Course Title & Number: PHY121: General Physics I

Competency Area: **SCIENTIFIC REASONING** (Goal: Students will become familiar with science as a method of inquiry. Students will develop a habit of mind that uses quantitative skills to solve problems and make informed decisions.)

Faculty submitting the Learning Outcomes: Narendra Sharma ***Date***: 3/7/2013

[Instructions: *Please match the Learning Outcomes in the left hand column to those of the course you are submitting for Gen Ed approval. List the corresponding course outcomes in the right hand column to indicate a match.*]

BOR TAP's Learning Outcomes	Corresponding Outcomes for Course Named Above
1. Explain the methods of scientific inquiry that lead to the acquisition of knowledge. Such methods include observations, testable hypotheses, logical inferences, experimental design, data acquisition, interpretation, and reproducible outcomes.	• Apply the differences between one dimensional motion and two dimensional motion to solve problems. • Describe and apply Newton's Laws of Motion to solve motion problems. • Construct data tables, graphs and charts from data collected in a laboratory.
2. Apply scientific methods to investigate real-world phenomena, and routine and novel problems. This includes data acquisition and evaluation, and prediction.	• Solve one dimensional motion problems using the concepts of position, velocity and acceleration. • Apply the differences between one dimensional motion and two dimensional motion to solve problems. • Describe and apply Newton's Laws of Motion to solve motion problems. • Evaluate the rigor of conclusions from laboratory experiments by comparing different data sets. • Present data and conclusions in a coherent lab report.
3. Represent scientific data symbolically, graphically, numerically, and verbally.	• Construct data tables, graphs and charts from data collected in a laboratory. • Evaluate the rigor of conclusions from laboratory experiments by comparing different data sets. • Present data and conclusions in a coherent lab report.
4. Interpret scientific information and draw logical references from	• Construct data tables, graphs and charts from data collected in a laboratory.

representations such as formulas, equations, graphs, tables, and schematics.	• Evaluate the rigor of conclusions from laboratory experiments by comparing different data sets.
5. Evaluate the results obtained from scientific methods for accuracy and/or reasonableness.	• Evaluate the rigor of conclusions from laboratory experiments by comparing different data sets. • Present data and conclusions in a coherent lab report.
	Additional Outcomes • Apply the major trigonometric functions and the Pythagorean Theorem to coordinates and vectors. • Classify different types of energy and use Conservation of Energy to solve motion problems. • Apply Conservation of Momentum to solve collision problems using vectors. • List Kepler's Laws of Planetary Motion and demonstrate the consistency of these laws with Newton's Law of Gravitation. • Apply the basic principles of linear motion to rotational problem solving. • Discuss the three basic phases of matter and how to define and measure their properties. • List the laws of thermodynamics and discuss how they apply to thermodynamic variables.