

Mathematics of Data Management, University Preparation

Course Outline

Unit #1 - Permutations and Organized Counting

In this unit, students will solve introductory counting problems involving permutations by using tree diagrams, Pascal's Triangle, and the multiplicative and additive counting principles.

Unit #2 - Combinations and the Binomial Theorem

In this unit, students will solve problems involving an event or a combination of events for discrete sample spaces using the counting principles of combinations. They will continue to solve counting problems involving combinations using the multiplicative and additive counting principles, Venn Diagrams, and the principles of inclusion and exclusion.

Unit #3 - Probability

In this unit, students will solve problems involving the probability of an event or a combination of events for discrete sample spaces. They will solve problems involving the application of permutations and combinations to determine the probability of an event.

Unit #4 - Statistics of One Variable

In this unit, students will demonstrate an understanding of the role of data in statistical studies and the variability inherent in data, and distinguish different types of data. Students will describe the characteristics of a good sample, some sampling techniques, and principles of primary data collection, and collect and organize data to solve a problem. Students will learn about the applications of data management used by the media and the advertising industry and in various occupations.

Unit #5 - Statistics of Two Variables

In this unit, students will define the correlation coefficient as a measure of the fit of a scatter graph to a linear model, demonstrate an understanding of the distinction between cause-effect relationships and the mathematical correlation between variables, demonstrate an understanding of the purpose and the use of a variety of sampling techniques.

Mathematics of Data Management, University Preparation

Unit #6 - Probability Distributions

In this unit, students will demonstrate an understanding of discrete probability distributions, represent them numerically, graphically, and algebraically, determine expected values, and solve related problems from a variety of applications.

Unit #7 - The Normal Distribution

In this unit, students will demonstrate an understanding of continuous probability distributions, make connections to discrete probability distributions, determine standard deviations, describe key features of the normal distribution, and solve related problems from a variety of applications.

Note: The order of the units of study may change due to student needs and resources available during the course. Homework is assigned on a regular basis. Homework completion and regular attendance are key to being successful in this course.

Textbooks and Resources:

- Mathematics of Data Management, McGraw-Hill Ryerson
- Printed Packages provided by the teacher