

# PHYSICS 120

## General Physics I

### Davidson College, Fall 2009

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**Dana 169**

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**TEXT:** *Physics*, Giancoli, 6<sup>th</sup> edition with *Physlet Physics*

**LECTURE:** MWF 8:30 – 9:20 AM, Dana 146

**LABORATORY:** Monday 2:30- 5:30 PM, Tuesday 1-4 PM, or Friday 1:30-4:30 PM, Dana 111

**OFFICE HOURS:** will be announced and posted on the class web page.

**OBJECTIVES:** This course is the first half of a two-semester sequence of introductory physics taught without calculus. Topics will include linear and circular motion, gravity, work and energy, statics, fluids, waves and vibrations, and heat and thermodynamics. The primary objectives of the course are to develop your understanding of fundamental physical principles, and to develop your analytical and problem solving skills. *Working lots of problems from the text, or similar texts, is essential to meeting these objectives!* The assigned homework is really only a sample of important problems and **I expect every student to work additional problems on a regular basis.**

**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 and labs. Each student is responsible for material presented in class and announcements made in class. Your understanding of the lectures will be greatly enhanced by studying the relevant text material *before* class!

**CLASS FORMAT:** The class format will be a combination of lecture, worked problems, classroom exercises, demonstrations, and (hopefully) spirited discussion!

**HOMEWORK:** Homework assignments will be made on a regular basis, consisting of questions and problems taken from the texts. Homework sets for a chapter will be turned in at the beginning of the class meeting following the end of that chapter in lecture (with some exceptions; see schedule below). *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 may – *and, in fact, are encouraged to* - discuss each other's problem-solving strategies and solutions. 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. The word **PLEGGED** along with your signature on the homework set signifies your compliance with the above policy. *Late or unpledged work will not be accepted,* and unsupported work will not be given full credit.

**QUIZZES/REVIEWS/FINAL:** There will be three in-class reviews during the semester, each one composed of problems and/or questions related to the topics found in the homework assignments,

lectures and laboratory assignments. Each review will be preceded by a take-home quiz. The final exam will be a self-scheduled, closed-book, comprehensive examination following the same format as the reviews. For examples of past reviews, consult the on-line [archived reviews](#).

**LABORATORY:** The weekly laboratory sessions will help bring to life the fundamental physics discussed in class and in the text. The labs will develop your familiarity with physical apparatus and methods of scientific inquiry, and enhance your understanding of the basic principles of physics. For this part of the course, you are strongly urged to purchase a regular spiral-bound laboratory notebook with an inside pocket (for handouts). All the lab handouts are available [on the web](#). Further details regarding this part of the course will be discussed during the first lab session (see schedule below).

**GRADING:** Homework 15%, Quizzes 10%, Lab 15%, Reviews 35%, Final Exam 25%.

DATE		CHAPTER	HW DUE	LAB
Aug. 24	M	Course introduction, Ch. 1		Lab #0: Introduction
Aug. 26	W	Ch. 2: Motion: kinematics in 1 dimension	Ch. 1	
Aug. 28	F	Ch. 2		
Aug. 31	M	Ch. 2	Ch. 2	Lab #0: Introduction
Sept. 2	W	Ch. 3: Motion in 2 dimensions, vectors		
Sept. 4	F	Ch. 3		
Sept. 7	M	Ch. 3	Ch. 3	Lab #1: Statistics
Sept. 9	W	Ch. 4: Motion and force: dynamics		
Sept. 11	F	Ch. 4		
Sept. 14	M	Ch. 4	Ch. 4	Lab #2: Measure g
Sept. 16	W	Ch. 4		
Sept. 18	F	Ch. 5: Circular motion, gravitation		
Sept. 21	M	Ch. 5	Ch. 5	Lab #3: Newton's Laws
Sept. 23	W	Ch. 5		
Sept. 25	F	Ch. 6: Work/energy		
Sept. 28	M	Ch. 6	(none)	Lab #4: Centripetal Force
Sept. 30	W	Ch. 6		
Oct. 2	F	<b>Review #1 (Chapters 1-5)</b>		
Oct. 5	M	Ch. 6	Ch. 6	Lab #5: Trajectories
Oct. 7	W	Ch. 7: Linear momentum		
Oct. 9	F	Ch. 7		
Oct. 12	M	No class – fall break!	Ch. 7	No lab.
Oct. 14	W	Ch. 7		
Oct. 16	F	Ch. 8: Rotational motion		
Oct. 19	M	Ch. 8	Ch. 8	Lab #6: Conservation of momentum and energy
Oct. 21	W	Ch. 8		
Oct. 23	F	Ch. 9: Equilibrium		

Oct. 26	M	Ch. 9		Lab #7: Angular momentum and moment of inertia
Oct. 28	W	Ch. 10: Fluids	Ch. 9	
Oct. 30	F	<b>Review #2 (Chapters 6-8)</b>		
Nov. 2	M	Ch. 10		Lab #8: Simple Harmonic Motion
Nov. 4	W	Ch. 10, Ch 11: Vibrations and waves		
Nov. 6	F	Ch. 11	Ch 10	
Nov. 9	M	Ch. 11		Lab #8: Simple Harmonic Motion, cont'd
Nov. 11	W	Ch. 12: Sound	Ch. 11	
Nov. 13	F	No class – SESAPS meeting		
Nov. 16	M	Ch. 12		Lab #9: Waves & Sound
Nov. 18	W	Ch. 13: Temp. and kinetic theory	Ch. 12	
Nov. 20	F	Ch. 13		
Nov. 23	M	Ch 14: Heat	Ch. 13	
Nov. 25	W	No class – Thanksgiving!		No lab.
Nov. 27	F	No class – Thanksgiving!		
Nov. 30	M	Ch. 14		Lab #10: Latent Heat
Dec. 2	W	<b>Review #3 (Chapters 9-12)</b>		
Dec. 4	F	Ch. 15: Thermodynamics	Ch. 14	
Dec. 7	M	Ch. 15		No lab.
Dec. 9	W	Course recap, conclusion		
Dec. 11	F	Final exams begin		

N.B.: The above outline is the intended schedule. Inevitably some adjustments will be necessary; however, I will give ample notice before changes are made.