

*Please note: This is a preliminary syllabus and is subject to change. It provides useful introductory detail and additional course insight as you prepare for the program.*

## **STAT 0002 Introduction to Statistics and Data Science**

### **Course description:**

Continuation of STAT 0001. In this course, we will learn basic statistical inference procedures of estimation, confidence intervals, and hypothesis testing. We will also cover statistical inference of bivariate data, including correlation and simple linear regression models.

### **Prerequisite:**

STAT 0001 or equivalent coursework. Basic R knowledge.

### **References:**

Statistics: concepts and controversies. D. S. Moore and W. I. Notz  
Statistical thinking in business. J. A. John, D. Whitaker, and D. G. Johnson  
Essential statistics for public managers and policy analysts. E. Berman and X. Wang  
Business analytics for managers. W. Jank  
R programming for data science. R. D. Peng  
R for data science. H. Wickham and G. Grolemund

**Software:** We will use the free statistical computing software R (<http://www.r-project.org/>) frequently in class. You will apply what you learned in class to solve your homework and final project problems.

### **Learning Objectives:**

By the end of this course, you will be able to:

- Perform hypothesis tests
- Interpret statistical results, including confidence intervals and p-values
- Model relationships between two continuous variables