

Capital Community College

Course Outline

Physics I

SECTION I

SUBJECT AREA & COURSE NUMBER: PHY*121

COURSE TITLE: GENERAL PHYSICS I

COURSE CATALOG DESCRIPTION: Fundamental principles and properties related to mechanics, matter, heat and sound. Topics include kinematics, forces and Newton's Laws of Motion, dynamics of uniform circular motion, work and energy, momentum, elasticity, fluids, temperature and heat, kinetic theory of gases, thermodynamics, waves and sound. Three hours of classroom instruction and three hours of laboratory each week.

LECTURE HOURS PER WEEK: 3

CREDIT HOURS: 4

PREREQUISITE(S): MAT* 137 and MAT* 181

SECTION II

A. SCOPE: The course covers Newtonian Mechanics and classical physics from an elementary algebra-trigonometry based level.

B. REQUIRED WORK: Determined by the instructor as described in the course syllabus

C. ATTENDANCE AND PARTICIPATION: Students are expected to attend each class, arrive on time, take exams at the scheduled times, and participate in the in-class learning process. (Specific instructor policies are included in the course syllabus)

D. METHODS OF INSTRUCTION: The methods of instruction are determined by each instructor and may include but are not limited to lecture, lecture/discussion, small group collaborative learning, experiment/exploration, distance learning, student presentations, use of technologies such as audio-visual materials, computer, language laboratory, and calculator.

2004

E. OBJECTIVE, OUTCOMES, ASSESSMENT:

The following objectives and outcomes represent the department's core requirements for student achievement.

| LEARNING OBJECTIVES | LEARNING OUTCOMES | ASSESSMENT METHODS |
|-------------------------------------|-------------------|--------------------|
| To demonstrate an understanding of: | Student will: | As measured by: |

| | | |
|-----------------|---|--|
| Mechanics, | Prove and apply the principles of Newton's laws, circular motion, work and energy, momentum | Written in- class quizzes, tests, and examinations; presentations to the class; out-of-class projects, written reports; portfolios; homework assignments |
| Matter | Prove and apply the principles and laws of elasticity and fluids. | |
| Heat | Prove and apply the principles and laws of temperature and heat, kinetic theory of gases, and thermodynamics. | |
| Waves and sound | Prove and apply the principles and laws of generation and propagation of waves in fluid and gaseous media. | |

Note 1: The foregoing table of learning outcomes should not be considered exhaustive; other learning outcomes may also support the objectives. The list is not intended to limit the learning outcomes that can be used to support the objectives.

Note 2: The order in which the learning outcomes are addressed and the relative emphasis given to each will vary from instructor to instructor.

Note 3: There is no expectation that an instructor will employ all the assessment methods or any particular subset of them. Also, the particular list of assessment methods is not exhaustive. Other methods that measure the learning outcomes may be used.

Note 4: It is important to recognize that courses are not delivered in a social vacuum. Any bona fide assessment of a course must take account of out-of-class life demands on students that adversely impact academic success.

F. TEXTS AND MATERIALS: A text selected by the Mathematics Section of the Science and Mathematics Department with content and presentation that support the Learning Objectives and Outcomes given in Part E above.

G. INFORMATION TECHNOLOGY: Graphing calculator and DERIVE™ (a computer algebra system)