# Hands On: BootStrap, Cross-validation, and Prediction

1. **Perform a bootstrap of your ordinal logistic regression model. For this model you can arbitrarily use the continuous covariate BIO2 instead of EXP.**
    a. How do the bootstrap 90% intervals compare with standard error output?
    b. What are the range of AIC and log likelihood values.


Extra credit: look for influential subjects.


2. **Explore prediction objects. What is the change in predicted probabilities if exposure is dropped by 10 units? What is the odds ratio for having a grade 2 or below AE with this decreased exposure?**
    a. Review the predicted probability across all grades.
    b. Review the predicted probability for grade 2 or below.
    c. Calculate odds ratio.


Extra credit: bootstrap the odds ratio. What is the 95% interval?


3. **Explore the predictive nature of the full model using cross-validation.**

    a. What does the true vs predicted matrix ('Confusion Matrix') look like?

    b. Generate the ROC curve for Grade 0 prediction.