**Mock lecture – Overview of regression**

**Questions to answer**

1. What is regression?
2. What questions can we answer with regression?
3. Which variables can we use in regression?
4. Where to after this?

**Slides**

1. Title slide –
   1. why do we use regression?
   2. almost every model we use, is some form of regression, t-test, anova, etc.
2. Basic form of a regression equation
   1. y ~ b0 + b1\*x
   2. Why do we use ~ instead of =.
   3. Naming conventions, independent/dependent, predictor/predicted
3. Example with continuous predictor and predicted
   1. How do we interpret the slope
4. Example with multiple predictors
   1. Highlight how the two slopes are additive, i.e. independent
5. What variables can we use?
   1. Continuous (if x1 is different to x2, higher or lower, how different)
   2. Ordinal (if x1 is different to x2, higher or lower)
   3. Categorical (if x1 is different to x2)
6. Example with a continuous and a categorical variable
7. What if effects are not additive ?
   1. Using interactions, we can model multiplicative effects rather than additive
   2. We use a combination of linear effects to ‘cheat’ the system
8. Example with a categorical and continuous variable interacting
9. Example with two continuous variables interacting
10. Conclusions
    1. We can estimate a linear relationship between one or multiple predictors and a predicted variable (although we need to be mindful of what type of variable we’re using)
    2. Effects across predictors are additive and independent
    3. We can cheat the system using multiplicative interactions
11. Where to next?
    1. How are we moving from data to parameter estimates?
    2. What are some of the assumptions, i.e., rules, in regression?
    3. How do we test whether our slopes and intercepts are meaningful?