



Course Syllabus

Course Name: Physics I

Course Code: vp140

Course Pre-requisites

Applied Calculus II (vv156) or Honors Mathematics II (vv186)

Textbook

Hugh D. YOUNG, Roger A. FREEDMAN, *University Physics* (14th edition)

Instructor

Mateusz KRZYZOSIAK (m.krzyzosiak@sjtu.edu.cn)

Office hours: Tuesday 14.00-15.30, Tuesday (odd weeks) 18.15-20.00, Thursday (even weeks) 14.00-15.30. and by appointment

Office: room 211 (JI Building), Phone: 021-34206765 ext. 2111

Teaching Assistants

ZHENG Runyu (email: Zhengrunyu@sjtu.edu.cn, recitation class: Wednesday 14.00-15.40 in TBA, office hour: Wednesday 12.00-13.40 in TBA)

LU Xiuneng (email: luxiuneng@sjtu.edu.cn, recitation class: Tuesday 18.20-20.00 in TBA, office hour: Monday 20.00-22.00 in TBA)

ZHANG Jiadi (email: zhangjiadi44@sjtu.edu.cn, recitation class: Wednesday 18.20-20.00 in TBA, office hour: Wednesday 20.00-22.00 in TBA)

YU Fan (email: kevinyf@sjtu.edu.cn, recitation class: Thursday 18.20-20.00 in TBA, office hour: Thursday 20.00-22.00 in TBA)

Grading Policy

Homework 25% = 13% (Mastering Physics) + 12% (paper homework)

Midterm Exam I (25%)

Midterm Exam II (25%)

Final Exam (25%)

For this course, the expected median grade is around “B”.



Academic Integrity

Lectures

Students are encouraged to read the relevant chapters in the textbook ahead of the lecture. Students are required to read and review the relevant chapters after the lecture. Lecture notes will be available on Canvas. Students are expected to attend lectures.

Recitation Classes

Weekly recitation sessions in smaller groups will be led by teaching assistants. Recitation classes will focus mostly on problem solving and discussion. Students are expected to attend and actively participate in the recitation sessions.

Homework

Two types of homework will be assigned: on-line assignments in Mastering Physics and paper homework in the form of problem sets to be solved by each student individually. Discussion of homework problems with other students is allowed and encouraged at the level of general ideas, not specific solutions. Problem sets will have a due date assigned, by which the homework has to be handed in for grading or submitted electronically in the MP system. Please plan your time well, late homework will not be accepted.

Exams

There will be two midterm exams and one final exam as listed in the class schedule. All exams are closed-book. The use of a non-electronic English-Chinese dictionary will be allowed during the exams.

Honor Code

Oral discussion of homework problems with other students is allowed and encouraged at the level of general ideas, not specific solutions. It is not allowed to show any written work to other students. If any references to academic textbooks or research journals are made, they should be properly identified with the bibliographical data. No references to Wikipedia entries are allowed.



Course description and detailed teaching schedule

Physics I (vp140) is the first part of a course in general physics. It covers classical mechanics, including elements of fluid mechanics, and gravitation (see the detailed schedule below). The goal of the course is to provide students with an understanding of nature, that will allow them to formulate and solve engineering problems. The approach used in this course will emphasize patterns and principles relating various phenomena observed in the nature. Much the same material will be covered in Honors Physics I (vp160) with a more 'theoretical' approach.

Teaching Schedule

week	date	topic	textbook sections
1	May 15–21	nature of physics; physical quantities; kinematics: motion in one dimension	1, 2
2	May 22–27	kinematics: motion in two and three dimensions Newton's laws of motion and their applications	3, *
3	May 29–Jun 4	Newton's laws of motion and their applications	4, 5
4	Jun 5–11	periodic motion	14*
5	Jun 12–18	dynamics in non-inertial frames of reference first midterm exam	4, 5, *
6	Jun 19–25	work and kinetic energy; potential energy and conservation laws	6, 7
7	Jun 26–Jul 2	potential energy and conservation laws; momentum, impulse, and collisions	7, 8
8	Jul 3–9	rigid body dynamics and angular momentum	9, 10
9	Jul 10–16	rigid body dynamics and angular momentum second midterm exam;	9, 10
10	Jul 17–23	equilibrium and elasticity; elements of fluid mechanics	11, 12
11	Jul 24–30	gravitation; mechanical waves and sound	13; 15*
12	Jul 31– Aug 6	mechanical waves and sound	15, 16
13	Aug 7–11	final exam	

* additional materials will be provided