems 3. Definition of position, velocity, and acceleration 4-5. Introduction to Newton's laws and simple applications 6. Friction</p>							
<div style="text-align: right;">Continue to Elementary Course of Physics A-E2(2)</div>							

Elementary Course of Physics A-E2(2)

- 7. Curved motion
- 8.-9. Oscillations
- 10. Work
- 11-12. Energy and potential
- 13-14. Central forces and the Kepler problem

<<Final examination>>

- 15. Feedback

授業は、原則として以下のプランで行う。ただし受講者のレベルに合わせて授業を進めるので、状況により変更する場合がある。

- 1-2. 必要な数学入門：曲線と座標系
- 3. 位置、速度、加速度の定義
- 4-5. ニュートンの法則の紹介と簡単な応用
- 6. 摩擦
- 7. 曲線運動
- 8.-9. 振動
- 10. しごと
- 11-12. エネルギーとポテンシャル
- 13-14. 中心力とケプラー問題

最終試験

- 15. フィードバック

[Course requirements]

None

[Evaluation methods and policy]

Worksheets/reports (40%) + examination (40%) + attendance and participation (20%)
ワークシート/レポート(40%) + 試験(40%) + 出席と参加の状況(20%)

[Textbooks]

I will provide lecture notes.
講義ノートを提供する。

[References, etc.]

(References, etc.)
Introduced during class

[Study outside of class (preparation and review)]

Revision of the course by doing the worksheets

[Other information (office hours, etc.)]

Office hours: After the course

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Elementary Course of Physics A-E2(3)

Furthermore, I will provide lecture notes to help students understand the lecture.

Although no specific knowledge about physics is needed to take this course, basic skills in differential and integral calculus are expected.

The worksheets will give students an opportunity to practice their English skills in science.

講義ノートを提供する。

オフィスアワーは 講義終了後

なお、講義の理解に役立つ講義ノートを配布する。

物理学に関する特別な知識は必要ないが、微分積分に関する基本的なスキルが求められる。