

# PHYSICS (PHYS)

## PHYS-1010 Astronomy 3 Credits

Survey of astronomy. History of astronomy, planets, asteroids and comets, the sun, stars, galaxies, and cosmology. Contemporary issues and developments in astronomy and space science. Intended for non-science majors. To fulfill laboratory science requirements, students should enroll in related laboratory course.

*Lecture: 3 hours*

*Prerequisite(s): ENG-0985 Introduction to College Literacies or appropriate score on English Placement Test. Note: ENG-0980 Language Fundamentals I taken prior to Fall 2021 will also meet prerequisite requirements.*

*OAN Approved: Ohio Transfer 36 TMNS.*

## PHYS-101L Astronomy Laboratory 1 Credit

Intended for non-science majors. Exercises on measurements, optics, telescopes, the sun, constellations, and other related astronomy topics. Laboratory activities complement and enrich related lecture course.

*Laboratory: 3 hours*

*Prerequisite(s): PHYS-1010 Astronomy or concurrent enrollment.*

*OAN Approved: Ohio Transfer 36 TMNS.*

## PHYS-1050 Everyday Physics 2 Credits

Introductory science course designed to develop an understanding of the phenomena of our everyday life via the laws of physics. The emphasis is not on problem-solving course, but on encouraging students to understand and appreciate their environment from a new perspective. Explores application of various fields of physics to everyday living, household applications, sports applications and other applications discussed.

*Lecture: 2 hours*

*Prerequisite(s): ENG-1010 College Composition I, or ENG-101H Honors College Composition I, and MATH-0955 Beginning Algebra, or qualified Math placement.*

## PHYS-1210 College Physics I 4 Credits

Kinematics, vectors, and Newtonian mechanics (forces and motion, gravitation, energy, momentum, rotational motion, simple harmonic motion), fluids, heat, and thermodynamics. Emphasis on problem solving using algebra.

*Lecture: 3 hours. Laboratory: 3 hours*

*Prerequisite(s): MATH-0965 Intermediate Algebra; or qualified Math placement; or departmental approval. Note: MATH-1200, 1270 or MATH-1280 taken prior to Fall 2016 will meet prerequisite requirements for this course.*

*OAN Approved: Ohio Transfer 36 TMNS and Transfer Assurance Guide OSC014 and OSC021 (1 of 2 courses for OSC021, both must be taken)*

## PHYS-1220 College Physics II 4 Credits

Introductory algebra-based physics course designed for non-physics majors covering areas of physics which include electricity, magnetism, waves, sound, light, special relativity, atomic and nuclear physics.

*Lecture: 3 hours. Laboratory: 3 hours*

*Prerequisite(s): PHYS-1210 College Physics I.*

*OAN Approved: Ohio Transfer 36 TMNS and Transfer Assurance Guide OSC015 and OSC021 (2 of 2 courses for OSC021, both must be taken).*

## PHYS-1300 Physics of Optical Materials 4 Credits

Study the properties of materials related to opticianry including structure, density, conductivity, and effects of mechanical forces on materials. Special emphasis given to the nature and theory of light and its application to ophthalmic optics. Demonstrations of optical bench, blackboard optics, and other instruments used to facilitate understanding of how light functions.

*Lecture: 3 hours. Laboratory: 3 hours*

*Prerequisite(s): MATH-1190 Algebraic and Quantitative Reasoning or higher.*

## PHYS-1820 Independent Study/Research in Physics 1-3 Credits

Directed individual study. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.

*Lecture: 1-3 hours*

*Prerequisite(s): Departmental approval, and instructor approval, and ENG-0995 Applied College Literacies, or appropriate score on English Placement Test. Note: ENG-0990 Language Fundamentals II taken prior to Fall 2021 will also meet prerequisite requirements.*

## PHYS-182H Honors Independent Study/Research in Physics 1-3 Credits

Honors-level directed individual study. Must meet criteria set forth in the Honors Course Checklist used to approve regular honors courses. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.

*Lecture: 1-3 hours*

*Prerequisite(s): Departmental approval and instructor approval, and ENG-0995 Applied College Literacies, or appropriate score on English Placement Test; and must have earned an A or B in at least 3 honors courses. Note: ENG-0990 Language Fundamentals II taken prior to Fall 2021 will also meet prerequisite requirements.*

## PHYS-2250 Radiographic Physics and Quality Control 4 Credits

Course designed for Radiography program students. Basic introduction to college physics. Reviews basic mathematical operations needed for this course. Discusses energy, matter, Newtonian laws, atomic structure, electrostatic, electrodynamics, magnetism, electromagnetism that will lead to the study of x-ray generators, x-ray circuitry, and automatic exposure devices. Includes laboratory application of related physics experiments and the use of quality assurance testing tools to ensure radiographic quality control.

*Lecture: 3 hours. Laboratory: 2 hours*

*Prerequisite(s): RADT-1351 Image Acquisition and Evaluation, and departmental approval: admission to Radiography program.*

## PHYS-2310 General Physics I 5 Credits

The first semester of a two-semester introductory calculus-based physics course designed for students majoring in science or engineering covering areas in; motion in one, two, and three dimensions, rotational motion, energy and momentum, gravitation, oscillations and waves, and thermodynamics.

*Lecture: 4 hours. Laboratory: 3 hours*

*Prerequisite(s): MATH-1610 Calculus I, or departmental approval.*

*OAN Approved: Ohio Transfer 36 TMNS and Transfer Assurance Guide OSC016 and OSC022 (1 of 2 courses, both must be taken)*

**PHYS-2320 General Physics II**

**5 Credits**

The second semester of a two-semester introductory calculus-based physics course designed for students majoring in science or engineering covering areas in; electrostatics, electricity, magnetism, electromagnetism, optics, atomic and nuclear physics, and introductory modern physics.

*Lecture: 4 hours. Laboratory: 3 hours*

*Prerequisite(s): PHYS-2310 General Physics I, or departmental approval.*

*OAN Approved: Ohio Transfer 36 TMNS and Transfer Assurance Guide*

*OSC017 and OSC022 (2 of 2 courses, both must be taken).*

**PHYS-2820 Independent Advanced Study/Research in Physics**

**1-3 Credits**

Directed individual advanced study. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.

*Lecture: 1-3 hours*

*Prerequisite(s): Departmental approval, and instructor approval, and*

*ENG-0995 Applied College Literacies, or appropriate score on English*

*Placement Test. Note: ENG-0990 Language Fundamentals II taken prior to Fall*

*2021 will also meet prerequisite requirements.*

**PHYS-282H Advanced Honors Independent Study/Research in Physics**

**1-3 Credits**

Advanced Honors-level directed individual study. Must meet criteria set forth in the Honors Course Checklist used to approve regular honors courses. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.

*Lecture: 1-3 hours*

*Prerequisite(s): Departmental approval and instructor approval, and ENG-0995*

*Applied College Literacies, or appropriate score on English Placement Test;*

*and must have earned an A or B in at least 3 honors courses. Note: ENG-0990*

*Language Fundamentals II taken prior to Fall 2021 will also meet prerequisite*

*requirements.*