Experimental Design Checklist

GOALS AND OBJECTIVES

- What are you hoping to conclude?
- Is there a way to measure what you want to test?

EXPERIMENTAL DESIGN CONSIDERATIONS

- What are your treatments?
- What are your experimental units? (e.g., individual animals, samples, etc.)
- What types of covariates do you need to account for? (e.g., age, sex, type of disease, etc.)

LOGISTICS

- What are you measuring and how are you measuring it?
- What difficulties do you anticipate encountering?
- What kind of data will you generate? (e.g., continuous, ordinal, categorical)
- How will you store and organize your data?

ANALYSIS PLAN

- What is your plan for analyzing your data?

POWER AND SAMPLE SIZE

- Effect size of interest. Ask yourself, “What am I hoping to find?” and “Would it be important if I found half of that difference?”
- Variability of data (from pilot study or literature)
- Design of Study
- Sample Size. What can you afford to do? What sample size is ethical?