

Physics 122 Winter 2012

Instructor: Jay Newman

Office: N315 S&E

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Textbook: **Modern Physics for Scientists and Engineers, by Thornton & Rex**

Course WebSite: <http://minerva.union.edu/newmanj/Physics122> - note the capital P !!

MWF 1:50 – 2:55 plus laboratory Th 1:55 – 4:45

Office Hours: M,Th 10 - 11 or by arrangement

E-mail: newmanj@union.edu

What we will study

This is an exciting, interesting course spanning physics from around 1905 (special relativity) through today. We'll cover relativity first and then discuss early quantum mechanics before developing the basic ideas of modern quantum mechanics and getting an overview of its impact on all areas of modern physics (and science). We'll study atomic physics, some molecular and solid-state physics as well as an introduction to nuclear and particle physics, depending on time. The emphasis will be on the basic ideas as well as their applications via problem solving.

What is the Work Load?

My job in this course is to convey the basic physical concepts, to illustrate a good number of them in class, to answer questions and to set you on the path towards doing well in this class. *Your job* is to stay on top of the material by reading the text, doing the homework, and participating in class. ***Most of the real learning in this course will go on in your efforts outside of class. Just as you would practice a sport to get good at it, you must practice physics;*** the HW is your chance to do this and it will count heavily in your grade as well. Answers to selected odd numbered problems are in an Appendix in the text. Worked out solutions to all assigned problems will be provided after homework is collected. Then there's the lab More to come.

What should I do to fare well in this course?

You should make good use of the study rooms – N305 or N303 anytime – day or night – to study in. I recommend working up here often since it is near my office and you can drop in with questions. You should: read the text carefully and mark paragraphs or examples that are not clear, ask questions in class, see me in my office any time, and work in study groups. Don't wait to do homework till the night before an assignment is due – start early and see me with questions, and then afterwards consult my written solutions and ask questions if there are aspects that are still unclear. Your written solutions should be just that – yours and not a collaborative write-up. While it is fine (and encouraged) to work in study groups, the written product that you hand in should be yours. Remember that the assigned problems really represent a minimum core that you should look at – if you have trouble with many of these then you should make sure to try additional questions/problems to test your understanding before tests. This is the best way to study – do not simply re-read your (or my) previous solutions to assigned problems.

Course Requirements and Grading

The lab is a required portion of the course and you ***must complete all 7 laboratories to pass the course.*** If you cannot make a particular lab, it is your responsibility to contact me (before the lab if at all possible) to schedule a make-up time.

Your grade in this course will be based on my judgment of your performance roughly based on the following scheme:

| | |
|----------------------|-----|
| Homework | 30% |
| Two Mid-terms + quiz | 30% |
| Final | 20% |
| Lab | 20% |

Learning Disabilities

I encourage students with disabilities, including non-visible disabilities, to discuss with me (in private) appropriate accommodations that help facilitate your learning. You will need appropriate documentation from the Dean of Students Office. All discussions will remain confidential.