PHYS 3123: Electrodynamics

Spring 2010, MWF 9:05am-9:55am Lecture Room 5

Instructor: Prof. David Ballantyne
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Office hours: 1:30pm-2:30pm Wednesday or by appointment

Class website: http://www.cra.gatech.edu/ballantyne/Phys3123/index.html

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Class Textbook: *Introduction to Electrodynamics*, 3rd Edition, D.J. Griffiths

Outline:
1. Ohm's Law; Faraday's Law
2. Mutual and self inductance
3. Maxwell's Equations in vacuum and matter
4. Energy and momentum in electromagnetic fields
5. Electromagnetic waves in vacuum and matter
6. Polarization; Reflection and Transmission; Absorption & Dispersion
7. Potential Formulation; Gauge Transformations; Retarded potentials
8. Radiation from a stationary dipole
9. Radiation from moving charges
10. Radiation Reaction

Evaluation:

Weekly assignments:	30%
– lowest scored assignment will be dropped	
Two midterm exams (Feb 15th & Apr. 5th)	30%
Final exam (8:00am May 3rd)	40%

(Scale: A=90-100; B=80-89; C=70-79; D=60-69; F <= 59)

Notes:

1. Assignments due beginning of class (typically Fridays).
2. Late assignments *not* accepted unless previous arrangements have been made.
3. Students encouraged to work and discuss problems together, but written work *must* be your own.
4. Lecture notes will *not* be put on the course website, but assignments and solutions will be posted.
5. Read the Academic Honor Code: http://www.deanofstudents.gatech.edu/Honor/
6. Only 3 of the assigned problems will be graded.
7. No class February 17th.
8. Grades will be posted on T-square. Students should check the accuracy of all grades.