Instructor: Howard Haber
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Office Hours: Mondays 2–4 pm

COURSE WEB PAGE:
http://scipp.ucsc.edu/~haber/ph214/

CLASS HOURS:
Lectures: Tuesdays and Thursdays, 5:10–6:45 pm, ISB 231

REQUIRED TEXTBOOK:
*Classical Electrodynamics*, 3rd edition, by John David Jackson

RECOMMENDED OUTSIDE READINGS:
*Classical Electromagnetism in a Nutshell*, by Anupam Garg
*Modern Electrodynamics*, by Andrew Zangwill
*Macroscopic Electrodynamics: An Introductory Graduate Treatment*, by Walter Wilcox and Chris Thron

OTHER SUGGESTED OUTSIDE READINGS:
*Electrodynamics and Classical Theory of Fields and Particles*, by A.O. Barut
*Modern Problems in Classical Electrodynamics*, by Charles A. Brau
*Electrodynamics*, by Walter Greiner
*Electromagnetic Fields and Relativistic Particles*, by Emil J. Konopinski
*The Classical Theory of Fields*, by L.D. Landau and E.M. Lifshitz
*Electrodynamics (2nd edition)*, by Harald J.W. Müller-Kirsten
*Classical Electricity and Magnetism*, by W.K.H. Panofsky and M. Phillips
*Classical Electrodynamics*, by Julian Schwinger, Lester L. DeRaad, Jr., Kimball A. Milton and Wu-yang Tsai
COURSE OUTLINE

1. Review of Maxwell’s Equations
2. Plane Electromagnetic Waves
3. Wave Propagation in a Dispersive Medium
4. Special Theory of Relativity
5. Simple Radiating Systems and Antennae
6. Multipole Fields
7. Dynamics of Relativistic Particles and Electromagnetic Fields
8. Radiation by Moving Charges
9. Scattering of Electromagnetic Waves

If there is time, other possible topics include

10. Waveguides and Resonant Cavities
11. Raditation Reaction

Course Grading and Requirements

50% Homework (5 problem sets)
20% Midterm Exam (one day take-home exam handed out in class on Thursday February 23)
30% Final Exam (Wednesday March 22, 2017, 7:30–10:30 pm)

Homework assignments are not optional. Homework assignments are due on Tuesdays (with two weeks allotted for each homework set). You are encouraged to discuss the class material and homework problems with your classmates and to work in groups, but all submitted problems should represent your own work and understanding.

The midterm exam will be a one day take-home exam, which will be handed out in class and will be due at the end of the following day. The final exam will be an open book/open notes in-class exam that will be held in the same classroom as the lectures. You will be permitted to consult any textbook of your choosing, your class notes, and any class handout (including solutions to the problem sets). The final exam will cover the entire course material. You must take the final exam to pass the course.