**Experimental Design – Spring 2019**

**Midterm Review Sheet**

**The midterm will be an open book and open computer test. You are free to use any resources you want but you will be required to work independently.**

1. **You should be able to identify the appropriate test and analyze datasets using the following statistical tests in R.**

* T-test
  + one sample
  + two sample
  + paired
* Correlation Tests
* Binomial Test
* Chi-Square Test
* Simple ANOVA
* Permutation Test
* Monte Carlo
* Levene’s Test
* Mann-Whitney Test
* Tukey Test
* Kruskal-Wallis Test
* Dunn’s Test

1. **You should be able to calculate the probability of a result using Bayes theorem incorporating prior information.**
2. **You should know the meaning and understand the following words or topics:**

* P-value
* Statistic
* Parameter
* Accuracy
* Precision
* Reproducibility Crisis
* P-hacking
* File drawer problem
* Bias
* Continuous vs Discrete
* MCMC
* Data Transformations
* Balance
* Factors
* Interaction
* Multiple Comparison

1. **You should be able to write R code that can be understood and run by others.**
2. **Plots that you should be able to make**

* Histogram
* Density
* Scatter
* Mosaic