Norwalk Community College
Learning Outcomes for MAT 201 – Statistics

After completing Statistics, the student should be able to:

- Distinguish between observational studies, experiments, and simple random samples.
- Obtain samples from a variety of sampling methods, including stratified, systematics, cluster, and convenience sampling and determine sources of error for each method.
- Organize qualitative and quantitative data into tables and graphs.
- Calculate the measures of central tendency: mean, median, mode, and midrange for grouped and ungrouped data.
- Calculate the measures of variation: range, variance, and standard deviation for grouped and ungrouped data.
- Calculate and interpret the values determined for quartiles and percentiles.
- Apply Chebyshev's Inequality and/or the Empirical Rule for normal distributions.
- Draw and interpret scatter diagrams for bivariate data, and determine the linear correlation coefficient.
- Determine the linear relationship for bivariate data through regression analysis and determine the line of best fit for that data.
- Calculate and distinguish between empirical and theoretical probability.
- Calculate probability using the basic rules of addition, complements, and independence.
- Calculate conditional probabilities, combinations, and permutations.
- Calculate the mean, variance, and standard deviation of a discrete random variable.
- Calculate the mean and standard deviation of a binomial random variable and probabilities for binomial experiments.
- Graph a normal curve and calculate probabilities as the area under a normal curve.
- Calculate and interpret the z-score and probabilities as the area under a standard normal curve.
- Draw normal probability plots to asses normality.
- Approximate binomial probabilities using the normal distribution.
- Describe the distribution of the sample mean for samples obtained from normal and non-normal populations.
- Compute probabilities of a sample proportion.
- Determine and interpret a confidence interval for the population mean when the population standard deviation is known.
- Determine the sample size to estimate the population mean.
- Determine a probability for the Student's t-distribution.
- Use the Student's t-distribution to determine and interpret a confidence interval for the population mean when the population standard deviation is unknown.
- Use the Student's t-distribution to complete a hypothesis test for the population mean when the population standard deviation is unknown.
- Complete a hypothesis test relative to a population mean and state a meaningful conclusion for that testing.