**BIOS 6606: COURSE SCHEDULE FALL 2019 (ver 16AUG2019) *SUBJECT TO CHANGE***

Week01 08/26 LECTURE - INTRODUCTION

08/28 LECTURE –Probability, sampling error, and bias

Week02 09/02 LABOR DAY

09/04 LECTURE - PRISM tutorial, good data practices

Week 03 09/09 LECTURE - DESCRIPTIVE STATISTICS 1: Types of data, measures of central tendency and variability

09/11 LECTURE - DESCRIPTIVE STATISTICS 2: Good graphing practices

Week04 09/16 LECTURE – INFERENTIAL STATISTICS TEST ASSUMPTIONS 1 – Assumption of normality

09/18 LECTURE - INFERENTIAL STATISTICS TEST ASSUMPTIONS 2 – Other test assumptions (independence, equal variances, etc.)

Week05 09/23 LECTURE - CONCEPTS OF INDEPENDENCE IN BASIC SCIENCES – Identifying experimental units

09/25 LECTURE – CONCEPTS FOR INFERENTIAL STATISTICS – The real meaning and use of the p-value

Week06 09/30 LECTURE – SCIENTIFIC RIGOR - Repeatibility, Replicability, Reproducibility

10/02 LECTURE - Introduction to Big Data in Biomedicine; Guide to other courses

Week07 10/07 LECTURE - INFERENTIAL STATISTICS 1– Comparing one or two independent groups of continuous data (parametric and non-parametric tests)

10/09 LECTURE - INFERENTIAL STATISTICS 2 – Comparing one or two independent groups of categorical data

Week08 10/14 LECTURE – INFERENTIAL STATISTICS 3 – Comparing two groups of related data (Continuous and

categorical)

10/16 REVIEW SESSION 1: Tests comparing one or two groups of data: t-tests, z-score, chi-square, etc.

Week09 10/21 LECTURE - INFERENTIAL STATISTICS 4 - Comparing >2 independent groups of continuous or categorical

data (ANOVA, chi-square, etc)

10/24 LECTURE - INFERENTIAL STATISTICS 5- Comparing >2 groups of related continuous or categorical data

(repeated measures ANOVA, etc. )

Week10 10/28 REVIEW SESSION 2: ANOVA, repeated measures ANOVA plus student questions for midterm

10/30 **MIDTERM**

Week11 11/04 LECTURE - BASICS OF STATISTICS: power and sample size, multiple comparisons

11/06 LECTURE - STATISTICS USING THE FANTASTIC 2X2 TABLE: Risks and odds, Odds ratio, Relative risk, sensitivity, specificity, positive and negative predictive values

Week12 11/11 LECTURE - INFERENTIAL STATISTICS 6 – Comparing two groups of continuous data using correlation and simple linear regression

11/13 REVIEW SESSION 3: simple linear regression, correlation

Week13 11/18 LECTURE - INFERENTIAL STATISTICS 7 – Survival Analyses (Kaplan-Meier, time to event data)

11/20 LECTURE - STATISTICS FOR OTHER PROCEDURES: ROC, Student requests

Week14 11/25 REVIEW SESSION 4: Survival, ROC

11/27 LECTURE - PRE-THANKSGIVING FUN: more practice using data sets from published papers

Week15 12/02 LECTURE - SOME BASIC SCIENCE SPECIFIC ISSUES: Choosing the experimental unit redux, using small sample sizes

12/04 LECTURE – GOOD STATISTICAL PRACTICES: Choosing the right test and writing up statistical results

Week16 12/09 REVIEW SESSION 5: Free form – bring your questions

12/11 **FINAL**

Review sessions

**Exams**