Outcomes Assessment for Geology 352

(Introduction to Geophysics)

Course Outcomes	Objectives (SWABAT)
1. Understand the structure and composition of Earth	**1.1 Sketch the internal layers of Earth in terms of both compositional and rheological boundaries** **1.2 Describe changes in Earth's physical properties, such as seismic velocity, elastic moduli and density, as a function of depth.**
2. Understand the theory of plate tectonics and how it relates to processes such as volcanoes and earthquakes	**2.1 Calculate relative velocities between tectonic plates** **2.2 Describe the location and type of earthquakes occurring at different plate boundaries**
3. Understand how to integrate the physical principles and experimental data into the study of geologic processes on Earth and other planets	**3.1 Solve quantitative problems related to Earth processes using mathematical techniques such as graphing, algebra, trigonometry, and calculus.** **3.2 Utilize theoretical models to evaluate and interpret geophysical data** **3.3 Determine which geophysical tools are best used to address a specific geologic question**
4. Understand scientific methodology, scientific standards, and how to evaluate sources of scientific information	**4.1 Distinguish between the different forms of scientific literature, including peer reviewed articles, abstracts, textbooks, popular media, and web resources.** **4.2 Understand scientific publications and discuss their merits and limitations.**
5. Students will be comfortable using Excel spreadsheets, and/or MATLAB, and/or Mathcad for quantitative analysis	**5.1 Create and interpret graphs of geophysical data.** **5.2 Apply appropriate statistical techniques to evaluation geophysical data** **5.3 Propagate geophysical data and results through multiple phases of analyses toward a integrated solution.**
6. Students will develop problem-solving skills.	**6.1 Identify whether a result is physically meaningful and realistic and if not, determine the nature of the discrepancy.**