Physics 248, Spring 2012
Policy and Syllabus

Course Web page: www.physics.wisc.edu/undergrads/courses/spring2012/248/ Homework assignments and solutions will be posted on this web page, as will other announcements.

Professors: Daniel Chung (danielchung@wisc.edu) and Lisa Everett (leverett@wisc.edu).

Teaching Assistant: Leon Maurer (leon.maurer@gmail.com)

Class Activities: lecs MWF 9:55-10:45 AM (2241 CH); 1 disc + 1 lab per week per student

Office Hours: Daniel Chung (5207 Chamberlin, Thurs 11 – noon and 4 – 5 PM), Lisa Everett (5215 Chamberlin, Fri 11-noon and 1-2 PM), Leon Maurer (3136 Chamberlin, TBA). Please feel free to make appointments outside of these times if you cannot make any of the office hours. Please be warned that email questions may not be answered in time (if at all). Hence, plan your time carefully to line up questions by the time of the office hours and ask them in person. Only if the answer to an email question will likely benefit the majority of the students, will it be answered promptly. In such cases, it will be answered as a group email. Other good times to ask quick questions outside of class are just after lectures, discussions, and labs.

Prerequisite: Physics 247 or equivalent. We will use calculus throughout the course.

Text: ELECTRICITY AND MAGNETISM by Edward Purcell is required. UNIVERSITY PHYSICS volume 2 by Bauer and Westfall

Grading: 30% homework, 20% laboratory, 20% final exam, and 30% for the sum of the three midterms. This last 30% will be 2/5 your best midterm, 2/5 your second best, and 1/5 your third best (for those who are counting, that 12%, 12%, and 6% of the total).

Homework: Homework will be due on the announced days (typically Mondays except near midterm exams) at the beginning of lecture (9:55 am). Most homework due on Mondays will have all the material covered by the time of prior Wednesday lecture. Late homework will not be accepted. Each homework problem is worth 0-4 points and will be graded according to the following scale: 0 good as nothing turned in, 2 significant errors, 3 only minor errors, and 4 perfect. You must circle/box or indicate clearly in other ways your final answer. Some problems will be given two times the value listed in the previous sentence. Any misgrading resulting from illegibility or a lack of explanation will not be regraded: i.e. make sure the writing and reasoning are neat and clear. Not all of the homework problems may be graded every week.

Lab: Lab grading policy will be determined by the TA. A bound quadrille notebook is required for laboratory write-ups.

Midterms: The three 50 minute midterm exams will be on February 22 (Wed), March 21 (Wed), and April 25 (Wed) during lecture time in the lecture room. Any makeup arrangements must be approved by the professor at least a week prior to the exam date unless medical emergencies make this impossible.
Topics

1. Electrostatics
2. Magnetostatics
3. Circuits
4. Differential form of Maxwell equations
5. Electromagnetic waves + radiation
6. Relativistic aspects of electromagnetism
7. Interference + optics
8. Dielectrics and magnetized matter

Compared to other introductory electromagnetism courses, there is an emphasis on vector calculus, differential formulation of Maxwell equations, and special relativity. The entire sequence 247-248-249 is recommended once you start on the 247 path.