PHYSICS

Not all courses are offered every semester. Refer to the schedule of courses for each term’s specific offerings.

More Info (http://registrar.ufl.edu/soc)

Courses

IDH 3931 Interdisciplinary Junior Honors 1-3 Credits
Grading Scheme: Letter Grade
Special topics restricted to those in the university-wide honors program. (WR)
Attributes: Satisfies 6000 Words of Writing Requirement

ISC 2400L Cross-Disciplinary Laboratory 1 3 Credits
Grading Scheme: Letter Grade
First course in a two-semester inquiry-based laboratory focusing on major themes and concepts in biology, chemistry and physics with an emphasis on their integrated applications in modern, quantitative research. Satisfies course requirements for BSC 2010L, CHM 2045L and PHY 2053L.
Prerequisite: high school algebra or equivalent. Degree-seeking students only.

ISC 2401L Cross-Disciplinary Laboratory 2 3 Credits
Grading Scheme: Letter Grade
Second course in a two-semester inquiry-based laboratory focusing on major themes and concepts in biology, chemistry and physics with an emphasis on their integrated applications in modern, quantitative research. Satisfies course requirements for BSC 2011L, CHM 2046L and PHY 2054L.
Prerequisite: ISC 2400L and MAC 1147 or equivalent;
Corequisite: BSC 2010 and CHM 2045 or CHM 2047 or CHM 2095.

ISC 3523C Research Methods 3 Credits
Grading Scheme: Letter Grade
The tools scientists use to solve scientific problems, including use of experiments to answer scientific questions, design of experiments to reduce systematic and random errors, use of statistics to interpret experimental results and deal with sampling errors, mathematical modeling of scientific phenomena and oral presentation of scientific work.
Prerequisite: UF Teach Step 1 and one year of college biology, chemistry or physics.

MET 1010 Introduction to Weather and Climate 3 Credits
Grading Scheme: Letter Grade
A course for non-science students interested in understanding the phenomena of daily weather. Several principles of physics are introduced. (P)
Prerequisite: high school algebra.
Attributes: General Education - Physical Science

PHY 1033C Discovering Physics 3 Credits
Grading Scheme: Letter Grade
The fundamental concepts of physics that shape a scientist's view of the laws of nature. A laboratory experience is included to emphasize the importance of measurement for the testing of scientific hypotheses. (P)
Attributes: General Education - Physical Science

PHY 2004 Applied Physics 1 3 Credits
Grading Scheme: Letter Grade
Emphasizes the practical applications of basic physics to a range of professions, including architecture, agricultural sciences, building construction and forest resources. Mechanics of motion, forces, energy, momentum, wave motion and heat. (P)
Prerequisite: algebra and trigonometry.
Attributes: General Education - Physical Science

PHY 2004L Laboratory for Applied Physics 1 1 Credit
Grading Scheme: Letter Grade
Laboratory experience illustrating the practical applications of basic physics, including the mechanics of motion, forces, energy, momentum, wave motion and heat. (P)

PHY 2005 Applied Physics 2 3 Credits
Grading Scheme: Letter Grade
Continuation of the applied physics sequence. Electric and magnetic fields; geometrical, wave and applied optics; and modern and nuclear physics. (P)
Prerequisite: PHY 2004.
Attributes: General Education - Physical Science

PHY 2005L Laboratory for Applied Physics 2 1 Credit
Grading Scheme: Letter Grade
Laboratory experience illustrating the practical applications of electric and magnetic fields geometrical, wave and applied optics; and modern and nuclear physics. (P)
Attributes: General Education - Physical Science

PHY 2008 Physics with Calculus 1 3 Credits
Grading Scheme: Letter Grade
The first of a two-semester sequence of physics for scientists and engineers. The course covers Newtonian mechanics, and includes motion, vectors, Newton's laws, work and conservation of energy, systems of particles, collisions, equilibrium, oscillations and waves. (P)
Prerequisite: high-school physics, PHY 2008 or the equivalent, and MAC 2311.
Corequisite: MAC 2312.
Attributes: General Education - Physical Science

