PHYSICS 272: GENERAL PHYSICS II

Fall 2015

Physics 272 is calculus-based physics course covering
Electricity & Magnetism and Light.

COURSE GOAL: Understand the basic laws of Electricity and Magnetism and Optics and learn how to apply them to solving problems.

INSTRUCTOR: Prof. Harris, Wat. 223
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phone: 956 2940

LECTURE: 8:30 - 9:20, MWF in Wat. 112

OFFICE HOURS: 9:30 - 11:00 TR, and by appointment. In a pinch, just stop by.

TEXT: "University Physics", Young and Freedman, 13th Edition, Volume 2.
Also available Activ Online Physics (http://media.pearsoncmg.com/aw/aw_activephysics/aw_young_physics).

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

READING: Reading is assigned each day, and the assignment should be completed BEFORE that day's lecture so that you may ask questions and participate in class discussion.
Surprize quizzes may be given on the reading.

CLICKERS: To promote active learning, "iclicker" clickers will be used in class. A coupon for $10 off the price of the clicker comes with your textbook. You will receive a point for each correct clicker response. The points will account for 5% towards your final grade. Please see "Registering iclicker" for how to register your iclicker.

PROBLEM SETS: Working problems is central to learning physics. A set of problems will be assigned each day and will be due at the beginning of the next class unless specified otherwise. Some problem sets will be hand-in, and some will be done using the World Wide Web. In order to pass the course, you must work at least one-half of the problem sets. While discussing problems is encouraged, everyone is expected to write out their own solutions. Copying solutions from others does not help you learn physics. Solutions will be posted. Therefore late problem sets will not be accepted. A student with a good justification may be excused from a problem set.

Hand-in Problems: Papers should be stapled and folded in half down the middle. Print your name, student ID, and homework set number on the inside right hand corner of the first page and the outside right hand corner of the last page. Show all steps in solving your problem and place a box around your final answer. See "Study Tips and Problem Solutions" on the class web page for more details concerning problem sets. Solutions will be posted at the class web site.

Mastering Physics Problems: Some problem sets will be worked and graded using http://www.masteringphysics.com. To access the problems and receive credit, you will need a registration code, which comes along with a new text or can be purchased separately.

Interactive Problems: Interactive Examples are available from the University of Illinois at http://research.physics.illinois.edu/PER/ie-212.html. These are very useful to learn how to solve problems. Some of them will be assigned during the semester. They

will be referenced by number, where the number is just the sequence number of the problem set ("Line of Charge" is interactive problem 3). Work the problems like the Hand-in problems.

MIDTERMS: There will be two 50 minute exams, which are tentatively scheduled for Sept. 21 and Nov. 2. These will consist of conceptual questions and problems similar to those occurring on the problem sets.

QUIZZES: Short quizzes will be given on days marked with @@ in the Physics 272 Schedule. These will consist of short problems and conceptual questions on recent material covered in the course. Clickers will be used for the quizzes.

FINAL: Monday, Dec. 14, 7:30 - 9:30 am

GRADING:

midterms	- 43%
quizzes	- 12%
final	- 30%
problems	- 10%
clicker questions	- 5%

Final grades will be determined by your final score. The grade cutoffs will depend slightly by the class grade distribution but will be approximately given by:

C - > 50 %
B - > 65 %
A - > 75 %

WWW: The WWW Home Page for the course may be reached via http://www.phys.hawaii.edu/~fah. A computer account with access to the World-Wide-Web is required for access to the assignments, computer exercises, and problem solutions.

STUDENT LEARNING OUTCOMES:

Learn about and understand the following:
- 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.

Last modified: Aug. 31, 2015