

# **Physics 543 Electromagnetic Theory**

## **Autumn Quarter 2008**

**Professor:** Larry Sorensen

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**Office hours:** Right after class, or by appointment

**Class Website:** <http://faculty.washington.edu/seattle>

**Required texts:** **Electricity and Magnetism** by Edward Purcell  
**Introduction to Electrodynamics** by David Griffiths

Purcell presents a beautiful, masterful, and extremely physical treatment of EM. I expect you to master everything in Purcell---and I will do my best to assist you.

Griffiths' book is more mathematical than Purcell's. In his preface, Griffiths writes:  
"Practically everything I know about electrodynamics---certainly about teaching electrodynamics---I owe to Edward Purcell."

**Read Purcell for the physics. Read Griffiths for the math.**

**Homework:** There will be 10 homework assignments, one per chapter. They will be posted on the class website on the Monday that we begin each chapter, and they will be due on the following Wednesday. See the course schedule for details.

**Exams:** There will be three take home exams. You will have two weeks---including two weekends---to do each exam. See the exam schedule for details.

**Grades:** Your course grade will be based on your homework and exam scores.

## Course Schedule

Purcell	Topic	Week of	HW Due
Ch 1	Electrostatics: Charges and Fields	September 29	October 8
Ch 2	The Electric Potential	October 6	October 15
Ch 3	Electric Fields Around Conductors	October 13	October 22
Ch 4	Electric Currents	October 20	October 29
Ch 5	The Fields of Moving Charges	October 27	November 5
Ch 6	The Magnetic Field	November 3	November 12
Ch 7	Electromagnetic Induction	November 10	November 19
Ch 9	Maxwell's Equations and EM Waves	November 17	November 26
Ch 10	Electric Fields in Matter	November 24	December 3
Ch 11	Magnetic Fields in Matter	December 1	December 10
QED	The QED of Photons and Electrons	December 8	

## Exam Schedule

Exam	Exam Posted	Exam Due	Exam will cover
Exam 1	October 22	November 5	Chapters 1 to 3
Exam 2	November 12	November 26	Chapters 4 to 6
Exam 3	November 26	December 15	Chapters 7 to 11