PHY 2048 Physics with Calculus 1 3 Credits
Grading Scheme: Letter Grade
The first of a two-semester sequence of physics for scientists and engineers. The course covers Newtonian mechanics and includes motion, vectors, Newton's laws, work and conservation of energy, systems of particles, collisions, equilibrium, oscillations and waves. (P)
Prerequisite: high-school physics, PHY 2048 or the equivalent.
Corequisite: PHY 2048 or the equivalent.
Attributes: General Education - Physical Science
PHY 2049 Physics with Calculus 2 3 Credits  
**Grading Scheme:** Letter Grade  
The second of a two-semester sequence of physics for scientists and engineers. Content includes Coulomb's law, electric fields and potentials, capacitance, currents and circuits, Ampere's law, Faraday's law, inductance, Maxwell's equations, electromagnetic waves, ray optics, interference and diffraction. (P)  
**Prerequisite:** PHY 2048 and MAC 2312;  
**Corequisite:** MAC 2313.  
**Attributes:** General Education - Physical Science  

PHY 2049L Laboratory for Physics with Calculus 2 1 Credit  
**Grading Scheme:** Letter Grade  
Laboratory experience for PHY 2049 illustrating the practical applications of Coulomb's law, electric fields and potentials, capacitance, currents and circuits, Ampere's law, Faraday's law, inductance, Maxwell's equations, electromagnetic waves, ray optics, interference and diffraction. (P)  
**Prerequisite:** Degree-seeking students only.  
**Corequisite:** PHY 2049 or the equivalent.  
**Attributes:** General Education - Physical Science  

PHY 2053 Physics 1 4 Credits  
**Grading Scheme:** Letter Grade  
First semester of introductory physics de-emphasizing calculus. Structure and properties of matter; kinematics, dynamics and statics; momentum and energy; rotation, elasticity, vibration; fluids; temperature and expansion, heat transfer, thermal behavior of gases; wave motion and sound. (P)  
**Prerequisite:** high school algebra and trigonometry, or the equivalent.  
**Attributes:** General Education - Physical Science  

PHY 2053L Laboratory for Physics 1 1 Credit  
**Grading Scheme:** Letter Grade  
Laboratory experience for PHY 2053 illustrating the practical applications of the structure and properties of matter; kinematics, dynamics and statics; momentum and energy; rotation, elasticity, vibration; fluids; temperature and expansion, heat transfer, thermal behavior of gases; wave motion and sound. (P)  
**Corequisite:** PHY 2053 or the equivalent. Degree-seeking students only.  
**Attributes:** General Education - Physical Science  

PHY 2054 Physics 2 4 Credits  
**Grading Scheme:** Letter Grade  
Second semester of introductory physics de-emphasizing calculus. Electric charge, fields and circuits; electromagnetism, applied electricity; geometrical optics, wave optics, applied optics; electrons and photons; atoms and nuclei. (P)  
**Prerequisite:** PHY 2053 or the equivalent. Degree-seeking students only.  
**Attributes:** General Education - Physical Science  

PHY 2054L Laboratory for Physics 2 1 Credit  
**Grading Scheme:** Letter Grade  
Laboratory experience for PHY 2054 illustrating the practical applications of electric charge, fields and circuits; electromagnetism, applied electricity; geometrical optics, wave optics, applied optics; electrons and photons; atoms and nuclei. (P)  
**Corequisite:** PHY 2054 or the equivalent. Degree-seeking students only.  
**Attributes:** General Education - Physical Science  

PHY 2060 Enriched Physics with Calculus 1 3 Credits  
**Grading Scheme:** Letter Grade  
First of the enriched sequence for physics majors and others wishing a deeper understanding of mechanics, kinematics, conservation laws, harmonic motion, central forces and special relativity. (P)  
**Prerequisite:** Degree-seeking students only;  
**Corequisite:** MAC 2312 or the equivalent.  
**Attributes:** General Education - Physical Science  

PHY 2061 Enriched Physics with Calculus 2 3 Credits  
**Grading Scheme:** Letter Grade  
Second course of the enriched sequence studying electricity and magnetism, including electrostatics, Gauss's Law, potentials, vector analysis, Laplace's equation, conductors and insulators, circuits, magnetism, Maxwell's equations and E and M fields in matter. (P)  
**Prerequisite:** PHY 2060 or instructor permission;  
**Corequisite:** MAC 2313 or the equivalent.  
**Attributes:** General Education - Physical Science  

PHY 2064L Accelerated Physics with Calculus Laboratory 2 Credits  
**Grading Scheme:** Letter Grade  
A cross-disciplinary, inquiry-based curriculum that focuses on major themes and concepts in physics, with an emphasis on their application in modern, quantitative life sciences research. Equivalent to PHY 2048L and PHY 2049L, or PHY 2060L and PHY 2061L.  
**Prerequisite:** PHY 2048 or PHY 2060;  
**Corequisite:** PHY 2049 or PHY 2061.  

