

# Bio 112 Spring 2009 Exam 1 Solutions

## Notes

- These solutions give only the main components of a full-credit answer.
- It is possible that we made a mistake when grading; if so, you can submit your exam for a re-grade and we will check it over. Instructions and notes for re-grading:
  - Re-grades must be in writing; because different TAs graded different questions, neither I nor your TA can re-grade your exam “on the spot”.
  - When asking for a re-grade, you should include the following:
    - Your whole exam. Do not mark on it in any way.
    - A note on a separate piece of paper (attached to your exam) explaining what needs to be re-graded. Don’t simply say, “Re-grade question 3”; you should explain why your answer deserves more credit that we gave. If it is an addition error, explain which numbers were added up incorrectly.
    - Re-grade requests that do not follow these rules will be returned without review.
  - Re-grade requests must be turned in to your TA or Brian White by March 27.
  - Re-graded exams will be returned in lab about 2 weeks later.

Grade Breakdown: avg = 62.73; st dev = 21.48

77 – 100: A                      41 – 52: D

65 – 76: B                        0 – 40: F

53 – 64: C

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- (1) a) There were 4 parts to a full-credit answer; we marked your answers using the 4 letters below:
- **P** (3 pts) Pre-existing variation. “Long ago, some birds had yellow feathers and some had green feathers.”
  - **G** (3 pts) Variation is Genetic. “Feather color is controlled genetically.”
  - **A** (5 pts) One genotype is at an Advantage. “A predator could see the yellow-feathered birds better than the green-feathered birds and ate them; as a result, the green-feathered birds reproduced more.”
  - **I** (1 pt) Increase in population. “Thus the frequency of birds with green feathers increased over time.”
- b) Many possible answers here; for full credit, survival had to depend on something other than genotype. For example, “A volcano erupted and killed all the birds on 80% of the island. By chance, the survivors were mostly green.”
- (2) a) i) True.  
ii) False. Mutations are random and cannot be targeted.  
iii) False. An allele can be selected for whether it is dominant or not.
- b) 213
- c) 321

