

## EVOLUTION (BIOL 4100 / 6100)

### Essay #1 Study Guide

The following material represents the type of questions I will ask for Essay #1 from The Beak of the Finch. This is a study guide and not a list of questions that will be on the essay. The essay exam will consist of 5-7 questions. As is indicated in the syllabus, the essay exam will be completed in class on Thursday 12 October. Essay exams are scored from a maximum of 50 points.

#### Sample Questions:

1. Explain why Daphne Major is / has been a particularly good place to study natural selection.
2. Discuss why Darwin used observations from mockingbirds, instead of finches, on the Galápagos Islands to develop his early ideas on natural selection.
3. Discuss the contributions of Charles Lyell to the development of Darwin's ideas on natural selection.
4. What is artificial selection? Discuss how Darwin's observations of artificial selection in domestic pigeons contributed to the formulation of his theory of evolution by natural selection.
5. In The Origin of Species, Darwin poses the question, "...Why, if species have descended from other species by fine gradations, do we not everywhere see innumerable transitional forms?" Using information from the first half of The Beak of the Finch, discuss the answer to this question.
6. Discuss the evolutionary significance of variation in Galápagos finch beak measurements on Daphne Major.
7. Discuss why / how David Lack considered Galápagos finches as counter-examples to Darwinian evolution.
8. Using Darwin's finches as an example, discuss evidence presented in The Beak of the Finch for natural selection acting during a severely wet year, dry year, and a year of normal rainfall.
9. Discuss how sexual selection exacerbated the effects of drought-mediated natural selection on Darwin's finch beak sizes on Daphne Major.
10. An examination of the fossil record suggests that much evolution proceeds very slowly, as Darwin first proposed. The Galápagos finches, however, provide evidence that evolution can occur rapidly. How do you account for this discrepancy?