

PHYS 350 Electricity and Magnetism

DP 72564 PHYS 350 001 Electricity and Magnetism L Elias TR 10:30-11:45 WAT 114 Fall 2014

Instructor:

Luis Elías, Watanabe 310, lelias@hawaii.edu, (808)956-2961

Required Textbook

Electricity and Magnetism, Edward Purcell and David J. Morin, 3d edition, ISBN 978-1-014 02-2 (Hardback)

Requirements

PHYS: 152 or 272 or 272A; and Math 244 (or concurrent) or MATH 253A (or concurrent) or Math253A (or concurrent); or consent of the instructor.

Tests

8 or less unscheduled short examinations will be offered. Lowest examination grade can be eliminated. (No make-ups). Problems will be selected from those solved in class and from textbook solved problems labeled with two stars (**) or less.

Final examination

Tuesday December 16 9:45-11:45

Final Grade

Regular examinations average (70%) +Final examination (30%)

Course Content

- Math review: Discontinuous function and Vector Calculus.
- Maxwell's Equations
- Static charges and fields. Coulomb's and Gauss's Laws
- Electrostatic force and energy
- Electrostatic potential
- Electrostatic fields around conductors
- Mathematical techniques for the solution the time independent Maxwell's equation
- Electric current
- Fields of moving charges
- Magnetostatics: Biot-Savart's and Ampere's Laws in vacuum
- Magnetostatics: Force and energy
- Electrostatics and magnetostatics in material media