PHY 2464 The Physical Basis of Music 3 Credits  
**Grading Scheme:** Letter Grade  
Vibration and wave behavior as applied to musical instruments; and studies of the generation and reception of sound waves, musical intervals and scales, musical acoustics and musical electronics. (P)  
**Prerequisite:** high school algebra and trigonometry, or the equivalent.  
**Attributes:** General Education - Physical Science  

PHY 3063 Enriched Modern Physics 3 Credits  
**Grading Scheme:** Letter Grade  
Theory of relativity and introduction to quantum theory. Course includes wave mechanics, quantum theory of solids, nuclear and particle physics and cosmology.  
**Prerequisite:** PHY 2061 or instructor permission, and MAP 2302 or the equivalent.  
**Attributes:** General Education - Physical Science  

PHY 3101 Introduction to Modern Physics 3 Credits  
**Grading Scheme:** Letter Grade  
Modern and atomic physics, relativity, wave phenomena and the basis of quantum physics. (P)  
**Prerequisite:** PHY 2049 or the equivalent.  
**Attributes:** General Education - Physical Science  

PHY 3221 Mechanics 1 3 Credits  
**Grading Scheme:** Letter Grade  
First part of PHY 3221/4222 sequence in classical mechanics emphasizing matrices, vector calculus, Newtonian mechanics, frames of reference, conservation laws and harmonic oscillation. (P)  
**Prerequisite:** PHY 2049 or the equivalent;  
**Corequisite:** MAP 2302 or the equivalent.  
**Attributes:** General Education - Physical Science
PHY 3840L Building Scientific Equipment 2 Credits
Grading Scheme: Letter Grade
Hands-on experience in the mechanical fabrication of research apparatus. Topics include shop drawings, properties of materials, metal cutting (lathe and milling-machine operation) and metal joining.
Prerequisite: PHY 2049 or PHY 2061.
Attributes: General Education - Physical Science
PHY 4803L Laboratory Physics 2 1-4 Credits
Grading Scheme: Letter Grade
Electronics in the laboratory.
PHY 4802L Laboratory Physics 1 3 Credits
Grading Scheme: Letter Grade
Current laboratory techniques.
Prerequisite: PHY 4604 and PHY 4802L.
PHY 4911 Undergraduate Research in Physics 0-3 Credits
Grading Scheme: Letter Grade
Course provides firsthand, supervised research in Physics. Projects may involve inquiry, design, investigation, scholarship, discovery or application in Physics.
PHZ 3113 Introduction to Theoretical Physics 3 Credits
Grading Scheme: Letter Grade
This course expands and systematizes the treatment of standard problems previously encountered in elementary physics. Mathematical techniques are developed to study problems in thermodynamics, statistical physics, the motion of coupled oscillators and electrodynamics.
Prerequisite: MAC 2313 and PHY 2061, or instructor permission.
PHZ 4390 Introduction to Elementary Particle Physics 3 Credits
Grading Scheme: Letter Grade
History and phenomenology of particle physics, physics of the Standard Model and beyond, and particle accelerators and detectors.
Prerequisite: PHY 3101 or PHY 3063;
Corequisite: PHY 4604.
PHZ 4404 Introduction to Solid State Physics 3 Credits
Grading Scheme: Letter Grade
Atomic binding, crystalline structure, diffraction and reciprocal lattice, lattice vibration, phonons, electrons in solids, energy bands, semiconductors.
Prerequisite: PHY 4604;
Corequisite: PHY 4523.
PHZ 4710 Introduction to Biological physics 3 Credits
Grading Scheme: Letter Grade
The physics of biological systems, including physics of proteins and nucleic acids, biomolecular motors and diffusional signaling and sensing. Important experimental tools such as magnetic resonance and synchrotron x-ray crystallography are also discussed. (WR)
Prerequisite: one year of introductory physics (PHY 2053/PHY 2054, PHY 2048/PHY 2049, or the equivalent) and one year of calculus (MAC 2311/MAC 2312, or the equivalent).
Attributes: Satisfies 2000 Words of Writing Requirement