

## PHY Physics

### PHY 100 Basic Concepts in Physics (3-0) 3 crs.

Examines basic topics in physics including motion, force, energy, electricity and magnetism, waves and particles, and atomic structure. Course is for non-science majors fulfilling non-laboratory science requirements. IAI P1 900

**Prerequisite:** Placement into college-level mathematics without support. <https://www.harpercollege.edu/testing/mathplacement.php>

### PHY 110 Introduction to Physics (3-2) 4 crs.

Examines topics from physics including motion, structure of matter, electricity and magnetism, waves and particles and atomic structure. This course is intended for non-science majors fulfilling laboratory science requirements. IAI P1 900L

**Prerequisite:** Placement into college-level mathematics without support. <https://www.harpercollege.edu/testing/mathplacement.php>

### PHY 112 Energy and Society (3-2) 4 crs.

Introduces non-science majors to topics from various sciences as they relate to energy resources and energy consumption. Connects the theory of energy to its practical applications. Examines the connection between science and economics, politics and other social issues, using energy as a focus. Meets laboratory science requirements for non-science majors. IAI P1 901L

**Prerequisite:** Placement into college-level mathematics without support. <https://www.harpercollege.edu/testing/mathplacement.php>

### PHY 121 Introductory Physics I (4-3) 5 crs.

Covers mechanics, heat, fluids, and sound. Intended for students in life science, architecture and technology. Students pursuing degrees in engineering, physics, or chemistry should enroll in PHY 201. Knowledge of high school trigonometry assumed. IAI P1 900L

**Prerequisite:** MTH 140 with a grade of C or better, or other math placement options into MTH 200. <https://www.harpercollege.edu/testing/mathplacement.php>

### PHY 122 Introductory Physics II (4-3) 5 crs.

Continues PHY 121. Topics in electricity, magnetism, light and modern physics.

**Prerequisite:** PHY 121 with a grade of C or better.

### PHY 201 General Physics I: Mechanics (4-2) 5 crs.

Introduces mechanics using calculus. Topics include force and motion; work and energy; rotation; oscillations; and fluids. For students in chemistry, engineering, mathematics and physics. IAI P2 900L, IAI PHY 911

**Prerequisite:** MTH 200 (Calculus I, IAI M1 900-1, IAI MTH 901) with a grade of C or better. Recommend concurrent enrollment in MTH 201 (Calculus II, IAI M1 900-2, IAI MTH 902).

### PHY 202 General Physics II: Electricity and Magnetism (4-2) 5 crs.

Introduces electricity and magnetism using calculus. Topics include charge; electric field and potential; resistance, capacitance, and inductance; DC and AC circuits; magnetic fields; laws of Gauss, Ampere, and Faraday; Maxwell's equations and electromagnetic waves; geometric optics, lenses and mirrors, interference and diffraction, and polarization. Intended for students in chemistry, engineering, mathematics and physics. IAI PHY 912

**Prerequisite:** MTH 201 (Calculus II, IAI M1 900-2, IAI MTH 902) and PHY 201 (General Physics I: Mechanics, IAI P2 900L, IAI PHY 911) with grades of C or better.

### PHY 203 General Physics III: Thermal and Quantum Physics (4-2) 5 crs.

**This course is only offered in the spring term.**

Introduces thermodynamics and quantum physics. Topics include temperature and heat; ideal gas law; first and second law of thermodynamics; kinetic theory of gases; entropy; relativity; quantization; the atom; solid state physics and conduction; nuclear and elementary particle physics. Intended for students in chemistry, engineering, mathematics and physics. IAI PHY 913

**Prerequisite:** MTH 201 (Calculus II, IAI M1 900-2, IAI MTH 902) and PHY 201 (General Physics I: Mechanics, IAI P2 900L, IAI PHY 911) with grades of C or better.