

**Course Title & Number:** BIO\*105 Introduction to Biology\_\_\_\_\_

**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:** \_\_\_\_Christina Gentile-Renda\_\_\_\_

**Date:** \_\_\_\_10-10-2013

**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.	Use the scientific method to study a problem, analyze and interpret scientific data using graphs and the metric system.
2. Apply scientific methods to investigate real-world phenomena, and routine and novel problems. This includes data acquisition and evaluation, and prediction.	<ol style="list-style-type: none"><li>1. Use the scientific method to study a problem, analyze and interpret scientific data using graphs and the metric system.</li><li>2. Describe the basic principles of atomic structure, organic and inorganic chemistry including types of chemical bonds and the concept of pH. Perform basic chemical experiments in the laboratory.</li></ol>
3. Represent scientific data symbolically, graphically, numerically, and verbally.	<ol style="list-style-type: none"><li>1. Use the scientific method to study a problem, analyze and interpret scientific data using graphs and the metric system.</li><li>2. List the main taxonomic categories used in classification and the characteristics used to delineate the main domains and kingdoms of organisms, as well as using and creating taxonomic keys.</li><li>3. Discuss the principles of transmission genetics and complete basic genetic problems.</li></ol>
4. Interpret scientific information and draw logical references from representations such as formulas, equations, graphs, tables, and	<ol style="list-style-type: none"><li>1. Use the scientific method to study a problem, analyze and interpret scientific data using graphs and the metric system.</li></ol>

schematics.	2. Describe the basic principles of atomic structure, organic and inorganic chemistry including types of chemical bonds and the concept of pH. Perform basic chemical experiments in the laboratory.
5. Evaluate the results obtained from scientific methods for accuracy and/or reasonableness.	1. Use the scientific method to study a problem, analyze and interpret scientific data using graphs and the metric system.
	<p><b>Additional Outcomes</b></p> <p>List and define the characteristics of life and describe experiments dealing with the origin of life.</p> <p>Explain the events of the cell life cycle.</p> <p>Describe the two main types of cells, citing the main organelles and their functions, being able to view cells using a microscope.</p> <p>Explain the processes of photosynthesis and cellular respiration.</p> <p>State the basic structure and function of plants.</p> <p>Describe the primary tissues, organs, and organ systems of animals, and the functions associated with each.</p> <p>State the basics of animal reproductive biology.</p> <p>Discuss and describe animal behavior with special emphasis on learning and social behavior.</p> <p>Describe the basic principles of ecology.</p> <p>Use molecular model kits to construct molecules if given the chemical formula in order to demonstrate how bonds stabilize atoms.</p> <p>Construct Punnett squares to predict genotypic and phenotypic ratios</p>

for offspring.

State early explanations for mechanisms which drive evolution and explain why these thoughts changed with our better understanding of the principles of heredity.

Distinguish between biogenesis and spontaneous generation, evaluating the evolutionary evidence provided by the experiments of Redi, and Miller and Urey.