

## 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