



ROLLINS  
SCHOOL OF  
PUBLIC  
HEALTH  
EMORY

**DEPARTMENT: BIOS**

**COURSE NUMBER: 505**

**SECTION NUMBER:**

**SEMESTER: SPRING**

**CREDIT HOURS: 4**

**COURSE TITLE: Statistics for Experimental Biology**

**INSTRUCTOR NAME TJ Murphy Ph.D.**

### **BRIEF COURSE DESCRIPTION**

*Course Description:* This course concentrates on the design and analysis of experiments, with the goal of equipping practicing scientists with the tools to analyze research data. Considerable emphasis will be placed on the *application* of statistical design and analysis for decision-making. Students successfully completing this course should be able to: understand and implement good experimental design in conducting scientific research, choose and carry out appropriate statistical analyses for a variety of data types, provide sound interpretation of statistical analyses, and critically read and interpret the statistical content of scientific journal articles in the biological and biomedical sciences.

### **LIST SCHOOL LEVEL, DEPARTMENT, AND/ OR PROGRAM COMPETENCIES**

BIOS 505 is intended for PhD candidates in the biological and biomedical sciences. The prerequisites are college algebra, knowledge of modern laboratory biology, and computer literacy.

## **LIST LEARNING OBJECTIVES ASSOCIATED WITH THE COMPETENCIES**

Assist medical and public health professionals in determining an appropriate research design for their research study

Estimate the appropriate sample size for conducting the study

Perform the appropriate statistical analyses of study data

Use computer statistical software for both data management and data analyses

Assist in the interpretation of study results

Interpret statistical results of biomedical studies effectively

Adhere to guidelines of responsible research

Apply existing statistical theory and methods to a broad range of medical or public health problems

Conduct appropriate statistical analyses for a broad range of applications

Communicate the results of statistical studies both orally and in writing to senior statisticians and other investigators

Conduct independent research

## **EVALUATION**

**EVALUATION IS BY RSPH ON-LINE SURVEY**

### **ACADEMIC HONOR CODE**

**The RSPH requires that all material submitted by a student in fulfilling his or her academic course of study must be the original work of the student.**