

a-g Physics

Course Description:

This is an introductory course in the foundations of physics. Emphasis should be on the development of an intuitive understanding of physics principles, as well as problem solving with the use of mathematics. The laboratory work should help students develop reasoning power and the ability to apply physics principles, as well as acquaint students with sound laboratory techniques.

It is strongly suggested that students take this course at the community college rather than through an independent study program in order to fulfill the University of California A-G requirement.

Prerequisite(s): Algebra 2 and Biology and/or Chemistry

Length of Course: One year required for graduation

Year in School Taken: 11 or 12

Course Objectives/Details:

The course should include mastery of and lab work featuring the following topics:

- Scientific Method, order of magnitude estimates
- Motion and Forces
- Conservation of Energy and Momentum
- Heat and Thermodynamics
- Waves
- Electronic and Magnetic Phenomena
- Light, lenses, and mirrors
- Atomic and nuclear physics, nuclear fission and fusion

Laboratory Assignments:

- Measurement
- Mechanics
- Properties of Matter
- Energy and Motion
- Waves
- Electricity and Magnetism
- Light
- Atomic and Nuclear Physics
- Relativity

Methods for Evaluating Student Performance:

Evaluation of student performance is based on individual abilities, interests, and talents. Methods by which student progress is assessed will be through a variety and/or combination of methods. The methods available include but are not limited to the following:

- Monthly review of work by education specialist (credentialed teacher),

Portfolios

Parent facilitator and education specialist observation

Student demonstrations,

Student grades,

Student work samples

Written examination

Research projects

Texts:

Physics: Principles and Problems

Glencoe McGraw-Hill, 1999

ISBN: 002825473