

Course: **PH201 – 5B College Physics I**

Catalog description: First term of non-calculus based physics. Linear and planar motion, Newton's Laws, work and energy, gravitation, momentum, rigid body motion, statics, elasticity, oscillations, waves, sound, fluids, ideal gases, heat, and thermodynamics. Lecture and laboratory.

Time: Mon., Wed., and Fri. 9:40 – 11:40 AM

Location: Campbell Hall Room 301

Prerequisites: PH100 or successful completion of Physics Placement test

Co-requisite: PH201L Laboratory

Instructor: James C. Martin, Ph. D., Campbell Hall Rm. 344, Ph. 934-8090

Department of Physics (for urgent messages), Ph. 934-4736

Email: jcmartin@uab.edu

Office hours: Monday 2:00 – 3:00 PM, and at other times by appointment.

Appointments may be made before or after classes or via email.

Textbook: Cutnell & Johnson, Physics, 6<sup>th</sup> Edition (2006, Wiley & Sons)

Grading system: Final numerical averages will be calculated from the following results weighted as indicated:

Final Examination	25%
-------------------	-----

Two Examination Grades	25%
------------------------	-----

Four Quiz Grades	25%
------------------	-----

Homework Grade (WebAssign)	12.5%
----------------------------	-------

Laboratory Grade	12.5%
------------------	-------

All calculated grades will be rounded up to the nearest 0.1%.

Letter grades will be assigned according to the following table:

88.0% to 100% inclusive	A
-------------------------	---

76.0% to 87.9% inclusive	B
--------------------------	---

63.0% to 75.9% inclusive	C
--------------------------	---

50.0% to 62.9% inclusive	D
--------------------------	---

0.0% to 49.9% inclusive	F
-------------------------	---

Related UAB core learning outcomes: Demonstrate the ability to collect and evaluate information within the context of the scientific method and to use this ability to further one's understanding of the natural world.

Demonstrate the ability to apply mathematical skills and quantitative reasoning to solve problems and interpret information.

Course objectives: Demonstrate an understanding of specific physical principles in the context of the scientific method

Demonstrate an ability to effectively solve problems by integrating a variety of principles, avoiding rote methods which are ineffective for unfamiliar problems

Demonstrate enhanced quantitative reasoning skills, mathematical analysis skills, and abilities to interpret data

Demonstrate (in the associated laboratory) the ability to collect, evaluate and communicate scientific information

Notes:

\*Students who may need course accommodations are welcome to make an appointment to see me during office hours. Students with disabilities must be registered with Disability Support Services, 516 HUC, and provide an accommodation request letter before receiving academic adjustments.

\*Diligence and improvement are highly prized characteristics among scientists. For this reason, I will calculate a linear least squares regression line to your quiz and exam scores (including the Final Exam). If the value of either of these regression lines at the end is higher than your average in the corresponding category, I will replace your lowest grade with the corresponding regression value. If you do not improve over the semester, this procedure will have no effect on your grade.

\*The Quiz grade will consist of the average of 4 quizzes given unannounced over the semester. Typically these quizzes will consist of 3 – 4 questions similar in difficulty to homework problems. Students will typically have about 20 minutes to complete each quiz. (Questions on quizzes and exams will be a mixture of problems expecting calculations and conceptual problems.)

\*Honesty and integrity are essential cornerstones of the scientific method, as well as all professional behavior. Any confirmed academic misconduct will be dealt with severely according to current University policies and may have a serious impact on future career opportunities. It is therefore essential for all students to develop a clear understanding of what is allowed, what isn't, and why. If you have any questions about these matters, please discuss them with your instructor before problems arise. For example, collaborative learning activities such as student-organized study groups are generally perfectly legitimate and encouraged. While they may not be optimal environments for all learning styles, they are in no way discouraged on ethical grounds.

\*Mutual respect for the ideas and value of others is also a central requirement of a successful scholarly community. Scientists (like other professionals) often disagree over issues, which they care about. In doing this they must carefully avoid demeaning those about them. This will be a requirement in this course. Translation: If you don't like questions asked by others, keep it to yourself. If you aren't sure that you know how to ask "good" questions, don't worry about it—ask away!

\*Finally, I hope that you will keep in mind a philosophical point which is easy to forget, but central to a successful outcome in this sequence. The author (Hans Ohanian) of another physics textbook states this issue very directly in his preface, "To gain a clear view of physics, the students must learn to see the material world through the eye of a physicist and appreciate the priorities that govern the thinking of a physicist." This goal is quite different than memorization of principles or problem solutions. In the conduct of this course I will attempt to communicate as clearly as possible how I think about the subjects at hand. Your challenge is to think along with me; to communicate your views, questions and insights; and to avoid the temptation to short-cut this process by looking for ways to prepare for the exams without really understanding the material.