

Kenneth P. Dietrich School of Arts and Sciences
College in High School

Options for Implementing
College in High School Physics

Basic Physics for Science and Engineering 1
PHYS 0174

This is the first term of a two-term introductory lecture-demonstration sequence in physics for science and engineering students. Calculus is needed and should be taken at least concurrently. The grade is determined primarily by three exams during the term and a cumulative final exam. Other work, such as quizzes and homework, may make some contribution to the grade. Approximately half of the class time each week is spent in covering new material. The remaining time is devoted to activities such as problem solving, demonstrating experiments, questions, and discussion. At the University of Pittsburgh, the latest edition of *Fundamentals of Physics* by Halliday, Resnick, and Walker is used. Any comparable, calculus-based text that covers all of the material in this course outline is acceptable as an alternative.

Department of Physics Course Policies

1. Students will need a scientific calculator for this course.
2. This course uses examinations created by the University of Pittsburgh CHS Faculty Liaison.

Possible paths to CHS Physics 0174

College in High School Physics 0174 is a flexible course that has been implemented in several different ways. Below are some of the ways that high schools have successfully offered the course.

1. General Physics —→ **CHS Physics 0174**

2. General Physics —→ **CHS Physics 0174** & AP Physics 1

3. General Physics —→ **CHS Physics 0174** & AP Physics 1 & 2

(To implement this option, a school must have enough time to meet the goals of both CHS and AP classes. For example, one high school combining these courses has 100 minutes of instruction every day.)

4. General Physics —→ **CHS Physics 0174** & AP Physics C: Mechanics

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CHS Physics and AP Physics

The following information may be valuable in considering whether to offer
CHS Physics with AP Physics.

CHS Physics and AP Physics 1

Most topics in CHS Physics 0174 coincide with curriculum of AP Physics 1. However,
the following topics do not overlap:

CHS Physics 0174

- Kinetic theory of gases
 - Thermodynamics
- Required Math level: Calculus*

AP Physics 1

- Introduction to electrostatics and electric circuits (simple DC circuits)
- Required Math level: Algebra*

*The kinetic theory of gases and thermodynamics are included in AP Physics 2.

CHS Physics and AP Physics C

Most topics in CHS Physics 0174 coincide with curriculum of AP Physics C. However,
the following topics do not overlap:

CHS Physics 0174

- Mechanical waves (including sound)
 - Kinetic theory of gases
 - Thermodynamics
- Required Math level: Calculus*

AP Physics C: Mechanics

- None
- Required Math level: Calculus*