Concepts in Probability and Statistics
Course Overview and Syllabus

Course Number: MA3120 IC

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.

The initial credit of the course includes four performance tasks, which must be graded by a teacher.

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
- Represent and interpret the relationship between two variables using scatterplots and regression
- Apply an understanding of normally distributed data to make and test hypotheses
- Apply probability concepts to a variety of situations

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Student Expectations

This course requires the same level of commitment from you as a traditional classroom course would. Throughout the course, you are expected to spend approximately 5–7 hours per week online on the following activities:

- 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. You will also communicate with classmates 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