

## PHYS270 (S17) Electrodynamics, Light, Relativity and Modern Physics

**Instructor:** H.M. Milchberg, AVW 1415, [milch@umd.edu](mailto:milch@umd.edu) (the best way to reach me is by email)

**Lecture:** PHY 1410, MW 5-6.15 pm

**Office hours:** MW 4-5 pm

**Recommended reference:**

*Physics for Scientists and Engineers - A Strategic Approach, 2<sup>nd</sup> or 3<sup>rd</sup> Ed., R. D. Knight (Pearson)*

**Other useful reference:**

*Fundamentals of Physics, any edition, by Halliday, Resnick, and Walker (Wiley)*

### Lecture schedule

Week	Dates	Topic	Chapters –2nd Ed.	Chapters –3rd Ed.	Notes	
1	Jan 25	waves and superposition	20, 21	20, 21		
2	Jan 30-Feb 1	magnetic fields	33.1 –33.4	32.1 –32.4		
3	Feb 6-8	magnetic fields	33.5-33.8, 34.1	32.5-32.8, 33.1		
4	Feb 13 -15	electromagnetic induction	34.2 –34.9	33.2 –33.9		
5	Feb 20-22	EM fields and waves	35.1–35.5	34.1–34.5		
6	Feb 27 -Mar 1	EM fields and waves, AC circuits	35.6-35.7, 36.1-36.2	34.6–34.7, 35.1-35.2	<b>midterm#1 – Mar 1</b>	
7	Mar 6-8	AC circuits	36.3-36.5	35.3-35.5		
8	Mar 13 - 15	relativity	37.1-37.8	36.1 – 36.8		
9	Mar 20- 22	<b>Spring Break</b>				
10	Mar 27– 29	relativity	37.9, 37.10	36.9, 36.10		
11	Apr 3 - 5	wave optics	22.1 - 22.6	22.1 - 22.4		
12	Apr 10 - 12	ray optics	23.1 – 23.7	23.1 – 23.7	<b>midterm#2 – Apr 12</b>	
13	Apr 17 - 19	pre-quantum	38.1 – 38.9	37.1 – 37.9		
14	Apr 24 - 26	quantization	39.1 – 39.7	38.1 – 38.7		
15	May 1-3	wave functions	40.1 – 40.6	39.1 – 39.6		
16	May 8-10 (last class)	1D quantum mech.	41.1 – 41.4	40.1 – 40.4		
<b>Tuesday, May 16, 6:30-8:30pm Common Final Exam, location TBD</b>						

**Mastering Physics:** Mastering Physics (MP) is optional. It is not needed for success in PHYS270, which will be achieved by coming to class, taking good notes, asking questions, going to your TA sessions, and doing and understanding all the assigned homework. If you want to register for MP (<http://www.masteringphysics.com/>), follow the instructions sent in the separate Pearson document. You will need your student ID and the following course ID: MPMILCHBERG70720. You can use MP for optional practice problems.

**Lecturing style, class notes, and attendance:** I don't do PowerPoint or clickers; I write on the board. My notes are well-organized and relatively neat. The way to get the class notes is to show up for class. I don't take attendance.

**Textbook:** The recommended approach is to read the chapter sections indicated in the above table in advance of their associated lectures.

**ELMS:** I use it to post course documents, such as the syllabus, problem sets, and solutions for your online retrieval.

**Grade breakdown:** problem sets 20%; 2 midterm exams, each 25%; final exam 30%. Exam dates are shown in table.