Here are some thought questions to test your knowledge of the material covered in the first third of this course (EEB318). Although the exam will be multiple-choice format, these questions are meant to illustrate the kind of information you should be prepared to understand. The scope of questions on the exam will of course include issues not included specifically in these study questions. Note that you will not be permitted a calculator during the exam, so any possible calculations on the exam would be very simple.

1) What are the major modes of selection on quantitative traits? What are their effects on trait values?
2) What is the difference between absolute and relative measures of fitness? Why would one be interested in one versus the other?
3) What are the two major modes of selection on genotypes? What are some other ways of describing selective effects on genotypes? What are the most likely effects of each on the fate of an allele?
4) Why are small estimates of s likely underrepresented in empirical studies?
5) What is the evidence for selection on bill morphology in Pyrenestes?
6) What is the difference between heritability in the broad sense versus the narrow sense?
7) How might you explain the concept of linkage disequilibrium to someone who has no knowledge of genetics?
8) How would migration lead to linkage disequilibrium?
9) Imagine a plant trait with genetic variation that is purely additive and that is transmitted with 50% efficiency from parents to offspring. If a horticulturalist selects for breeding those plants that have a mean trait value of 120, compared to the population mean value of 80, what would you expect the trait value to average in the next generation?
10) Why are Dr. Cutter's kids so cute?
11) Following an artificial selection experiment for directional selection on some trait, the selective pressure was relaxed. What are two plausible outcomes, and why might they occur?
12) What can cause correlated trait evolution?
13) What does it mean to say that a genotype x environment interaction is observed for a trait?