

PHYS270
Summer I 2015

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Title: General Physics: Electrodynamics, Relativity, and Modern Physics

Lecture: Monday through Friday 11:00 AM – 12:20 PM, Rm 1204

Section 0101

TA: Antonis Kyprianidis
akprian@umd.edu

Discussion: Monday & Wednesday 10:00 - 10:50, Rm 1204

PHYS271 (Lab)

Monday & Wednesday 1:00 – 4:00 PM, Rm 3220

Textbook: Randall D. Knight: *Physics for Scientists and Engineers*, 3e

Physics 270 is the third of a three semester introductory course on physics for engineers.

Math Background

You are expected to know differentiation, integration, elementary algebraic manipulations, and trigonometric rules. If you do not know any math step discussed in class, be sure to ask and we can clear that up in the discussion sessions.

Homework

Homework will be done through Mastering Physics. ***You must submit your answers for the homework problems over the internet using the Mastering Physics web site (see below).***

There are several advantages to electronic homework submission:

1. You will know right away if your answer is right or wrong
2. If you give a wrong answer, you can go back and try again to see if you can get the correct solution. You will be allowed 6 attempts for each question, so don't waste them.
3. You are graded only on your final answers and get your score when you are done.
4. The site also has a tutorial capability that you may find helpful.

Note that the software may randomize the numbers each time you make a new attempt on a problem, so be careful and remember that other students working on exactly the same problems are likely to have different numbers. The best way to do physics problems is first to work out carefully a general analytical solution to the problem and then plug in the numbers at the end. This is especially true if the numbers are being randomized each time so everyone has different numbers.

Why You Need to do the Homework: One of the main ways you can understand Physics is by doing the homework. Do not wait until the night before it's due to start working on your homework. The homework can be expected to be difficult and it counts a lot towards your final grade in enabling you to succeed on your exams. A sure way to get an F in this course is to not do the homework or not give yourself enough time to work on it.

Getting started in electronic homework submission: To turn in your homework, you need to go to:
<http://www.masteringphysics.com/>

The site is best accessed with a current version of Windows Explorer or Firefox. If you run into problems, check the system requirements.

Registering and Gaining Access to Mastering Physics: In order to turn in your homework, you will need to register at the Mastering Physics website <http://www.masteringphysics.com/>. To register, you need two things - an access number and the class ID. **When you buy (new or used copy of) your textbook you will need to purchase a Mastering Physics access key number. The easy way to do this is to simply buy it on line from the above MP website.**

Your class ID is: P270BUEHRLES12015

Assessments

20% of your semester grade is based on your *attempts* at doing homework. Quizzes will come directly from the homework.

20% will be based on your *correct method* on the weekly quizzes. If you use correct procedure and calculate a reasonable answer with correct units, then you will receive full credit.

20% will consist of the labs. How the lab is graded is up to the TA, but the prelab is mandatory and must be turned in at the beginning of the lab. You must perform all labs to pass the class.

20% is from unit tests as listed on the schedule. Your grade is mostly determined by correct method as the quizzes, but also on correctness

20% from the final exam.

Extra Help

The best way to communicate is via email.

Your TA will post office hours

| Week | Date | Subject (Ch) | Assignment | |
|----------|------|--------------|-----------------------------------|------|
| 1 | M | June | 1 Intro, Forces & Fields | |
| | Tu | | 2 Electric Potential | |
| | W | | 3 | MP00 |
| | Th | | 4 Magnetic Fields | |
| | F | | 5 Sources of the Magnetic Field | MP01 |
| 2 | M | | 8 Induction | MP02 |
| | Tu | | 9 Electromagnetism Test | |
| | W | | 10 Capacitance & Dielectrics | MP03 |
| | Th | | 11 Current & Resistance | |
| | F | | 12 Inductance | |
| 3 | M | | 15 DC Circuits I | MP04 |
| | Tu | | 16 Linear Components Test | |
| | W | | 17 DC Circuits II | MP05 |
| | Th | | 18 AC Circuits I | |
| | F | | 19 AC Circuits II | |
| 4 | M | | 22 Electromagnetic Waves | MP06 |
| | Tu | | 23 Circuits Test | |
| | W | | 24 Reflection & Mirrors | MP07 |
| | Th | | 25 Refraction & Lenses | |
| | F | | 26 Interference | |
| 5 | M | | 29 Galilean Relativity | MP08 |
| | Tu | | 30 Waves & Optics Test | |
| | W | July | 1 Special Relativity | MP09 |
| | Th | | 2 General Relativity | |
| | F | | 3 | |
| 6 | M | | 6 Quantization | MP10 |
| | Tu | | 7 Relativity Test | |
| | W | | 8 Quantum Mechanics I | MP11 |
| | Th | | 9 Quantum Mechanics II | |
| | F | | 10 FINAL EXAM | |