Course Name: MAT-124 Statistics

Date Updated: 2/2022

Credit Hours/week: 3 hrs./wk. – 3 cr.

BEGINNING: SPRING 2022

Catalog Description: The fundamental principles of statistical methods. Descriptive statistics, correlation, regression, probability, binomial and normal distributions, sampling, elementary hypothesis testing, confidence intervals and ethical issues in statistics are included.

Prerequisite: MAT 016 or MAT 060 or MAT 120 or equivalent.

Text: Weiss, Neil, Introductory Statistics, MyLab Revision with Tech Updates, 10th ed. (Pearson) ISBN: 9780135163054

Supplementary Material: Pearson MyLab Statistics

Syllabus:

Period	Text Sections	Topics
1	1.1-4	Overview; types of data, sampling techniques
2-3	2.1-5	Organization and presentation of quantitative and qualitative data, distribution shapes and misleading graphs
4-5	3.1-3	Measures of central tendency, measures of variation, Chebyschev's Rule and the Empirical Rule
6-7	3.4-5	Standard scores, percentiles, quartiles, outliers, 5-number summaries, box plots, descriptive measures for populations
8		**Test 1**
9-12	14.1-4	Descriptive methods in correlation and regression
13-14	4.1-6, 4.8	Fundamentals of probability
15		**Midterm Exam**
16-17	5.1-3	Discrete random variables, probability distributions, Binomial distribution
18-19	6.1-3	Normal distribution
20	6.4	Assessing Normality
21	7.1-3	Sampling distributions of the mean; central limit theorem
22		**Test 3**
23-24	8.1-2	Confidence interval for the mean (σ is known), margin of error
25	8.3	Confidence interval for the mean (σ is unknown), t-distribution
26-29	9.1-9.5	Hypothesis tests for population mean (σ is known and unknown), p-values
30		**Final Exam**
Optional topics: statistical technology (Minitab, Excel, R, graphing calculators, Tableau)		
See attached notes regarding ethical reasoning and information literacy topics.		

Students are expected to adhere to the policies of the County College of Morris. These can be accessed at: (insert link here)

Statement of Expected Course LEARNING OUTCOMES

- **Distinguish and formulate** different methods of random sampling used for data collection and conclusions through inference
- **Compute** measures of descriptive statistics
- **Construct** confidence intervals for the mean and interpret the results (σ is known)
- **Conduct** hypothesis tests for the mean and interpret the results (σ is known and unknown)
- **Construct and analyze** bivariate data through linear correlation and regression equations
- **Compute and apply** rules of binomial, conditional and addition probabilities
- **Solve** problems involving probability distributions.
- **Recognize** statistics presented in a misleading manner
- **Analyze and portray** statistical information in an ethical way
- **Evaluate and think critically** about statistical information and be able to use the information effectively