Learning Objectives For Bio113 Laboratory

1) Cognitive: Students who successfully complete this lab course will be able to:
   • Employ a scientific approach to answering biological questions and test hypotheses.
   • Analyze experimental data and reach logical conclusions.
   • Describe the big ideas of Evolution, Information and Cells through experimentation.
   • Organize an oral presentation for sharing scientific information with peers.
   • Prepare a written summary of experiments designed, performed and analyzed personally.
   • Design experiments to construct and test a new promoter.
   • Explain how antibiotic resistant bacteria appear in a matter of days.
   • Review the information contained within promoters.
   • Construct a reasonable explanation of why mammals evolved bitter taste receptors.

2) Skills
   • Pipet correctly
   • Use data from plate reader (absorbance and fluorescence)
   • Work with bacterial cells
   • Make dilutions of stocks
   • Use Excel, PPT/Keynote
   • Give oral presentation of your research
   • Edit a wiki page
   • Assemble DNA oligos, ligate and transform bacteria
   • Perform PCR and gel electrophoresis
   • Interpret DNA sequence data

3) Affective
   • Appreciate the scientific process as a means to learning.
   • Enjoy doing science that is novel.
   • Like the connection between lab and lecture.
   • Judge the impact of a minimal lab manual vs. a very detailed lab manual