PHOT 125  Photographic Portraiture  
3 hours lecture - 4½ hours laboratory  
**Prerequisite:** A minimum grade of 'C' in PHOT 130  
**Transfer acceptability:** CSU  
Techniques and styles of photographic portraiture. Studio and non studio applications will be explored using black and white and color films or digital capture. Emphasis on lighting equipment and techniques.

PHOT 296  Special Projects  
(1, 2, 3)  
3, 6, or 9 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in PHOT 105  
**Transfer acceptability:** CSU  
Requires demonstrated proficiency in photography and the creative ability and initiative to work independently on a particular sustained project which does not fit in the context of regularly scheduled classes. Could include portfolio preparation.

Physical Education  
See Kinesiology

Physical Science (PHSC)  
Contact the Physics and Engineering Department for further information.  
(760) 744-1150, ext. 2505  
Office: NS-355B

### COURSE OFFERINGS

**PHSC 100**  Introduction to Physical Science  
3 hours lecture  
**Transfer acceptability:** CSU; UC - No credit for students with prior lecture credit in ASTR, CHEM, GEOL or PHYS  
The study of selected topics from the fields of astronomy, geology, physics, chemistry, and their related sciences through lectures, films, and demonstrations. A general education course designed particularly for non science majors. For teacher training see PHSC 101.

**PHSC 100L**  Introduction to Physical Science Laboratory  
(1)  
3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in PHSC 100, or concurrent enrollment in PHSC 100  
**Transfer acceptability:** CSU; UC - No credit for students with prior lab credit in ASTR, CHEM, GEOL or PHYS  
The study of selected topics from the fields of astronomy, geology, physics, chemistry, and their related sciences through lab exercises. A general education course designed particularly for non-science majors. For teacher training see PHSC 101L.

**PHSC 101**  Principles of Physical Science  
3 hours lecture  
**Transfer acceptability:** CSU  
The study of selected topics from the fields of physics and chemistry and their related sciences through lectures, films, and demonstrations. A general education course designed particularly for non-science majors. Especially recommended for teacher training.

**PHSC 101L**  Principles of Physical Science Laboratory  
(1)  
3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in PHSC 101, or concurrent enrollment in PHSC 101  
**Transfer acceptability:** CSU  
The study of selected topics from the fields of physics and chemistry and their related sciences through lab exercises. A general education course designed particularly for non-science majors; not open to majors in physics, chemistry, or engineering. Especially recommended for teacher training.

### Physics (PHYS)

Contact the Physics and Engineering Department for further information.  
(760) 744-1150, ext. 2505  
Office: NS-355B

#### COURSE OFFERINGS

**PHYS 101**  Introduction to Physics  
4 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in MATH 50 or one year of high school Algebra  
**Note:** Not open to students with prior credit in PHYS 100, 110, 115, 120, 125, 230, 231, and 232  
**Transfer acceptability:** CSU; UC  
An introductory survey course in classical and modern physics. Not intended for science majors.

**PHYS 102**  Introduction to Physics (Lecture)  
3 hours lecture  
**Prerequisite:** A minimum grade of 'C' in MATH 50 or one year of high school Algebra  
**Note:** Not open to students with prior credit in PHYS 101, 110, 115, 120, 125, 230, 231, and 232  
**Transfer acceptability:** CSU; UC  
An introductory survey course in classical and modern physics. Not intended for science majors.

**PHYS 120**  General Physics  
4 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in MATH 110  
**Recommended preparation:** MATH 115  
**Transfer acceptability:** CSU; UC  
C-ID PHYS 105; C-ID PHYS 100S for PHYS 120 and 121 combined  
The fundamental principles of classical mechanics, wave motion, sound, thermodynamics, and fluids.

**PHYS 121**  General Physics  
4 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in PHYS 120  
**Transfer acceptability:** CSU; UC  
C-ID PHYS 110; C-ID PHYS 100S for PHYS 120 and 121 combined  
A second semester continuation of PHYS 120. The fundamental principles of optics, electricity, magnetism, and modern physics.

**PHYS 130**  Preparation for Principles of Physics  
3 hours lecture  
**Prerequisite:** A minimum grade of 'C' in MATH 140, or concurrent enrollment in MATH 140  
**Transfer acceptability:** CSU  
Provides the applied mathematics and problem solving/presentation skills necessary for success in an introductory physics sequence for physics and engineering majors. Students will learn how to analytically solve physics problems and properly prepare laboratory reports. Reinforcement of math concepts will be emphasized throughout.

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*UC credit limitations --
- No credit for PHYS 101 or 102 if taken after 120, 200, or 230
- PHYS 120, 121 or 200, 201 or 230, 231, 232 combined: maximum credit, one series
- PHYS 200 and 230 combined: maximum credit, one course
- PHYS 201 and 231 combined: maximum credit, one course
PHYS 197  Physics Topics  (3-5)
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture or laboratory may be scheduled by the department. Refer to Class Schedule.
Transfer acceptability: CSU; UC - Credit determined by UC upon review of course syllabus
Topics in Physics. See Class Schedule for specific topic offered. Course title will designate subject covered.

PHYS 200  Fundamentals of Physics  (5)
4 hours lecture - 3 hours laboratory
Prerequisite: A minimum grade of 'C' in MATH 140, or concurrent enrollment in MATH 140
Note: PHYS 200-201 series not recommended for majors in engineering, computer science or physics; PHYS 230 series recommended for majors in engineering, computer science, or physics.
Transfer acceptability: CSU; UC
A calculus-based course in classical mechanics, waves, sound, fluids and thermodynamics, with an emphasis on life science, pre-professional, and architectural fields.

PHYS 201  Fundamentals of Physics  (5)
4 hours lecture - 3 hours laboratory
Prerequisite: A minimum grade of 'C' in PHYS 200; A minimum grade of 'C' in MATH 141, or concurrent enrollment in MATH 141
Note: PHYS 200-201 series not recommended for majors in engineering, computer science or physics; PHYS 230 series recommended for majors in engineering, computer science, or physics.
Transfer acceptability: CSU; UC
A calculus-based course in classical electromagnetism, optics and atomic physics, with an emphasis on life science, pre-professional, and architectural fields.

PHYS 220  Principles of Physics  (5)
4 hours lecture - 3 hours laboratory
Prerequisite: A minimum grade of 'C' in PHYS 200, or concurrent enrollment in MATH 141
Recommended preparation: PHYS 130
Transfer acceptability: CSU; UC
C-ID PHYS 205; PHYS 200S for PHYS 230, 231 and 232 combined
Classical mechanics, thermodynamics, and fluid dynamics. Required for students whose major field is physics, chemistry, or engineering. This is the first semester of a three semester sequence.

PHYS 221  Principles of Physics  (5)
4 hours lecture - 3 hours laboratory
Prerequisite: A minimum grade of 'C' in PHYS 220; A minimum grade of 'C' in MATH 205, or concurrent enrollment in MATH 205
Transfer acceptability: CSU; UC
C-ID PHYS 210; PHYS 200S for PHYS 230, 231 and 232 combined
Classical electromagnetism, electromagnetic waves, and optics. Required for students whose major field is physics, chemistry, or engineering. This is the second semester of a three semester sequence.

PHYS 222  Principles of Physics  (4)
3 hours lecture - 3 hours laboratory
Prerequisite: A minimum grade of 'C' in PHYS 221 or PHYS 201, and MATH 205
Transfer acceptability: CSU; UC
C-ID PHYS 215; PHYS 200S for PHYS 230, 231 and 232 combined
Modern Physics. Required for students whose major field is physics, chemistry, or engineering. This is the third semester of a three-semester sequence.

PHYS 285  Directed Study in Physics  (1, 2, 3)
3, 6, or 9 hours laboratory
Prerequisite: Approval of project or research by department chairperson
Transfer acceptability: CSU
Designed for the student who has demonstrated a proficiency in physics subjects and the initiative to work independently on a particular sustained project which does not fit into the context of regularly scheduled classes.