# COUNTY COLLEGE OF MORRIS
## Course Information Outline

**Course Title** Statistics **PREFIX&NUMBER** MAT 124

**Lecture Hours** 45 **Laboratory Hours** 0 **Credit Hours** 3 **Course Fee** 0

**Department Chairperson Approval** Alexis Thurman A. Thurman **Date** 4/10/14

**Division Dean Approval** Patrick Enright **Date** 4.11.14

**General Education Information:**

**Categories:**

☐ Communications ☐ History ☐ Humanities ☒ Mathematics
☐ Science ☐ Social Science ☐ Technological Competency
☐ Diversity *(check if course also meets diversity category)*

**Integrated Goals**: *(check all that apply)*

☐ Ethical Reasoning and Action ☐ Information Literacy

1. **Catalog Course Description**
   The fundamental principles of statistical methods. Descriptive statistics, correlation, regression, probability, binomial and normal distributions, sampling, elementary hypothesis testing and confidence intervals are included.

2. **Prerequisite(s)**
   MAT 016, MAT 060, MAT 120 or equivalent.

3. **Co-requisite(s)**

4. **Textbooks**
   Weiss, Neil, *Introductory Statistics*, 9th ed. (Addison-Wesley)

5. **Supplementary Books and/or Materials**
   Student's Solutions Manual (Addison-Wesley)

6. **Specialized equipment, supplies, facilities, for classes limited by enrollment or restricted by accreditation and/or equipment limitations.** (Information will be used to determine differential funding category.)
   None

**7. Course Content (List of Topics)**

- Overview; types of data, sampling techniques
- Frequency distributions, graphs, stem-and-leaf plots, misleading graphs
- Measures of central tendency, measures of variation
- Standard scores, percentiles, quartiles, outliers, 5-number summaries, box plots
- Descriptive methods in correlation and regression
- Fundamentals of probability
- Discrete random variables, probability distributions
- Binomial distribution
- Normal distribution
- Normal approximation to the binomial distribution
- Sampling distributions of the mean; central limit theorem
- Confidence interval for the mean ($\sigma$ known and unknown), margin of error
- Hypothesis tests for population mean ($\sigma$ known and unknown)
- Optional topics: statistical technology (Minitab, Excel, graphing calculators), additional probability, counting techniques, additional work with confidence intervals or hypothesis tests

**8. Statement of Course LEARNING OUTCOMES**

- **Distinguish** among different methods of random sampling used for data collection
- **Compute** measures of descriptive statistics
- **Construct** confidence intervals for the mean and interpret the results
- **Conduct** hypothesis tests for the mean and interpret the results
- **Construct** least-squares linear regression equations
- **Compute** binomial probabilities

**9. Statement of Relation to Curriculum(s)**

Statistics is an optional course in the business administration and other programs.

**10. Format for offering the course (check all that apply)**

☒ **Traditional** ☒ **On-Line** ☒ **Hybrid**