



Course Syllabus

Course Name: Honors Physics II

Course Code: Vp260

Course Pre-requisites

Honors Physics I; Applied Calculus III or Honors Mathematics III

Textbooks

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

Ruth CHABAY, Bruce SHERWOOD, *Matter & Interactions vol. II* (3rd edition, available in ER Room)

selected topics: David J. GRIFFITHS, *Introduction to Electrodynamics* (3rd edition, available in SJTU library)

Instructor

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

Office hours: Tuesday 18.00-20.15, Wednesday (weeks 1-5), 16.00-17.30, Thursday (other weeks) 13.00-13.45; and by appointment

Office: Room 211 (JI building), Phone: 021-34206765 ext. 2111

Teaching Assistants

LI Chunchao (email: lcc951111@sjtu.edu.cn; recitation class & office hours TBA)

LI Xiahan (email: lixiahan@sjtu.edu.cn; recitation class & office hours TBA)

ZHANG Ruitao (email: zhangruitao@sjtu.edu.cn; recitation class & office hours TBA)

Please check Canvas for a detailed schedule and classroom information!

Grading Policy

Coursework (includes problem sets and a term project) (25%)

Midterm Exam I (25%)

Midterm Exam II (25%)

Final Exam (25%)

For this course, “B+” is expected to be the median grade.



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 the Sakai system. 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

Homework will be assigned in the form of problem sets to be solved by each student individually or projects to be completed in groups. Problem sets will have a due date assigned, by which the homework has to be handed in for grading. 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. 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 on 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

Honors Physics II (Vp260) is the second part of the two-semester honors course in general physics and focuses on electromagnetism. The aim of this course is to introduce the fundamental laws of electromagnetism and illustrate them in applications. Conceptual links across different areas of physics will be emphasized in order to develop interdisciplinary intuition allowing to approach problems in various fields of science and engineering in a systematic way. A list of topics is given in the teaching schedule.

Tentative Teaching Schedule

week	date	topic	textbook(s) sections
1	Sep 11–15	Electric Charge and Electric Field	Y21, G2.1-2.2
2	Sep 18–22	Gauss's Law	Y22, G2.2
3	Sep 25–29	Electric Potential. Method of Images.	Y23, G2.3**-2.5, G3.2
4	Oct 2–6	Holiday break	
5	Oct 9–13	Capacitance and Dielectrics. Electric Field in Matter. Current, Resistance, and Electromotive Force.	Y24, G2.5, G4.1-4.2** Y25
6	Oct 16–20	Current, Resistance, and Electromotive Force. Direct-Current Circuits First Midterm Exam	Y25, Y26
7	Oct 23–27	Magnetic Field and Magnetic Forces	Y27, G5.1
8	Oct 30–Nov 3	Sources of Magnetic Field; Magnetic Field in Matter	Y28, G5.2-5.3, G6.1**, *
9	Nov 6–10	Electromagnetic Induction Maxwell's Equations	Y29*, G7.2-7.3**
10	Nov 13–17	Maxwell's Equations Second Midterm Exam	Y29*, G7.2-7.3
11	Nov 20–24	Inductance Alternating Current	Y30 Y31
12	Nov 27–Dec 1	Electromagnetic Waves Elements of Wave Optics: Interference and Diffraction	Y32 Y35/36 (part)
13	Dec 4–8	Light: Polarization, Reflection and Refraction; Elements of Wave Optics: Interference and Diffraction	Y33, Y35/36 (part)
14	Dec 11–15	Final Exam	

* additional materials will be provided, ** selected topics, Y – Young & Freedman, G - Griffiths