

Physics 120 – Intermediate Electricity and Magnetism

General Information

course meeting: MWF, 11:00am, TCSeq101

Professor: Michael E. Peskin
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discussion section: Tu, 7 pm, TCSeq101

Textbook: Griffiths, Introduction to Electrodynamics

Useful references: Reitz and Milford, Foundations of Electromagnetic Theory
Feynman, Leighton, and Sands, The Feynman Lectures on Physics, vol. 2
Jackson, Classical Electrodynamics

Web page: <http://www.slac.stanford.edu/~mpeskin/Physics120/>

Midterm: February 8 – in class (please note the change)

Final: March 18 – 8:30am

Syllabus

1. Electrostatics
2. Laplace's equation
3. Electric fields in matter
4. Magnetostatics and magnetic materials
5. Energy in electric and magnetic fields

Physics 120, 121, 124 – Intermediate Electricity and Magnetism

Syllabus Overview

- Physics 120: Static Fields
 1. Electrostatics
 2. Laplace's equation
 3. Electric fields in matter
 4. Magnetostatics and magnetic materials
 5. Energy in electric and magnetic fields
- Physics 121: Dynamic fields
 1. Magnetic induction
 2. The Fourier transform
 3. Maxwell's equations
 4. Energy and momentum of the electromagnetic field
 5. The wave equation
 6. Waves in ideal media: transmission, reflection, and refraction
 7. Waves in non-ideal media: dispersion and absorption
 8. Waveguides
 9. Theory of relativity
- Physics 124: Radiation
 1. Relativity and electrodynamics
 2. Radiation from moving charges
 3. Antennas and arrays of radiators
 4. Multipoles and radiation patterns
 5. Scattering of electromagnetic radiation
 6. Diffraction
 7. Relativistic electrodynamics