

# Solutions Quiz 11

## STAT 217 QUIZ 9-22

1. Describe an experiment you would analyze with a:

- One Way Anova

Which strain of apples have the most vitamins?

Factor 1: Type of apple (Fuji, Gala, Pink Lady)

Response: level of vitamin content

- Two Way Anova

What is the effect of fertilizer + sunlight on plant growth

Factor 1: Fertilizer (brand 1, brand 2)

Factor 2: Sunlight (low, med, high)

Response: plant height

2. Consider this example. You have one of those composting worm boxes and you want to see how sunlight and number of worms affect the speed at which your food scraps are decomposed. You collect twelve composting worm boxes and expose each to one of six treatments (Low sunlight/800 worms, Medium Sunlight/800 worms, High sunlight/800 worms, low sunlight/1200 worms, medium sunlight/1200 worms, and high sunlight/1200 worms). All other conditions are identical across boxes. After three months, you measure the biomass(g) in each box.

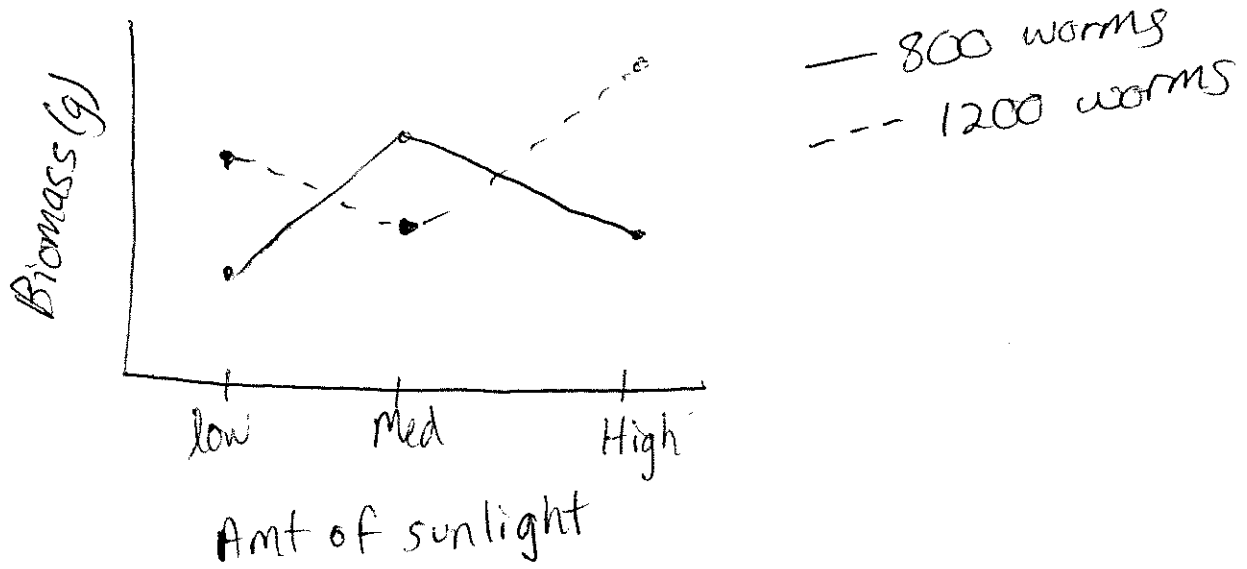
(a) List the factor(s) and the levels of each.

# of worms - 800, 1200

Amt of sunlight - low, med, high

(b) Will you use a one-way or a two-way ANOVA to analyze this design?

(c) Describe a two factor interaction in this context. Be descriptive and use pictures.



How the difference in mean biomass between 800 and 1200 worms changes across levels of sunlight.