Effective Fall 2001
Effective Spring 2016, with revisions

COURSE PROPOSAL FOR NEW GENERAL EDUCATION COURSE
PHY 1151G -- Principles of Physics I

1. Catalog Description

a.	Course level: Title:	PHY 1151G
b.		Principles of Physics I
c.	Credit:	3-0-3
d.	Terms to be offered: Short	F, S, Su
e.	title:	Prin Phys I
f.	Course description:	Mechanics; Newton's Laws of Motion, Energy, Momentum, Conservation Principles, Gravity, Simple Harmonic Motion, Waves, Heat. This course is designed for majors in geology, life sciences, health professions, industrial technology, etc. Physics 1152G must be taken concurrently. Credit not given for both PHY 1151G and PHY 1351G.
g.	Prerequisite:	MAT 1271 or a satisfactory ACT mathematics score.

h. This course is writing active.

2. Student Learning Objectives

a. In successfully completing this course, students will:

- understand the basic principles of mechanics and thermodynamics and sound. (critical thinking)
- apply geometry, algebra, and trigonometry to describe these principles. (critical thinking)
- identify and use the appropriate physical and mathematical laws to quantifiably explain phenomena that occur in the natural world and in various disciplines. (critical thinking)
- understand the underlying principles of energy, work, and conservation laws. (citizenship)
- analyze and answer mechanics problems; in a typical semester over 100 homework problems (all of which are word problems), will be completed, corrected and returned to the student. (writing, critical thinking)
- analyze exam problems and synthesize solutions by applying the appropriate set of physical and mathematical concepts. (critical thinking)

b. Students will also:

- become scientifically literate about the basic laws and vocabulary that are of use in the physical universe, related to energy, nuclear disarmament, the space program, and some of the physical and thermodynamic aspects of the environment and living systems.
- be able to apply problem-solving techniques in the areas of geology, industrial technology, life science, and the medical professions.
- prepare for the MCAT exam (in the case of pre-medical students).

3. Course Outline

Week	Content
1	Units, Vectors, Vector Manipulations
2	Kinematics in One Dimension
3	Kinematics in Two Dimensions
4	Forces and Newton's Laws of Motion
5	Dynamics of Uniform Circular Motion
6	Work and Energy
7	Impulse and Momentum
8	Rotational Kinematics
9	Rotation Dynamics
10	Elasticity and Simple Harmonic Motion
11	Fluids
12	Temperature, Heat and Heat Transfer
13	Kinetic Theory
14	Thermodynamics
15	Waves, Sound, Interference

4. Evaluation of Student Learning

a. Achievement of student learning will be evaluated based on the following:

Solutions to homework (word problems)	20%
Three hour exams	60%
Final Exam	20%

Each of the above involves identifying the relevant information in the statement of the problem, selecting the appropriate strategy for analyzing the information and using appropriate mathematical tools and techniques to solve the problem.

b. This course is a writing-active course. All homework problems (typically 100 word problems) are answered in a method that requires all work and assumptions about the problems to be presented in a clear and reasoned form. This is also the format of the tests.

5. Rationale

a. Segment

This course will be placed in the physical science component of the scientific awareness segment of the general education program. The course meets the requirements of that segment since students in this course must:

(1) analyze mechanics problems and synthesize solutions by applying the appropriate set of physical and mathematical concepts. (critical thinking)

(2) identify and use the appropriate physical and mathematical laws to quantifiably explain phenomena that occur in the natural world and in various disciplines. (critical thinking)

b. Level and prerequisites

This course is the first in a sequence of physics courses and is therefore, appropriately, a freshman level course. For those students who do not have a satisfactory ACT mathematics score, PHY 1151G has a mathematics prerequisite of

MAT 1440G and 1330 or MAT 1340 which could also be taken in the first semester of the freshman year by most students who are interested this course.

c. Similarity to existing courses and effect upon programs of any department

(1) Justify course if it is similar to an existing course.
This is a revision of Physics 1151 and maintains the same curriculum ID as 1151. This course is similar to PHY 1351G, but requires a lower level of math expertise. It also covers thermodynamics and waves, which is not covered in 1351G.

(2) Courses to be deleted
No courses will be deleted or added. This is a revision of an existing course.

(3) Program modification if the course is approved
No modifications of any programs are expected.

d. Programs, majors, or minors in which the course is to be required or used as an appropriate elective
This course is required in Biological Sciences, Geology, Industrial Technology, Pre-Dentistry, Pre-Medicine, Pre-Veterinary Medicine.

6. Implementation

a. Faculty member(s) to whom the course will be assigned initially
Any Physics faculty member may be assigned to teach this course.

b. Textbooks(s) and supplementary material to be used, including publication dates
Physics by Cutnell and Johnson (4th edition, 1998)

c. Additional costs to students
There will be no additional costs to students.

d. List the term in which the course will first be offered
Spring 2001

7. Community College Transfer
A community college course may be judged equivalent to this course.

8. Date approved by the department: March 31, 2000

9. Date approved by the college curriculum committee: April 18, 2000

10. Date approved by CAA: October 19, 2000

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