

## Physics 300B, Spring 2008

“If it disagrees with experiment it is wrong. In that simple statement is the key to science.”

—Richard Feynman, *The Character of Physical Law*

### Administrivia

<b>Instructor</b>	Dr. Eric Ayars
<b>Office</b>	PhSc 124
<b>Lecture</b>	Monday, Wednesday 10–11AM, in PhSc 105.
<b>Lab</b>	Tuesday 2–5PM, in PhSc 123.
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### Materials

<b>Textbook</b>	<i>Modern Physics, 4<sup>th</sup> ed.</i> , Tipler & Llewellyn
<b>Lab Book</b>	“Blue Collar” 80-page 5×5 quad-ruled spiral-bound 8.5”×11” notebook.
<b>Binder</b>	A three-ring binder specific to this course, for collecting your notes and homework.

### Course Structure

This second semester of modern physics will focus primarily on *applications* of the material covered in the first semester. Solid state physics will be one of the major components of the course, but this requires some rudimentary understanding of molecular structure and statistical physics so we’ll start with those. From there, we’ll move to nuclear physics and nuclear reactions. Time permitting, we’d get as far as particle physics and cosmology, but we’ve never gotten there before.

### Grading and Deadlines

There will be a homework assignment due each Thursday at 11AM. Homework solutions will be posted shortly after that time, and attempts to turn

in late homework will be met with derisive laughter.<sup>1</sup> Please submit your homework on three-hole punched paper, one problem (at most) per page.

Each homework problem is worth three points. The first two points are given in my first pass at grading, as follows.

2 Perfect work, showing solution process, *with written explanations*.

0 Nothing there.

1 Everything between 0 and 2.

You may pick up your graded homework at my office on Friday morning or later, the day after it is due. The third point for each problem is obtained by resubmitting the complete homework set no later than 11AM on the following Thursday, with any deficiencies corrected. You may use other professors, other students, or even the posted solutions in the preparation of your resubmissions. Obviously, if you got a ‘2’ on the first submission, the resubmission is pretty easy — do it anyway! Please keep your returned homework in the course binder with your notes and so on. I will check your binders at exam time.

Lab reports —short printed summaries of your experimental work— will be due each Monday at noon. These should include an abstract, a short summary of the experimental procedure, and a description of the results with an estimate of the uncertainties involved.

We will have a pair of tri-term exams: one just before Spring Break, and another in mid-April or so. The final exam will be comprehensive, but will emphasize the later material so as to roughly equalize the exam coverage.

The final grade will be weighted 40% on exams, 30% on homework, and 30% on lab.

## Group work

I highly encourage collaboration on homework and labs. It can be extremely frustrating to struggle futilely on what could be a relatively simple problem. Two heads are better than one: working with colleagues can allow productive cross-pollination of ideas that is highly beneficial all around. Group work in which all parties contribute to the best of their abilities allows each group member to learn more, in less time, than would be possible with solo work.

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<sup>1</sup>I really don’t do derisive laughter all that well, and have better things to do than learn it, so please plan ahead.

However, this benefit only extends as far as you are willing to extend yourself as part of a study group. If you find that your study partners are doing most of the work, and you're just tagging along for the free solutions, please consider that homework is a mere 30% of the course grade. You have to be able to do the work yourself to get the 40% of the grade that is based on solo work in the exams.