

Concepts in Probability and Statistics

Course Overview and Syllabus

Course Number: 4740

Grade Level: 9–12

Prerequisite Courses: Algebra I

Credits: 1.0

Course Description

This high-school course provides an alternative math credit for students who may not wish to pursue more advanced mathematics courses such as Algebra II and Pre-Calculus. It begins with an in-depth study of probability, with a focus on conceptual understanding. Students then move into an exploration of sampling and comparing populations. The first semester closes with units on data distributions and data analysis—including how to summarize data sets with a variety of statistics. In the second half of the course, students create and analyze scatterplots and begin a basic study of regression. Then they study two-way tables and normal distributions, learning about powerful applications such as hypothesis testing. Finally, students return to probability at a more advanced level, focusing on topics such as conditional probability, combinations and permutations, and sets.

Course Objectives

Throughout the course, you will meet the following goals:

- Understand probability concepts, including the difference between theoretical probability and experimental outcomes
- Express the likelihood of single and multiple events numerically
- Understand sampling procedures, and make inferences about populations from appropriate samples
- Compute and interpret descriptive statistics about samples, including measures of center and measures of variability
- Represent data graphically in meaningful ways, including dot plots, histograms, and box plots
- Apply an understanding of normally distributed data to make and test hypotheses
- Apply probability concepts to a variety of situations

The course objectives are implemented throughout specific lessons, focusing on applying theorems and properties, using mathematical reasoning to construct arguments and solving real world and mathematical problems.

The lesson objectives are assessed through assignments, quizzes, unit tests, performance tasks and cumulative exams.

Student Expectations

This course requires the same level of commitment from you as a traditional classroom course. Students are expected to spend approximately five to seven hours per week online on:

- Interactive lessons that include a mixture of instructional videos and tasks
- Assignments in which you apply and extend learning in each lesson
- Assessments, including quizzes, tests, and cumulative exams

Communication

Your teacher will communicate with you regularly through discussions, e-mail, chat, and system announcements, and will provide you with hours of availability, contact policies, and any synchronous attendance requirements. You will also communicate with classmates, either via online tools or face to face, as you collaborate on projects, ask and answer questions in your peer group, and develop your speaking and listening skills.

Grading Policy

You will be graded on the work you do online and the work you submit electronically to your teacher. The weighting for each category of graded activity is listed below.

Grading Category	Weight
Lesson Quizzes	20%
Unit Tests	30%
Cumulative Exams	20%
Assignments	20%
Projects	10%
Additional	0%

Scope and Sequence

When you log into Edgenuity, you can view the entire course map—an interactive scope and sequence of all topics you will study. The units of study are summarized below:

Unit 1: Understanding Probability

Unit 2: Probability

Unit 3: Sampling and Comparing Populations

Unit 4: Data Distributions

Unit 5: Data Analysis

Unit 6: Constructing Scatterplots

Unit 7: Analyzing Scatterplots

Unit 8: Two-Way Tables and Statistics

Unit 9: Applications of Probability

Standards Alignment

The course was designed to meet the requirements of the 2016 Oklahoma Academic Standards for Mathematics. The standards aligned to each lesson are available in the student portal in the lesson information panel.

Materials and Technology Requirements

All course materials are provided through the student portal. You will become familiar with them through an orientation video and the student handbook. These resources are available within the Student Organizer, where you can also check the status of your operating system, processor speed, plug-ins and connection speed.

Accessibility

The course is designed for accessibility to all students. The system provides features and accommodations to meet the needs of ELL and students with IEP's, 504 plans, and Section 508. These accommodations include addressing multiple learning styles, accommodations for assessments, video caption/transcripts, read-aloud and translation tools, and many other features/accommodations.