

Miami-Dade Community College
STA 2023 – Statistical Methods I

Course Description: To provide the student with a foundation of knowledge in this important area of applied mathematics.

3 Credits

Co-requisite: MAC 1105 “College Algebra” or suitable placement score

Competency 1: The student will have a working knowledge of basic probability theory, including being able to:

- a. Describe a sample space and an event.
- b. Calculate probabilities of simple, compound and conditional events.

Competency 2: With respect to random variables, the student will be able to:

- a. Distinguish between discrete and continuous random variables.
- b. Construct a probability distribution for a discrete random variable and be able to compute its mean and standard deviation.
- c. Compute probabilities for random variables having a binomial distribution.
- d. Compute probabilities for random variables having a normal distribution.

Competency 3: The student will be able to apply hypothesis test procedures, relative to:

- a. A single mean or the difference between two means.
- b. A single proportion or the difference between two proportions.

Competency 4: The student will be able to construct confidence intervals, relative to:

- a. A single mean or the difference between two means.
- b. A single proportion or the difference between two proportions.

Competency 5: The student will be able to apply small sample methods (the t -test), relative to:

- a. A hypothesis test or confidence interval for a single mean.
- b. A hypothesis test or confidence interval for the difference between two means, with dependent samples.

Competency 6: The student will have a basic understanding of how to deal with bi-variate data, including:

- a. Being able to construct and interpret a scatter-plot.
- b. Being able to compute and interpret the linear correlation coefficient.
- c. Being able to determine the simple linear regression equation and use it to make predictions.
- d. Being able to graph the linear regression equation.

Competency 7: The student will know when and how to apply certain nonparametric statistical tests.