PHYSICS

See the Physics page for program and contact information.

Degree

Transfer

Associate of Arts Oregon Transfer

- Physics - Associate of Arts Oregon Transfer (AAOT)

Courses

ASTR 100 Introductory Astronomy: Overview of the Universe (4 Credits)
Recommended preparation: MTH 60 or MTH 98 or placement into Math level 10.
An overview of the main ideas in our current view of the universe, and how they originated. Galaxies, quasars, stars, pulsars, and planets. Intended primarily for non-science majors interested in a one-quarter survey of classical and modern astronomy.

ASTR 121 Astronomy: Solar Systems (4 Credits)
Recommended Preparation: MTH 60 or MTH 98 or placement into Math level 10.
Introduces the solar system and other planetary systems to a non-science major audience. Examines topics that include the sun, the origin and exploration of the solar system, the formation of planets, the nature of comets and asteroids, the possibility of life on other worlds, and the characterization of planets beyond the solar system. ASTR 121, ASTR 122, and ASTR 123 may be taken in any order.

ASTR 122 Astronomy: Stars and Stellar Evolution (4 Credits)
Recommended preparation: MTH 60 or MTH 98 or placement into Math level 10.
Introduces planet and constellation identification for a non-science major audience. Presents concepts of observed properties of stars, internal structure of stars, and the stages of a star's life (e.g., stellar births, white dwarfs, supernovae, pulsars, neutron stars, and black holes). ASTR 121, ASTR 122, and ASTR 123 can be taken in any order.

ASTR 123 Astronomy: Galaxies and Cosmology (4 Credits)
Recommended Preparation: MTH 60 or MTH 98 or placement into Math level 10.
Introduces fundamental concepts of the universe for a non-science major audience. Explores modern cosmological concepts of the Big Bang, dark matter, curved space, black holes, and galaxy formation. Unpacks the scientific development of these concepts and explains the basic physics underlying them. ASTR 100, ASTR 121, ASTR 122, and ASTR 123 can be taken in any order.

ASTR 199 Selected Topics: Astronomy (1-6 Credits)
Provides a learning experience in astronomy not currently available.

ASTR 299 Selected Topics: Astronomy (1-4 Credits)
Provides a learning experience in astronomy not currently available.

PH 100 Introductory Physics (4 Credits)
Recommended preparation: one year of high school algebra or equivalent or concurrent enrollment in MTH 060.
Provides an introduction to the field of physics for students without any background in physics. Physics provides a fundamental description for everything we see in the world around us, from describing the formation of snow crystals to predicting the speed of a falling rock climber, and as such this course may discuss a variety of exciting topics. Intended to provide the non-science major an introduction to the fundamental ideas, importance and impacts of physics.

PH 199 Selected Topics: Physics (1-5 Credits)
Provides a learning experience in physics not currently available.

PH 201 General Physics I (5 Credits)
Recommended to be taken with: MTH 111Z.
Studies Newtonian Mechanics beginning with basic math concepts and continuing into kinematics, dynamics, uniform circular motion, energy, momentum, and rotational equivalents of some of these topics. Lab addresses experiments and applied settings of Newtonian Mechanics along with explorations of diverse methods for analyzing and interpreting scientific data. Meets the basic requirements for many pre-health and life science programs. Should be taken in sequence.

PH 202 General Physics II (5 Credits)
Recommended to be taken with: MTH 112Z.
Studies basic electrostatic and magnetic interactions. Builds on concepts from PH 201 and continues into electrostatic forces, electric field concepts, electric potential, basic DC circuit concepts, magnetic interactions and forces, sources of magnetic fields and Faraday's Law. Lab addresses concepts and measurements in thermal physics and continues to explore the processes by which science seeks answers to questions. Meets the basic requirements for many pre-health and life science programs. Should be taken in sequence.

PH 203 General Physics III (5 Credits)
Studies periodic behavior and topics from modern physics. Builds on concepts from previous terms and considers the physics of periodic motion, mechanical waves, wave interference, standing waves, acoustic waves, electromagnetic waves, geometric optics, diffraction and topics from special relativity to quantum mechanics. Lab includes basic optical experiences along with a long-term project to affirm student abilities to integrate investigative lab concepts from previous terms. Meets the basic requirements for many pre-health and life science programs. Should be taken in sequence.

PH 211 General Physics I (5 Credits)
Recommended preparation: MTH 251Z.
Studies Newtonian Mechanics beginning with basic math concepts and continuing into kinematics, dynamics, uniform circular motion, energy, momentum, and rotational equivalents of some of these topics. At all stages, applications of calculus to the solving of problems will be explored. Lab addresses experiments and applied settings of Newtonian Mechanics along with explorations of diverse methods for analyzing and interpreting scientific data. Required for engineering students and most students planning programs in the physical sciences. Should be taken in sequence.

PH 212 General Physics II (5 Credits)
Recommended preparation: MTH 252Z and PH 211.
Studies basic electrostatic and magnetic interactions. Builds on concepts from PH 211 and continues into electrostatic forces, electric field concepts, electric potential, basic DC circuit concepts, magnetic interactions and forces, sources of magnetic fields and Faraday's Law. At all stages, applications of calculus to the solving of problems will be explored. Lab addresses concepts and measurements in thermal physics and continues to explore the processes by which science seeks answers to questions. Required for engineering students and most students planning programs in the physical sciences. Should be taken in sequence.

PH 213 General Physics III (5 Credits)
Recommended preparation: MTH 253Z and PH 212. Recommended to be taken with: MTH 256.
Studies periodic behavior and topics from modern physics. Builds on concepts from previous terms and considers the physics of periodic motion, mechanical waves, wave interference, standing waves, acoustic waves, electromagnetic waves, geometric optics, diffractions and topics from special relativity to quantum mechanics. At all stages, applications of calculus to the solving of problems will be explored. Lab includes basic optical experiences along with a long-term project to affirm student abilities to integrate investigative lab concepts from previous terms. Required for engineering students and most students planning programs in the physical sciences. Should be taken in sequence.

PH 298 Independent Study: Physics (1-6 Credits)
Prerequisites: Instructor approval required.
Recommended preparation: Prior coursework in the discipline.
Individualized, advanced study in Physics to focus on outcomes not addressed in existing courses or of special interest to a student. P/NP grading.

PH 299 Selected Topics: Physics (1-5 Credits)
Provides a learning experience in physics not currently available.