

SMU Spring 2009
Physics 1308 : Electromagnetism
Syllabus

Instructor : Will McElgin

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Office Hours : Tuesday, Wednesday, Thursday – 2-5pm

TA : Travis Howe

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Text : Wolfson, “Essential University Physics : Vol 2”

Course Website : www.physics.smu.edu/mcelgin/P1308_spring2009/P1308.html

Lecture Times : Tuesday and Thursday – 9:30am-10:50am

Lecture Location : Fondren 158

Description of the Course

This course is intended as a calculus-based introduction to thermodynamics, electromagnetism, and related topics. Initially, there will be a discussion of thermal physics and the laws of thermodynamics. The concepts of electric charge, field, and potential will then be introduced. Following this, there will be a treatment of electric current, magnetism, and electromagnetic induction. Both direct and alternating circuit analysis will also be covered. 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. Finally, various topics in optical physics will be covered, including reflection and refraction, optical images, and interference and diffraction. 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 every two weeks. Attendance in class is strongly expected and, unless expressly told otherwise, students are responsible for all aspects of the class discussion.

Updated Schedule - 3/26

- 3/26 : Electromagnetic Induction. Chapter 27.
Assignment of homework 5.
- 3/31 : Induction, Maxwell's Equations and Light. Chapters 27 and 29.
- 4/2 : Induction, Maxwell's Equations and Light. Chapters 27 and 29.
- 4/7 : Maxwell's Equations and Light. Chapter 29.
- 4/9 : Maxwell's Equations and Light. Chapter 29.
- 4/14 : Collection of homework 5.
Exam 2.
Assignment of homework 6.
- 4/16 : Capacitors and Resistors in Circuits. Chapters 23 and 25.
- 4/21 : AC Circuits. Chapter 28.
- 4/23 : Reflection and Refraction. Chapters 30.
- 4/28 : Interference and Diffraction. Chapter 32.
- 4/30 : Collection of homework 6.
Review for Final.
- 5/11 : Final Exam. Exam Time – 11:30am-2:30am.