Student Learning Outcomes

**College:** Liberal Arts & Sciences  
**Department:** Biology  
**Degree Program:** Ph.D. in Biology

1) Develop skills to conduct independent research capable of generating multiple peer reviewed publications demonstrated through (holistic assessment will include assessment of):
   a. Ability to survey scientific literature appropriate for the dissertation research topic  
   b. Ability to generate hypotheses and propose appropriate experimental design  
   c. Ability to formulate expected results and conclusion  
   d. Ability to propose appropriate statistical analyses  
   e. Ability to propose future research questions

2) Demonstrate depth of knowledge about the specific sub-discipline related to the dissertation research topic.

3) Demonstrate breadth of knowledge about general biological principles related to the core required courses:
   a. Biochemistry  
   b. Cellular biology  
   c. Molecular biology  
   d. Hypothesis testing (i.e. statistics and experimental design)

4) Develop presentation and communication skills, as demonstrated by the ability to present a PowerPoint Presentation of the Dissertation Research Topic that (holistic assessment will include assessment of):
   a. Provides sufficient background information to justify the proposed project.  
   b. Clearly presents testable hypotheses  
   c. Clearly present the proposed experimental design and statistical analyses  
   d. Clearly outlines the expected results and possible pitfalls to the proposed research  
   e. Provides an overall clearly conceived and designed dissertation project.