

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

**NEW COURSE PROPOSAL**

PROGRAM AREA \_\_\_\_\_ BIOLOGICAL AND PHYSICAL SCIENCES

**1. Catalog Description of the Course.** *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of \_\_\_ units); time distribution (Lecture \_\_\_ hours, laboratory \_\_\_ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

**PHYS 200: GENERAL PHYSICS I (4)**

Three hours of lecture and one three-hour lab per week. Lab fee required.

Prerequisite: MATH 150

A calculus-based introduction to the concepts and principles of physics. The areas covered include classical mechanics, wave motion and thermal physics. Practical examples will be used to illustrate the relationship between physics and other disciplines, including the life sciences, and to develop problem-solving skills. Laboratory sessions will focus on computer-simulated experiments.

GenEd: B1

**2. Mode of Instruction.**

	<b>Units</b>	<b>Hours per Unit</b>	<b>Benchmark Enrollment</b>
Lecture	___3___	___1___	___20___
Seminar	_____	_____	_____
Laboratory	___1___	___3___	___20___
Activity	_____	_____	_____

**3. Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

This course is a requirement for Computer Science and Math majors, for those taking the Applied Physics minor and an option for Biology majors.

Through this course, students will be able to

- explain the basic concepts and principles of physics
- apply problem-solving skills to practical problems of everyday life
- demonstrate the role of physics in other disciplines, and apply their understanding to these disciplines
- search and retrieve practical information
- use a variety of simulation programs, featuring data analysis and display, to derive conclusions about experimental situations
- organize and express ideas clearly and convincingly in oral and written forms.

**4. Is this a General Education Course**                      YES                      NO  
 If Yes, indicate GE category:

<b>A (English Language, Communication, Critical Thinking)</b>	
<b>B (Mathematics &amp; Sciences)</b>	<b>X</b>
<b>C (Fine Arts, Literature, Languages &amp; Cultures)</b>	
<b>D (Social Perspectives)</b>	
<b>E (Human Psychological and Physiological Perspectives)</b>	

**5. Course Content in Outline Form.** *[Be as brief as possible, but use as much space as necessary]*

Measurement and units  
Dimensional analysis, estimation and significant figures  
Vectors and motion in one and two dimensions  
Work and energy  
Momentum and collisions  
Circular and oscillatory motion  
Traveling waves: transverse and longitudinal  
Sound waves and the Doppler effect  
Superposition and interference of waves: standing waves and beats  
Temperature and thermometers  
Heat and internal energy  
First Law of Thermodynamics and applications  
Kinetic theory of gases  
Heat engines, entropy and Second Law of Thermodynamics

**6. References.** [Provide 3 - 5 references on which this course is based and/or support it.]

Text Book:

*Physics for Scientists and Engineers with CD-ROM*. R.A.Serway, R.J.Beichner. 5<sup>th</sup> Ed. Harcourt College Publishers, 2000.  
(ISBN 0-03-022657-0)

(Other references:

*Physics*, Douglas C. Giancoli, 5<sup>th</sup> edition, Prentice Hall, 1998

*Contemporary College Physics*, E. Jones, R. Childers, McGraw-Hill, 1999

*Conceptual Physics*, Paul G. Hewitt, 9<sup>th</sup> edition, Addison Wesley Publishing, 2001).

**7. List Faculty Qualified to Teach This Course.**

New faculty

Dr. Geoff Dougherty

**8. Frequency.**

a. Projected semesters to be offered: Fall  X  Spring      Summer    

**9. New Resources Required.**

a. Computer (data processing), audio visual, broadcasting needs, other equipment

b. Library needs

c. Facility/space needs

To be run in the PC Lab

**10. Consultation.**

Attach consultation sheet from all program areas, Library, and others (if necessary)

**11.** If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

\_\_\_\_\_  
Proposer of Course

\_\_\_\_\_  
Date

Geoff Dougherty 12/12/02