

MATH 0996
Support for Elementary Statistics (2 hrs.)
Mathematics Department
Valdosta State University

Pre-requisites: Placement into course by University guidelines.

Co-requisite: MATH 1401.

REQUIRED TEXT: No additional text is required other than that which is required by MATH 1401 *Fundamentals of Statistics: Informed Decisions Using Data* by Michael Sullivan III: 6th Edition, 2022, Pearson Access to MyMathLab may also be required. Currently Math 1401 is a Day1 course and all needed electronic materials will be available on the first day of class. A code for this support course will be available from the instructor.

CALCULATOR: TI-83, TI-83+, TI-84, or TI-84+ (REQUIRED Same as Math 1401)

COURSE DESCRIPTION: Corequisite support to provide essential quantitative skills needed to be successful in Math 1401. (This course will be taught by the same Math 1401 instructor.)

*****NOTE:** Learning outcomes, education outcomes, and course outline are the same as for MATH 1401. MATH 0996 by itself does not cover these topics per se but serves as support for students who are taking MATH 1401.

LEARNING OUTCOMES: Upon successful completion of this course, students will be able to:

1. Students will produce and interpret descriptive statistics, graphically, numerically, and in tabular format.
2. Students will calculate and interpret probability using union, intersection, and compliment rules.
3. Students will compute and interpret expected value, variance, and standard deviation for discrete random variables.
4. Students will use technology to calculate probabilities for the normal and binomial distributions.
5. Students will produce and interpret confidence interval, and hypothesis testing for one and two populations' means using technology.
6. Students will produce and interpret confidence interval, and hypothesis testing for one population's proportion using technology.
7. Students will use correlation analysis to determine the strength of a linear relationship between bivariate data and apply linear regression to describe this relationship.

VSU GENERAL EDUCATION OUTCOME:

(Area D)

Students will demonstrate understanding of the physical universe and the nature of science, and they will use scientific methods and/or mathematical reasoning and concepts to solve problems.

COURSE OUTLINE: (Based on 45 sessions, 3 days per week)

Chapter/Section	Topics	Suggested Days
1.1 – 1.6	Data Collection: Statistical Definitions, Sampling Techniques	1.5
2.1 – 2.2	Organizing and Summarizing Data: Organizing Qualitative and Quantitative Data, Graphical and Tabular Methods, Types of Distributions	3
3.1 – 3.5	Numerically Summarizing Data: Mean, Median, Mode, Variance, Standard Deviation, Z-Scores, Chebyshev's Theorem, Empirical Rule, Percentiles, Quartiles, Boxplots, Outliers	4.5
4.1 – 4.3	Linear Correlation: Scatter Diagrams, Linear Correlation Coefficient, Least-Squares Regression, Coefficient of Determination	3
5.1 – 5.5	Probability Rules: Addition Rule, Complements, Multiplication Rule, Independence, Conditional Probability, Permutations, Combinations	7.5
6.1 – 6.2	Discrete Probability Distributions: Distribution, Mean, Variance, Standard Deviation of Discrete Random Variable, Binomial Distribution	3
7.1 – 7.2	Normal Distribution: Area under the curve using table or technology and its relation to probability, Standard Normal Curve	3
8.1 – 8.2	Sampling Distributions: Distribution of Sample Mean, Distribution of Sample Proportion	1.5

<p>9.1 – 9.2</p>	<p>Estimating Value of a Parameter: Point Estimate, Confidence Intervals for Population Mean, Confidence Intervals for Population Proportion, t-distributions</p>	<p>3</p>
<p>10.1 – 10.3</p>	<p>Hypothesis Testing: Hypothesis Test for a Population Mean, Hypothesis Test for a Population Proportion</p>	<p>3</p>
<p>11.1 – 11.3</p>	<p>Inferences on Two Samples: Inference about Two Means, Inference about Two Proportions</p>	<p>3</p>
<p>Other</p>	<p>Exams/Reviews</p>	<p>9</p>
<p>Grand Total</p>		<p>45</p>