

Physics 2620: Modern Physics

Spring 2016

Instructor: Peter Arnold
Office: Physics 320
Lectures: 12:00–12:50 pm MWF, Physics room 204
Office hours: Wednesday 5–6; Thursday 4–5; and by appointment.
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TA: Matthew Roberts (mjr6mc@virginia.edu)
Graders: Matthew Roberts, Jie Liu

Required Text:

- Volume III of *The Feynman Lectures on Physics*, Feynman, Leighton, and Sands

Electronic “texts”:

- Paul Fendley’s *Modern Physics* lecture notes:
<http://rockpile.phys.virginia.edu/252.html>
- Michael Fowler’s *Modern Physics* lecture notes:
<http://galileo.phys.virginia.edu/classes/252/home.html>

Other texts:

There are lots of traditional Modern Physics texts that are fine, and which you may find helpful to look at. They include Thornton and Rex; Bernstein, Fishbane, and Gasiorowicz; and Tipler and Llewellyn, to name a few. If you are more comfortable having a traditional textbook in hand to reference for various concepts and formulas, then consider obtaining one of these! Also, if you already have Giancoli’s *Physics for Scientists and Engineers* textbook (4th edition), there are chapters at the very end on special relativity and early quantum mechanics.

Grading:

30% Final Exam: **Friday, May 13, 2016, 2–5 p.m.**
15% each Midterm Exams (in class, Feb. 26 and Apr. 1)
35% homework
5% quizzes in problem section

Homework: Will always be due at the **start** of the class in which it is due. Late homework will generally be substantially penalized, unless an exception has been made with me well in advance of the deadline.

I *encourage* you to discuss methods of solving problems with other students in the class. You may also cross-check final answers with each other. However, when you sit down to write up your derivations and solutions, the derivations must be your own. That is, you may not simply copy the derivation and answers of other students. Nor may you simply read a solution that you did not substantially participate in and then write it up yourself.

Some homework problems I give will be taken from previous years when I think they are particularly important to the development of the material. Do not obtain or look at student (or teacher) solutions from previous years. I would consider doing so to be an honor violation.

Attendance: You are responsible for the material presented in class, turning in your homework on time, knowing problem assignments, and knowing any administrative announcements made, such as announcement of exam date changes, or changes to the syllabus, or changes to homework due dates. You are expected to attend the problem sessions, not least because quizzes will be given there.

Topics to be covered: In this course, we will focus on an introduction to quantum mechanics and special relativity, with hopefully time at the end for a brief discussion of cosmology. The discussion of quantum mechanics will roughly correspond to chapters 1–6 of Feynman, with various detours along the way.