Physics 422
Fall Semester 2012
MWF 11:10 – 12:00, LL 311

Instructor: John Huennekens
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Lab LL 256
phone: 8-3926
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office hours: walk-in anytime or by appointment

Textbook: J. D. Jackson, “Classical Electrodynamics”,

Other books: Jackson 1st edition
Jackson 2nd edition
Griffiths “Intro to Electrodynamics”
Marion “Classical Electromagnetic Radiation”

Grading: Homework – 25%
Midterm – 25%
Final Exam – 50%

Accommodations for Students with Disabilities: If you have a disability for which you are or
may be requesting accommodations, please contact both your instructor and the Office of
Academic Support Services, University Center C212 (610-758-4152) as early as possible
in the semester. You must have documentation from the Academic Support Services
office before accommodations can be granted.

Topics Covered:

1) Review
   quick review of statics – chapters 1-5

2) Review of Maxwell’s Eqs., wave equation, and gauge transformations (ch. 6)

3) Macroscopic fields in materials, Energy and momentum in electrodynamics (ch. 6)

4) Reflection and Refraction, classical model for ε, MHD and plasmas (ch. 7)

5) Wave Guides & Resonant Cavities (ch. 8)

6) Radiating Systems, Antennas (ch. 9)

7) Scattering & Diffraction (ch. 10)
8) Relativity (chs. 11 & 12, but mostly class notes)

9) Collisions Between Charged Particles (ch. 13)

10) Radiation By Moving Charges (ch. 14)