

**PHYSICS 110**  
**The Physics Around You**  
**Davidson College, Fall 2007**

**Professor John Yukich**

Email: [joyukich@davidson.edu](mailto:joyukich@ davidson.edu)

**Dana 169**

TEL: (704) 894-2323

**TEXT:** *The Physics of Everyday Phenomena, 5<sup>th</sup> ed.*, by W. Thomas Griffith.

**LECTURE:** Tues-Thurs 1:00-2:15 PM, Dana 146

**OFFICE HOURS:** will be announced in class and posted online; however, I will generally be available any time my door is open.

**OBJECTIVES:** The primary objective of this descriptive survey course is to help you develop an appreciation for some of the basic physical principles of the world around you. One particular emphasis throughout the course will be on the various forms and uses of energy. My hope is that by the end of the course, you will have a basic understanding of how physics impacts your life on a daily basis, and how physical scientists view and interpret the world.

The class periods will be a combination of **traditional lecture, demonstrations, hands-on laboratory exercises, conceptual problems, and brief videos**. These classes will greatly enhance and supplement your text readings. **HOWEVER, it is essential** that you **read the relevant text material before coming to class**. The schedule below will give you an approximate idea of the topics for each class.

**ATTENDANCE:** The attendance policy for this course follows the college's 25% rule. Please initial the roll on the side board each day in lecture. Attendance is also required at all reviews. Each student is responsible for material presented in class and announcements made in class.

**HOMEWORK:** Homework assignments will be made on a regular basis, consisting of questions and problems taken from the text, as well as brief written reports from the hands-on exercises. Assignments taken from the text will sample a *few* of the questions from each chapter; *however*, students are expected to study additional questions and problems as well.

I strongly urge each student to discuss the homework assignments with other students; however, each homework set must be a product of the student's own understanding of the assignment. This means that you should discuss each other's work *and* help each other. However, *you may not copy work from another student, book, website, or other external resource*. Copying any other source's work is a violation of the honor code as it applies to this class. Simply stated, you must write up your own assignments without simultaneously looking at someone else's work. The word "PLEDGED", along with your signature, on the homework sets and reviews signifies your compliance with the above policy. *Late or unpledged work will not be accepted, and unsupported work will not be given full credit.*

**REVIEWS/FINAL:** There will be two in-class reviews during the semester, each one composed of questions and/or problems similar to those in the homework assignments and lecture discussions. Each review will typically include short-answer, discussion, definition and computational questions. The final will be a self-scheduled, closed-book, comprehensive examination. Throughout the reviews and the written homework, students must have a mastery of basic high-school mathematics, including (but not limited to) scientific notation and trigonometric functions. Note: *the reviews and final exam will expect students to apply learned concepts to new and possibly unfamiliar problems.*

**GRADING:** Homework 35%, Reviews 40%, Final Exam 25%.

DATE	CHAPTER AND TOPIC	HW DUE
Aug. 28 Aug. 30	Course Introduction, and Ch. 1: physics and the sciences Chapter 2: describing motion	Ch. 1
Sept. 4 Sept. 6	Chapter 3: falling objects, projectile motion Chapter 3	Ch. 2
Sept. 11 Sept. 13	Chapter 4: Newton's laws, mass and weight Chapter 4	Ch. 3
Sept. 18 Sept. 20	Chapter 5: circular motion, gravitation Chapter 5	Ch. 4
Sept. 25 Sept. 27	Chapter 6: energy – kinetic and potential Chapter 6 and Chapter 8: rotational motion, torque	Ch. 5
Oct. 2 Oct. 4	Chapter 8 and Chapter 10: temperature and heat <b>Review #1 (Chapters 1-5)</b>	Ch. 6
Oct. 9 Oct. 11	Chapter 10 Chapter 10 and Chapter 11: heat engines and thermodynamics	Ch. 8
Oct. 16 Oct. 18	No class – fall break ! Chapter 11	Ch. 10
Oct. 23 Oct. 25	Chapter 12: Electrostatics: charges, fields, potentials Chapter 12	Ch. 11
Oct. 30 Nov. 1	Chapter 13: Electric circuits – Ohm's law, electrical energy Chapter 13 and Chapter 14: magnets and electromagnetism	Ch. 12
Nov. 6 Nov. 8	Chapter 14 <b>Review #2 (Chapters 6, 8, 10-12)</b>	Ch. 13
Nov. 13 Nov. 15	Chapter 14 and Chapter 15: waves and interference Chapter 15	Ch. 14
Nov. 20 Nov. 22	Chapter 15 and Chapter 16: light waves and color No class – Thanksgiving break!	
Nov. 27 Nov. 29	Ch.16 and Ch. 17: light and image formation – lenses and mirrors Chapter 17	Ch. 15 Ch. 16

Dec. 4	Chapter 18: structure of the atom, atomic physics, Bohr model	Ch 17
Dec. 6	Chapter 18 and Chapter 19: the nucleus and nuclear energy	
Dec. 11	Chapter 19, course conclusion	Ch. 18
Dec. 13	Reading Day	
Dec. 14	Finals begin	

N.B.: The above outline is a *rough* approximation of the schedule. Inevitably some changes will occur; however, I will give ample notice before any changes are made.