

Ian Eggleston

1. A complicated model that tries minimizing variations could potentially identify interactions which are not real. It increases the error of the model when there are more variables to account for. Similarly, simplifying a model has its own problems by not encompassing enough variables to explain the interactions. Punnet Squares can be used to show how a simple model of eye color does not account for all of the genetic variables. This model only looks at the parents and their eye colors to predict the child's, however there are underlying genetics that could interfere. For a quick guess of eye color, it works most of the time, but it could be improved upon.
2. B and C
3. Expected biomass is -1.7g because the model is  
$$\text{biomass(g)} = \text{water} * 0.043 + \text{nitrogen} * 0.192 + \text{phosph} * -0.027 - 1.7$$
$$\text{biomass(g)} = 0 * 0.043 + 0 * 0.192 + 0 * -0.027 - 1.7 = -1.7\text{g}$$
4.  $\text{biomass(g)} = 10 * 0.043 + 30 * 0.192 + 20 * -0.027 - 1.7 = 3.95\text{g}$
5. The difference between a linear regression and ANOVA is that ANOVA compares between groups, while linear regressions cannot.
6. Beta1 is the deterministic component.
7. Epsilon is the stochastic component