

Spring 15 – Phys272

General Physics II: Electricity and magnetism and geometric optics

www.phys.hawaii.edu/~philipvd/pvd_15_spring_272_uhm

Course goal

Understand the basic laws of Electricity and Magnetism and Optics and learn how to apply them to solve problems.

Instructor

Prof. Philip von Doetinchem, Watanabe 430

email: philipvd@hawaii.edu

phone: 808-956-3719

My last name is complicated to pronounce. It is an old German noble name of Dutch origin (but this is a different story). Don't worry about pronouncing my last name the right way. **Prof. Phil** or **Prof. von D** is okay with me.

Lecture

9:00-10:15am, Tuesday, Thursday in Watanabe 112

Office hours

Tuesday, Thursday 10:30-11:30am in Watanabe 430

(or other times by arrangement → Please do not just show up in my office and **always** send me an email to philipvd@hawaii.edu before coming)

Text

"University Physics", Young and Freedman, 13th Edition, Volume 2

(The course will cover chapters 21-34)

Prerequisites

Physics 151 or 170 and Math 242 or 252A. Math 216 may be substituted with consent.

Reading

Reading is assigned every week, and the assignment should be completed **before** the lecture so that you may ask questions and participate in class discussion. Fulfilling the reading assignments will help you during i>clicker quizzes that will happen during nearly every lecture.

i>clickers

Nearly every lecture will ask conceptual questions on the material that was just covered. You will receive a point for each correct i>clicker response. Registration of i>clickers:

I>clicker ID is found on the backside of your i>clicker

i>clicker GO users (iOS, Android) find the ID in the following way:

open the app → my account → i>clicker GO credentials → hex code in the first line

Register your i>clicker ID on <https://laulima.hawaii.edu/iclicker>

You have to register your i>clicker during the first two weeks or I will not count your points.

Homework

Working problems is central to learning physics. New problem sets will be given out each Thursday unless specified otherwise. Parts of the homework have to be completed by using Mastering Physics. Some fraction of the problems will have to be worked on with pen and paper (hand-in). Mastering Physics problems are due before the lecture on Thursdays one week after the assignment unless specified otherwise. Hand-in problems have to be submitted during the break of the lecture on Thursdays one week after the assignment unless specified otherwise. I will try to spend half a lecture per week to explain homework problems.

Hand-in problems can be worked on in groups of two. These groups have to be registered with me at the beginning of the semester and cannot be changed during the semester. Both group members will get the same number of points.

Hand-in Problems

Papers should be stapled. Letter size. Write all of your group's names, student IDs, and homework set number on each page. Show all steps in solving your problem and place a box around your final answer.

Mastering Physics Problems

Some problem sets will be worked and graded using www.masteringphysics.com. You will have to create a Mastering Physics account and register for the course. To access the problems and receive credit, you will need a registration code, which comes along with a new text book or can be purchased separately. It is your responsibility to have access to the internet before the due date.

ID: DOETINCHEMPHYS272SPRING15

Emailing me: philipvd@hawaii.edu

Preferably you come to my office hours to discuss questions. However, I will also try to email you back in a timely manner. Please keep in mind that sending me questions late in the evening before the due date of homework or in the night before exams will most likely not get a reply in time.

Midterms

There will be two exams during the regular course hours in WAT112 (**February 19th & April 2nd**). Midterm 1 will cover chapters 21-25 and midterm 2 chapters 26-29. They will consist of conceptual questions (similar to the i>clicker questions during the lecture, but no multiple choice) and problems similar to those occurring on the problem sets. Please just bring your calculator and paper. **No further materials will be allowed.**

Make accommodations in your schedule for the exams well before. I will not arrange for make-up exams if you are traveling or have other non-emergency or non-health related obligations.

Final

May 12th, 9:45am-11:45am, WAT112

The final will focus on chapters 30-34, but will also have conceptual questions concerning chapters 21-29. It will consist of conceptual questions (similar to the i>clicker questions during the lecture, but no multiple choice) and problems similar to those occurring on the problem sets. Please just bring your calculator and paper. **No further materials will be allowed.**

Make accommodations in your schedule for the exams well before. I will not arrange for make-up exams if you are traveling or have other non-emergency or health related obligations.

Grading

final: 35%
midterm 1: 25%
midterm 2: 25%
homework: 15%
extra credit: in-class i>clicker questions: 5%

Final grades will be determined based on your scores in final, midterms, homework, and i>clicker. **To pass the class only one out of the written examinations (midterm 1, midterm 2, final) is allowed to be F.**

I will also offer the opportunity to collect extra credit by doing in-class presentations on special topics relevant to the class (e.g., technical applications in the real world). Please come and talk to me if you are interested.

The final score translates into the following final grade:

A+	95%≤score	C+	65%≤score<70%
A	90%≤score<95%	C	60%≤score<65%
A-	85%≤score<90%	C-	55%≤score<60%
B+	80%≤score<85%	D+	50%≤score<55%
B	75%≤score<80%	D	45%≤score<50%
B-	70%≤score<75%	D-	40%≤score<45%
		F	score<40%

Website

www.phys.hawaii.edu/~philipvd/pvd_15_spring_272_uhm

I am not going to use Laulima for the upload of materials and announcements, but will upload all my lecture slides to this website. Most of the time the slides will be available within a few hours after the lecture. The website will also announce reading assignments, homework, important dates, and any other changes or updates.

Please always check the website first before asking organizational questions. I will not answer questions that are already answered on the website.

Please comply to Student Conduct Code:

http://www.studentaffairs.manoa.hawaii.edu/policies/conduct_code

Student learning outcomes:

- Charge and currents,
- Electric and magnetic fields,
- Field determination for various configurations of charges and currents,
- Forces on charges and currents due to fields,
- Potential energy and potential,
- Electrical circuits (AC and DC) composed of resistors, capacitors, and inductors,
- Energy transfer in electric circuits,
- Maxwell's equations of electricity and magnetism,
- Electromagnetic waves,
- Properties of light,
- Reflection and refraction,
- Mirrors and lenses.

Advice:

- **This is going to be a tough class for most of the students. Don't get behind or you will quite likely not be able to catch up. The difficulty level is increasing throughout the course.**
- **Ask a lot of questions to yourself, to your fellow students, and to me. Make use of office hours. Don't worry about asking naive questions. These are typically the best and most likely others have the same questions.**
- **Problems in the exam will be extremely similar to the homework. I say it again: Problems in the exam will be extremely similar to the homework.**
- **Copying solutions from others does not help you learn physics. You have to really understand the homework. Then you should have no problem to get a good grade. Deciding to not spend a lot of time on understanding the homework because it is only 15% of the grade is a bad idea.**

January 5, 2015