Physics 361: Electricity & Magnetism *Fall 2009*

Prof. Ted Allen
Eaton 108
781-3623 (Office)
http://people.hws.edu/tjallen
tjallen@hws.edu

	Room	Time
Lecture	Eaton 105	11:15-12:10 MWF

Required Text
• David Griffiths, *Introduction to Electrodynamics*, 3rd Edition
Recommended Texts
•Joseph Edminister, *Schaum's Outline in Electromagnetics*, 2nd Edition
•Murray R. Spiegel, *Mathematical Handbook* (Schaum's Outlines).
Advanced Text
•J. D. Jackson, *Classical Electrodynamics*, 3rd Edition.

Course Objective
This course is a rigorous introduction to the theory of the electromagnetic field and its interaction with charged matter. By the end of the course, students will be proficient in vector calculus and related techniques, will be able to state Maxwell's equations in differential form, and will be able to use Maxwell's equations to solve simple problems in electrodynamics.

About Physics 361
Maxwell's theory of electromagnetism is the crowning achievement of 19th century physics. It and Newton's mechanics are the two pillars of classical physics. The theory of electromagnetism was the impetus for the development of Einstein's special theory of relativity and forms the basis for understanding much of modern technology. The study of electromagnetism is the first exposure that most physics students have to a field theory, a theory with an infinite number of degrees of freedom. It is also the first exposure most physics students have to the use of many useful analyical techniques.

Course Requirements
Regular Homework Problems
2 Exams
Final Exam

Grading
Grades in this class will be based on the following elements.

- **Participation** I expect each student to do the assigned readings and problems and to bring questions and comments to class and to participate in class discussions. Implicit in this is the expectation that all students will attend all classes. Some of the lecture material will not be in the text, so it is important that students attend lecture. The grade for participation will be assigned at my discretion at the end of the semester.

- **Homework** Homework will be assigned on a regular basis and collected. I reserve the right not to give credit for late homework assignments, based on the belief that keeping up is an essential ingredient for success in the

course. You may work together on the homework. Indeed, I encourage you to work together to understand the problems. However, you must each separately write up solutions in your own words — and equations — and may not turn in something that you do not understand. That is, you may not simply paraphrase someone else's solution as your own. Paraphrasing without understanding, or outright copying, will be considered plagiarism.

- **Exams** There will be two mid-term exams and a final exam. The final exam will be on Thursday December 17 at 7:00 PM. The final will be comprehensive.

- **Quizzes** There may be quizzes in class, mostly for your own diagnostic use. Any quizzes will be announced in advance and will count towards your participation grade.

The relative weights of each element of the grade for the course is as follows.

Element	Weight
participation	10%
homework	30%
hour exams	30%
final exam	30%

Office Hours
Initially office hours will be Monday at 3:00 PM, Friday at 2:00 PM, and by appointment. If these hours are inconvenient for you, please tell me and I'll try to find some more convenient times. In addition, you may stop by any time to see if I am free to discuss physics, life, the universe, or anything else.