



VIRGINIA BEACH CITY PUBLIC SCHOOLS
CHARTING THE COURSE

Department of Teaching & Learning
Parent/Student Course Information

DUAL ENROLLMENT ELEMENTARY STATISTICS
TIDEWATER COMMUNITY COLLEGE
(MTH 157)

One-half VBCPS credit, 3 TCC credits, One semester course

Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.

COURSE DESCRIPTION

Elementary Statistics is a dual enrollment, one semester course providing the successful student with three college semester credits and one-half Virginia Beach City Public Schools (VBCPS) elective credit. The course presents elementary statistical methods and concepts including descriptive statistics, estimation, hypothesis testing, linear regression and categorical data analysis.

*Tuition, fees and textbook fees are the responsibility of the student in accordance with the dual enrollment regulation (5-30.2).

PREREQUISITE

Algebra II

Objectives for MTH 157: Elementary Statistics

Chapter 1: Introduction to Data

- 1.1 What Are Data
- 1.2 Classifying and Storing Data
- 1.3 Organizing Categorical Data
- 1.4 Collecting Data to Understand Causality

Chapter 2: Picturing Variation with Graphs

- 2.1 Visualizing Variation in Numerical Data
- 2.2 Summarizing Important Features of a Numerical Distribution
- 2.3 Visualizing Variation in Categorical Data
- 2.4 Summarizing Categorical Distributions
- 2.5 Interpreting Graphs

Chapter 3: Numerical Summaries of Center and Variation

- 3.1 Summaries for Symmetric Distributions
- 3.2 What's Unusual? The Empirical Rule and z-Scores
- 3.3 Summaries for Skewed Distributions
- 3.4 Comparing Measures of Center
- 3.5 Using Boxplots for Displaying Summaries

Chapter 4: Regression Analysis: Exploring Associations between Variables

- 4.1 Visualizing Variability with a Scatterplot
- 4.2 Measuring Strength of Association with Correlation
- 4.3 Modeling Linear Trends
- 4.4 Evaluating the Linear Model

Chapter 5: Modeling Variation with Probability

- 5.1 What is Randomness?
- 5.2 Finding Theoretical Probabilities
- 5.3 Associations in Categorical Variables
- 5.4 The Law of Large Numbers

Chapter 6: Modeling Random Events: The Normal and Binomial Models

- 6.1 Probability Distributions are Models of Random Experiments
- 6.2 The Normal Model
- 6.3 The Binomial Model

Chapter 7: Survey Sampling and Inference

- 7.1 Learning about the World through Surveys
- 7.2 Measuring the Quality of a Survey
- 7.3 The Central Limit Theorem for Sample Proportions
- 7.4 Estimating the Population Proportion with Confidence Intervals

Chapter 8: Hypothesis Testing for Population Proportions

- 8.1 The Main Ingredients of Hypothesis Testing
- 8.2 Characterizing p-Values
- 8.3 Hypothesis Testing in Four Steps
- 8.5 Understanding Hypothesis Testing

Chapter 9: Inferring Population Means

- 9.1 Sample Means of Random Samples
- 9.2 The Central Limit Theorem for Sample Means
- 9.3 Answering Questions about the Mean of a Population
- 9.5 Overview of Analyzing Means

Chapter 10: Analyzing Categorical Variables and Interpreting Research

- 10.1 The Basic Ingredients for Testing with Categorical Variables
- 10.2 Chi-Square Tests for Association between Categorical Variables
- 10.3 Reading Research Papers

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For further information please call (757) 263-1070.

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