SMU Spring 2012
Physics 1308 : Electromagnetism
Syllabus

Instructor : Will McElgin
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Office Hours : Tuesday and Thursday 2pm-4pm
Lecture Times : Tuesday and Thursday 9:30am-10:50am
Lecture Location : Fondren 158
Teaching Assistant : Farley Ferrante
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Text Website : http://edugen.wileyplus.com/edugen/class/cls247381
Course Website : http://www.physics.smu.edu/mcelgin/P1308_spring2012/P1308.html

Course Description
This course is intended as a calculus-based introduction to electromagnetism and related topics. Initially, the concepts of electric charge, field, and potential will be introduced. Following this, there will be a treatment of electric current, magnetism, and electromagnetic induction. To complete the foundations of electromagnetism, the last of Maxwell's equations will then be introduced. This permits a description of light as electromagnetic radiation. Various topics in the physics light will be covered, including refraction, interference and diffraction. Finally, a treatment of special relativity will be given. There will be an emphasis on in-class problem solving using similar ideas and techniques as required on homework and exams.

Evaluation
There will be two exams (25% each), and a semi-cumulative final (25%). Homework (25% total) will be collected approximately weekly. Attendance in class is strongly expected and, unless expressly told otherwise, students are responsible for all aspects of the class discussion.
Instructor Formulated Student Learning Outcomes

It is expected that students should be able to incorporate physical concepts with mathematical techniques to solve problems in Electromagnetism and related topics. While only algebraic techniques will be required on exams, calculus will be utilized in the class discussion and in selected homework problems, and is expected that students will be conversant in these descriptions of physics.

General Education Student Learning Outcomes

Students demonstrate the ability to understand, critique, and draw conclusions from numerical arguments and data. Students demonstrate basic facility with the methods and approaches of scientific inquiry and problem-solving.

Schedule

1/24 : Electric Field. Chapter 22.
1/26 : Electric Field and Gauss’ Law. Chapters 22 and 23.
1/31 : Gauss’ Law. Chapter 23.
2/16 : Exam 1.
4/3   :  Maxwells Equations. Chapter 32.
4/12  :  Electromagnetic Waves and Interference. Chapters 33 and 35.
5/2   :  Final Exam 11:30am-2:30pm