

University of Florida
Department of Physics
PHY 2054: Physics 2 - Fall 2000

- Instructor:** Bernard Whiting (NPB 2079; 392-8746)
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Office Hours: T, R Period 3 (9:35 am – 10:25 am)
- Text:** College Physics, Volume 2, by Serway and Faughn, 5th Edition
Study Guide and Student Solutions Manual, 5th Edition
Course Packet #139, Florida Book Store (Old Exams)
- Coverage:** Chapters 15-25.
- Lectures:** T, R Period 2 (8:30 am – 9:20 am)

General Comments

This course is primarily for students in a pre-professional or non-science major. Physics 1 (PHY 2053) is assumed from the start, along with the requisite Mathematical skills (NOT calculus). The primary aim of the course is to create in you an awareness of the pervasiveness of physics applications in general, and of the prevalence of situations in both your daily life and future professions which are coherently governed by a few well-defined principles. It should equip you to be more effective in the workplace through your knowledge and understanding of physics, and of its diverse applicability. Problem-solving techniques are emphasized as a means of reinforcing understanding, and will be evaluated in exams.

The most important role of the lectures is to present and explain the basic underlying concepts of Physics. Every effort will be made to refer to familiar everyday situations that exemplify the concepts and principles of Physics. Laboratory and classroom demonstrations associated with these concepts form an integral part of the course. To allow you to develop your own experience and ability in recognizing how to apply these concepts and principles, often in situations which are totally new to you, careful attention will be placed on the setting up and working of sample problems during class. However, to maximize the benefits you are able to receive from the classes, it is virtually mandatory that you read ahead in the text before each class.

Physics is a quantitative science, and in this course we will constantly build upon earlier work. As we progress, you will find that using new knowledge to solve problems is an effective way to reinforce the concepts learnt through experience. This always requires serious model-building skills, which are best developed by practice, and the homework and quizzes will be designed with this in mind. Typically, students have found in the past that steady work is a far more effective way to prepare for exams than cramming at the last minute. Moreover, mere memorization of formulae is far less useful than developing an intuition through application and experience. Remember, while the number of principles covered is really quite small, the range of potential applications is virtually limitless. To guarantee that you can build on earlier work as required, experience shows that you simply must keep up with the class on a steady basis, and seek help immediately you recognize there is something you do not understand.

Schedule of Lectures and Exams:

This course must cover a large amount of material for one semester, and the classes will move rapidly through it. This wide scope is determined by the range of topics required in preparation for the national pre-professional exams, such as the MCAT. The following is a proposed schedule for dealing with the material in the timeframe provided.

Aug. 24	Ch. 15	Introduction to electric charge
Aug. 29, 31	Ch. 15	Coulomb's Law, Gauss's Law
Sept. 5, 7	Ch. 16	Electric potential
Sept. 12, 14	Ch. 16	Capacitors
Sept. 19, 21	Ch. 17	Electric current
Sept. 26, 28	Ch. 18	Resistors and Kirchhoff's Law
Sept. 28	1st Exam	Ch. 15-17
Oct. 3, 5	Applications	Section 17.8 & Biological Perspective (p 608)
Oct. 10, 12	Ch. 19	Magnetism
Oct. 17, 19	Ch. 19	Ampère's Law
Oct. 24, 26	Ch. 20	Faraday's Law, inductance
Oct. 27	2nd Exam	Ch. 18-19 (Includes earlier work)
Oct. 31, Nov. 2	Ch. 21	Alternating Current, electromagnetic waves
Nov. 7, 9	Ch. 22	Ray optics, Huygen's Principle
Nov. 14, 16	Ch. 23	Reflection and refraction
Nov. 21	Ch. 24	Wave optics, interference
Nov. 23	Thanksgiving	No Class
Nov. 28, 30	Ch. 24, 25	Diffraction, optical instruments
Dec. 5	Ch. 25	Microscopes, interferometers
Dec. 11	Final Exam	Comprehensive

Grading Policy

Exam 1	25%
Exam 2	25%
Final	30%
Recitation	20%

Grading Scale

A	Not less than 80%
B	Not less than 65%
C	Not less than 50%
D	Not less than 35%

Except in the most unusual circumstances, there will be no make-up exams.

The recitation instructors will typically use some combination of quizzes, graded homework and attendance in determining your performance. Nevertheless, the grades they give will be required to conform to a uniform standard before inclusion in the final class grade (ie, mean 15/20).

Students often improve in their understanding of earlier material as they progress through the course. To recognize this, their score on the first two exams can be enhanced, by up to 50% of points lost, with a better performance on the relevant section of the final exam.

Memorization itself is not the main skill to be developed by a pre-professional Physics course, though it can be useful. To avoid overemphasis of memorization, students will be permitted to bring to each exam one 8½ inch by 11 inch sheet of paper with material which they feel will be helpful. **But beware!** A calculator, pencils and scrap paper are also essential, and will be the students' responsibility.