Physics

Physics is the scientific study of the basic forces of nature, including such topics as mechanics, heat, electricity, magnetism, waves, optics, quantum mechanics, and atomic and nuclear structure.

Students take courses to prepare for a physics major, to fulfill general education requirements, and to meet prerequisites for related courses and programs, including engineering, science, and computer science.

Career options for those with a bachelor's degree in physics include engineering, research, and teaching in universities, government, and private industry.

Academic and Career Pathway

Math and Sciences (https://www.miracosta.edu/academics/degree-and-certificate-programs/math-and-sciences/)

Contact Information

Chair: Erika Peters(Physical Sciences)
Dean: Michael Fino
https://www.miracosta.edu/academics/degree-and-certificate-programs/math-and-sciences/physics/index.html (https://www.miracosta.edu/academics/degree-and-certificate-programs/math-and-sciences/physics/)

Department: Physical Sciences
Office: Building OC4800, 760.757.2121 x6924

Full-Time Faculty

Kellita Felton
Khang Nguyen
Erika Peters

Courses

PHYS 111: Introductory Physics I
Units: 4
Prerequisites: MATH 131.
Enrollment Limitation: Not open to students with prior credit in PHYS 111H, PHYS 151, or PHYS 151H.
Acceptable for Credit: CSU, UC
Lecture 3 hours, laboratory 3 hours.
Course Typically Offered: Fall

This first course of a two-semester physics sequence covers the properties of matter, mechanics, heat, and waves, including sound. It is intended for students majoring in pre-medicine, pre-dentistry, pre-optometry, and similar areas. UC CREDIT LIMITATION: Credit for either series PHYS 111 and PHYS 112 or PHYS 151, PHYS 152, and PHYS 253. C-ID PHYS-105, PHYS-100S (with PHYS 112).

PHYS 112: Introductory Physics II
Units: 4
Prerequisites: PHYS 111.
Enrollment Limitation: Not open to students with prior credit in PHYS 112H, PHYS 152,
Acceptable for Credit: CSU, UC
Lecture 3 hours, laboratory 3 hours.
Course Typically Offered: Spring

This second of a two-course physics sequence covers light, electricity, magnetism, and atomic physics. UC CREDIT LIMITATION: Credit for either series PHYS 111 and PHYS 112 or PHYS 151, PHYS 152, and PHYS 253. C-ID PHYS-110, PHYS-100S (with PHYS 111).

PHYS 151: Principles of Physics I
Units: 4
Prerequisites: MATH 150 or MATH 150H.
Enrollment Limitation: Not open to students with prior credit in PHYS 151H.
Acceptable for Credit: CSU, UC
Lecture 3 hours, laboratory 3 hours.
Course Typically Offered: Fall, Spring

This course provides a thorough understanding of the fundamental principles of physics in the area of mechanics and fluids. It is intended primarily for engineering, physics, mathematics, and science majors. UC CREDIT LIMITATION: Credit for either series PHYS 111 and PHYS 112 or PHYS 151, PHYS 152, and PHYS 253. C-ID PHYS-205 and PHYS-200S (with PHYS 152 and PHYS 253).

PHYS 152: Principles of Physics II
Units: 4
Prerequisites: MATH 155 and PHYS 151.
Enrollment Limitation: Concurrent enrollment in MATH 155 if math prerequisite not met. Not open to students with prior credit in PHYS 152H.
Acceptable for Credit: CSU, UC
Lecture 3 hours, laboratory 3 hours.
Course Typically Offered: Fall, Spring

This course provides a thorough understanding of the fundamental principles of physics in the areas of thermodynamics, electricity, electrical circuits, magnetism, and electromagnetic fields. It is intended for engineering, physics, mathematics, and science majors. UC CREDIT LIMITATION: Credit for either series PHYS 111 and PHYS 112 or PHYS 151, PHYS 152, and PHYS 253. C-ID PHYS-210 and PHYS-200S (with PHYS 151 and PHYS 253).

PHYS 253: Principles of Physics III
Units: 4
Prerequisites: PHYS 152.
Enrollment Limitation: Concurrent enrollment in PHYS 152 if prerequisite not met. Not open to students with prior credit in PHYS 253H.
Acceptable for Credit: CSU, UC
Lecture 3 hours, laboratory 3 hours.
Course Typically Offered: Fall, Spring

This course provides a thorough understanding of the fundamental principles of physics in the areas of vibrations, waves, sound, optics, special relativity, quantum mechanics, and atomic and nuclear physics. It is intended for engineering, physics, mathematics, and science majors. UC CREDIT LIMITATION: Credit for either series PHYS 111 and PHYS 112 or PHYS 151, PHYS 152, and PHYS 253. C-ID PHYS-215 and PHYS-200S (with PHYS 151 and PHYS 152).

PHYS 280: Introduction to Electronics
Units: 3
Prerequisites: PHYS 152.
Acceptable for Credit: CSU, UC
Lecture 2 hours, laboratory 3 hours.
Course Typically Offered: Spring

This combined lecture and lab course offers an introduction to the theory and design of electrical circuits. Topics include DC and AC circuit analysis, diodes, transistors, operational amplifiers, and digital circuits.

PHYS 292: Internship Studies
Units: 0.5-14
Prerequisites: None
Corequisite: Complete 54 hours of work per unit, paid or unpaid.
Enrollment Limitation: Instructor, dept chair, and Career Center approval. Fourteen unit maximum in any combination of work experience education and/or internship studies per semester.
Acceptable for Credit: CSU
Course Typically Offered: Fall, Spring, and Summer

This course provides students the opportunity to apply the theories and techniques of their discipline in an internship position in a professional setting under the instruction of a faculty-mentor and site supervisor. It introduces students to aspects of the roles and responsibilities of professionals employed in the field of study. Topics include goal-setting, employability skills development, and examination of the world of work as it relates to the student's career plans. Students must develop new learning objectives and/or work/intern at a new site upon each enrollment.