PHYSICS (PHYS)

PHYS 1305 Elementary Physics I Lecture  3 Credits
Department: College of Arts and Sciences
Designed for non-science/non-engineering majors. The basic interactions in nature, how things move and why, are studied.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 1307 Elementary Physics II Lecture  3 Credits
Department: College of Arts and Sciences
Designed for non-science/non-engineering majors. Topics covered are heat, vibrations and waves, sound, light. PHYS 1305 is NOT a prerequisite for this course.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 1311 Introduction to Astronomy Lecture  3 Credits
Department: College of Arts and Sciences
A survey of facts and an introduction to important astronomical theories. The solar system, stars, nebulae and star systems.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 1370 Preparatory Physics: Foundations and Applications  3 Credits
Department: College of Arts and Sciences
Mathematics applied to physics problems, graphical analysis, vector operations, fields and potentials.
Prerequisite(s): MTH 148
Prerequisite(s)/Corequisite(s): MATH 2413
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 1401 College Physics I  4 Credits
Department: College of Arts and Sciences
Designed for majors in the physical or natural sciences. Emphasis is placed upon understanding and application of basic physical laws.
Prerequisite(s): MATH 1316 or MATH 2312
Prerequisite(s)/Corequisite(s): MATH 2413
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 1402 College Physics II  4 Credits
Department: College of Arts and Sciences
A continuation of College Physics I, PHYS 1401.
Prerequisite(s): PHYS 1401 or PHY 141
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 1405 Elementary Physics I  4 Credits
Department: College of Arts and Sciences
Designed for non-science/non-engineering majors. Subject matter covers the basic interactions in nature, how things move and why, are studied.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 1407 Elementary Physics II  4 Credits
Department: College of Arts and Sciences
Designed for non-science/non-engineering majors. Topics covered are heat, vibrations and waves, sound, light. (PHYS 1405 is NOT a pre-requisite for PHYS 1407)
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 1411 Intro Astronomy  4 Credits
Department: College of Arts and Sciences
A survey of facts and an introduction to important astronomical theories. The solar system, stars, nebulae and star systems. This course includes a lab component.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 2170 Supplemental Lab 1 Credit
Department: College of Arts and Sciences
Designed to allow a transfer student to make up one laboratory deficiency at the introductory level.
May be Repeated for a maximum of 4 hours
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 2425 University Physics I  4 Credits
Department: College of Arts and Sciences
Subject matter covers mechanics, vibrations and heat.
Prerequisite(s): (SAT Mathematics (OLD) with a score of 600 or SAT Math Section with a score of 620 or PHYS 1370) and MATH 2413
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 2426 University Physics II  4 Credits
Department: College of Arts and Sciences
Subject matter covers electricity, magnetism, sound waves and optics.
Prerequisite(s): PHYS 2425 and MATH 2414
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 3314 Mathematical Methods in the Physical Sciences  3 Credits
Department: College of Arts and Sciences
The goal of this class is for the student to acquire a deeper understanding of mathematical theory and the subsequent applications of advanced mathematical techniques to the physical sciences. The successful modeling of physical problems requires adept application of a wide range of mathematical concepts. Mathematics is the language of physics.
Prerequisite(s): MATH 3435 or MATH 2415
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 3350 Modern Physics  3 Credits
Department: College of Arts and Sciences
Special relativity; duality particle-wave; elements of quantum physics; atomic and molecular structure; solid state and statistical physics.
Prerequisite(s): MATH 3435 and (PHYS 2425 and PHYS 2426) or (PHYS 1401 and PHYS 1402)
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 3380 Electricity & Magnetism  3 Credits
Department: College of Arts and Sciences
Subject matter covers electrostatic fields; potential; capacitance; dielectrics; electromagnetic waves. Maxwell's equations; conduction in gases; and thermodielectricity.
Prerequisite(s): MATH 3301
Prerequisite(s)/Corequisite(s): PHYS 3350
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS
PHYS 3390 Statistical Physics  3 Credits
Department: College of Arts and Sciences
Subject matter includes: temperature and thermometry; internal energy, entropy, and thermodynamic potentials; introduction to the kinetic theory of gases and the Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics.
Prerequisite(s): PHYS 3350 and MATH 3301
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 3430 Analytical Mechanics  4 Credits
Department: College of Arts and Sciences
The use of vector notation in formulating and applying Newton’s laws and the principles of momentum and energy. Dynamics of particles and rigid bodies emphasized with statics treated briefly.
Prerequisite(s): (MATH 3301 or (PHYS 2425 and PHYS 2426) or (PHYS 1401 and PHYS 1402)
Prerequisite(s)/Corequisite(s): PHYS 3350
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 4301 Special Topics  3 Credits
Department: College of Arts and Sciences
Topics in undergraduate mechanics, electromagnetism, energy conversion or particle physics. Library work and conferences with a faculty member. Student may repeat the course for credit when the area of study is different.
May be Repeated for a maximum of 6 hours
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 4310 Experiments in Physics  3 Credits
Department: College of Arts and Sciences
Selected experiments in mechanics, electromagnetics, waves and nuclear physics which reach beyond the scope of introductory laboratories.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 4320 Introduction Quantum Mechanics  3 Credits
Department: College of Arts and Sciences
Basic concepts of quantum mechanics; Schrödinger’s equation and wave functions.
Prerequisite(s): PHYS 3350 and PHYS 3380
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 4370 Solid State Phys  3 Credits
Department: College of Arts and Sciences
Crystal structure, crystal dynamics, energy bands in crystalline solids, semiconductors and magnetism superconductivity.
Prerequisite(s): PHYS 3350 and MATH 3301
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 4480 Optics  4 Credits
Department: College of Arts and Sciences
Physical and Quantum Optics; light-matter interaction; interference; diffraction; spectroscopy; photonics and lasers; fiber optics.
Prerequisite(s): PHYS 3350 and MATH 3301
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 5301 Special Topics  3 Credits
Department: College of Arts and Sciences
The course is designed to meet special needs of students. Each topic is offered on an irregular schedule as demand requires.
Restriction(s):
Undergraduate level students may not enroll.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 5370 Solid State Phys  3 Credits
Department: College of Arts and Sciences
Crystallography, Energy bands, Electron models, Semiconductors, Semiconductor devices, Magnetism, Superconductivity. Coursework includes a project.
Restriction(s):
Undergraduate level students may not enroll.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 5380 Modern Optics  3 Credits
Department: College of Arts and Sciences
Physical and Quantum Optics; light-matter interaction; interference; diffraction; spectroscopy; photonics and lasers; fiber optics.
Prerequisite(s): PHYS 3350 and MATH 3301
Restriction(s):
Undergraduate level students may not enroll.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 5381 Experiments in Modern Optics  3 Credits
Department: College of Arts and Sciences
An experimental-based course dealing with Physical Optics; light-matter interaction; interference; diffraction; spectroscopy; photonics and lasers.
Prerequisite(s): PHYS 3350 and MATH 3301
Restriction(s):
Undergraduate level students may not enroll.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

PHYS 5382 Solid State Phys  3 Credits
Department: College of Arts and Sciences
Crystallography, Energy bands, Electron models, Semiconductors, Semiconductor devices, Magnetism, Superconductivity. Coursework includes a project.
Restriction(s):
Undergraduate level students may not enroll.
Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS