

**Department of Physics and Engineering**  
**School of Natural Sciences, Mathematics, and Engineering**

**Department Chair:** Jorge Talamantes

**Program Office:** Science Building III, 308

**Telephone:** (661) 654-2664

**email:** physics@csub.edu

**Website:** www.csub.edu/Physics/

**Faculty:** I. Ampatzidis, L. Cabrales Arriaga, A. Dzyubenko, G. Dzyubenko, V. Gasparyan, J. Lewis, Y. Li, T. Moore, R. Negrini, K. Prasai, D. Saini, K. Salehpoor, J. Talamantes

**Program Description**

The Physics program serves multiple roles in the College's educational system. Not only does it prepare students for advanced study and professional work in physics and other physical sciences such as geophysics, atmospheric physics, astronomy, etc., but it also provides the necessary education in physics for students of other sciences.

In view of the highly technological nature of the society in which we live, the department also places high priority on the education of the non-science student. The Physics program faculty participate in teaching the SCI courses, which are designed to help these students achieve an understanding of the methods and goals of science and to provide them an opportunity to seriously consider and discuss important socio-scientific-technological questions.

Although the minimum degree requirements are stated below, majors in Physics who plan to pursue careers as professional physicists are advised to take additional physics and mathematics courses. Members of the Physics faculty will be pleased to provide counseling on recommended programs to any students who may wish to pursue this major. For student learning objectives and more information, visit our website at www.csub.edu/Physics.

**Requirements for the Bachelor of Science Degree in Physics**

<b>Total Units Required to Graduate</b>		<b>120 units</b>
<b>Major Requirements</b>		<b>76 units</b>
Physics & Elective Courses	55	
Cognates	21	
<b>Minor Requirement</b>		<b>0 units</b>
<b>Other University Requirements</b>		<b>42 units</b>
Freshman Seminar	2	
American Institutions	6	
Area A	9	
Area B	3*	
Area C	6	
Area D	6	
SELF	0*	
Theme Area B	0*	
Theme Area C	3	
Theme Area D	3	
Junior Diversity	3	
Capstone	1	

    GWAR (Exam) or Class 0-3

\*satisfied in major, minor or other university requirement

**Additional Units** **2 units**

See <http://www.csub.edu/schedules.shtml> for current list of courses satisfying university-wide requirements.

**Note:** One (1) semester unit of credit normally represents one hour of in-class work and 2-3 hours of outside study per week.

### **Requirements for the Major in Physics**

1. **Lower Division**  
PHYS 1010, 1020, 2010, 2020, 2070, 2210, 2220, 2230
2. **Upper Division**  
PHYS 3010, 3070, 3110, 3120, 3210, 3220, 3310, 3500, 3510, 4010, 4410, 4420, 4900
3. **At least six units chosen from the following courses:**  
PHYS 3320, 3520, 4510, 4520, 4700, 4800, and upper-division MATH, ECE, or ENGR with agreement from the academic advisor.
4. **Cognates**  
MATH 2310 or 2510, 2320 or 2520, 2530, 2540, CHEM 1000, 1001

Additional courses in Mathematics may be advised, depending upon the program needs of the individual student.

### **Requirements for the Minor in Physics**

Although no minor is required for the BS degree with a major in Physics, a minor in Physics is available, consisting of 12 units, 6 of which must be in upper division courses that count toward the major.

### **Science Teacher Preparation Program Leading to a Degree in Natural Sciences with a Concentration in Physics**

Completion of this program leads to a BS degree in Natural Sciences with a Concentration in Physics. This degree program offers the required subject matter content to help prepare prospective science teachers to apply for subject matter certification in California by taking the California Subject Matter Examinations for Teachers (CSET) in Science. Passage of these exams is required to certify subject matter competency before entering a teacher credential program for prospective teachers. Additional information may be obtained from the Physics and Engineering Department office (661) 654-2664.

For a detailed description of the course requirements please turn to the Natural Sciences section in this catalog.

### **Academic Regulations**

A grade of "C-" in PHYS 2210 and 2220 is the minimal grade acceptable for progression into subsequent Physics courses. Students who fail to achieve at least a "C-" may repeat the course. If a course is satisfactorily completed, the prior unsatisfactory grade will no longer bar a student from continuing in the Physics program.