I. Course Number and Title
   A. Course Number and Title: PS 215 – College Physics I
   B. Prerequisite or Corequisite: MAT 110 Calculus with Analytic Geometry II
   C. Semester Hours Lecture: Three per week
   D. Semester Hours Lab: Three per week
   E. Total Credit Hours: Five

II. Department: Math and Science.

III. Course Description
Covers in detail the analysis of units, physical quantities and vectors, motion, forces and equilibrium, oscillations and waves, gravitation, work, energy and thermodynamics. A first semester introductory course for students who require calculus-based physics such as engineering, chemistry, physics and pre-med majors. Includes three hours of lecture, one hour of recitation and two hours of lab per week.

IV. Course Competencies
1. The student will become familiar with the concepts, definitions, units and general nature of motion, forces, energy, heat, oscillations and vibrations.
2. The student will understand the scientific models and laws which govern the physical interactions of the various phenomena listed in competency 1.
3. The student will improve their problem solving abilities by applying the models and laws listed in competency 2 to physical situations that are part of the phenomena listed in competency 1.
4. The student will further improve their measurement and laboratory techniques.
5. The student will learn how to run computer simulations from the physics resources available on the internet.
6. The student will acquire the skills and background necessary to take PS 216.

V. Assessment Items
The primary method of evaluation will be through examinations. In addition, there will be a minimum of 2 formal lab write-ups. A written report of the results of a simulation run on a physics website chosen by the instructor (e.g. www.myphysicslab.com).

VI. Course Content
1. Measurement and Units
2. Motion in a Straight Line
3. Vectors
4. Motion in Two and Three Dimensions
5. Forces and Motion
6. Work and Energy
7. Rotational Kinematics
8. Mechanical Properties of Matter
9. Gravitation
10. Thermodynamics
11. Oscillations and Waves

VII. Instructional Materials