

Physics 47 · General Course Information · Fall 2009

Physics 47 is the second semester of electromagnetism. It relies on the material of Physics 24 (or Physics 17), mechanics, as well as the mathematics of Physics 27. Those who have not had these prerequisites (or their equivalents) should see me right away.

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My “official” office hours are Monday at 10 a.m. and Tuesday at 2 p.m. You should feel free to track me down at other times; I am quite often in my office or in one of my laboratories (Merrill 112 or Merrill 113).

Textbook The text for this course is *Introduction to Electrodynamics, 3rd ed.* by David J. Griffiths, which may be purchased at the Amherst Bookstore. (The ISBN for this volume is 0-13-805326-X, if you wish to purchase it from an online vendor instead.) I will try to have a few copies available in the library as well.

Class Meetings The course meets T Th at 11:20 a.m. in Merrill 204 for lectures, discussion, and problem solving.

Reading Assignments Since the lecture component won't necessarily cover every topic you'll be responsible for, you are required to complete the assigned reading before each class meeting. Come to class or office hours with questions, or email them to me as they come to you, and I'll be happy to help you out.

Problem Sets Each problem set will be assigned on Friday and will be due on the following Friday at 3:30 p.m. No late work will be accepted without advance permission. The problems assigned are really a “minimal” set — you are strongly encouraged to try additional problems, and if you do, I would be delighted to discuss the answers with you.

Exams There will be at least two midterms and one final examination. These examinations will cover *all* topics from the assigned readings, whether or not they have been discussed in class — so make sure to do the readings and ask questions!

Miscellany This year we will use, to some extent, the CMS web site. If you miss a problem set or lose a handout you will be able to find a replacement there.

The Honor Code reads:

Every person's education is the product of his or her intellectual effort and participation in a process of critical exchange. Amherst cannot educate those who are unwilling to submit their own work and ideas to critical assessment. Nor can it tolerate those who interfere with the participation of others in the critical process. Therefore, the College considers it a violation of the requirements of intellectual responsibility to submit work that is not one's own or otherwise to subvert the conditions under which academic work is performed by oneself or by others.

On the homework assignments it is permissible (and I encourage you!) to work in small study groups to solve the problems. In the end, however, it is important to write up (individually) and submit what *you* understand of the material. You may not seek or use problem set solutions from any source other than me (directly); and it goes without saying that no collaboration of any kind is allowed on the examinations. Using solutions obtained from the internet is expressly forbidden.

Physics 47 · Tentative Syllabus · Fall 2009

This syllabus is subject to revision. Please do the readings before attending class, and come to class with questions!

Week of	Topic	Griffiths	Notes
Sep. 7	Mathematical Review	1, A, B	
Sep. 14	Electrostatics	2	
Sep. 21	Solutions to Laplace's Equation	3	
Sep. 28	Multipole Expansion, Polarization	3–4	
Oct. 5	Electric Displacement, Dielectrics	4	
Oct. 12	Magnetostatics	5	Midterm 1
Oct. 19	Magnetization and \mathbf{H}	6	
Oct. 26	Magnetic Media, Electrodynamics	6–7	
Nov. 2	Electrodynamics	7	
Nov. 9	Conservation Laws	8	Midterm 2
Nov. 16	Electromagnetic Waves	9	
Nov. 23	Waves, Potentials, Fields	9–10	
Nov. 30	Potentials, Fields, Relativity	10, 12	
Dec. 7,14	Relativistic Electrodynamics	12	