

Course number		U-LAS12 10021 LE57					
Course title (and course title in English)		A Guide to Modern Physics A-E2 A Guide to Modern Physics A-E2		Instructor's name, job title, and department of affiliation		Graduate School of Science Associate Professor, WENDELL, Roger	
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	2024 • First semester	
Days and periods	Mon.3		Target year	Mainly 1st year students		Eligible students	For all majors
[Overview and purpose of the course]							
This course will discuss the fundamentals of classical (Newtonian) mechanics, focusing on the motion of objects under forces. Classical mechanics can be used to understand many phenomena in the natural world and is the gateway to the larger world of physics. Lectures will be discussion-oriented, with several worked examples, proofs, and in-class demonstrations. This will provide many opportunities for students to improve their scientific English abilities. In addition, the end of the course will introduce students to topics in modern physics.							
[Course objectives]							
The object of the course is to learn and understand basic phenomena from fundamental physical principles and conservation laws. At the end of the course students should be able to describe the motion of objects moving under the influence of forces. This will be evaluated based on "thought" experiments presented in class and through reports.							
[Course schedule and contents)]							
Lectures on the basics of classical Newtonian mechanics will cover the following topics with each covered in two or three weeks:							
1) Principles of forces, momentum, and acceleration 2) Equations of linear and rotational motion, applications 3) Conservation laws, work and energy 4) Gravitation and physical phenomena in our daily lives 5) Introduction to topics in modern physics depending upon student interests a) Special relativity b) Quantum mechanics							
These topics will be covered over a period of 15 lectures total, including the feedback session.							
[Course requirements]							
None							
[Evaluation methods and policy]							
Student's comprehension of the course material will be evaluated based on participation in in-class discussions (20 points), homework sets (worth 60 points total), and a final exam or report (20 points).							
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A Guide to Modern Physics A-E2(2)

[Textbooks]

Not used

[Study outside of class (preparation and review)]

In order to get the most from the lectures, students need to review material from the previous lecture for discussion. Homework will be due two weeks from the date it is assigned and students are encouraged to bring questions during the intervening week to improve their understanding of the assignment.

[Other information (office hours, etc.)]

Students interested in improving their scientific English and learning something about physics are encouraged to join this course.