



# Probability and Statistics Syllabus

## Course Details

**Course Code:** 414100CW

**Subject:** Mathematics

**Required Prerequisites:** None

**Suggested Prerequisites:** Algebra 1 AND Geometry OR Algebra 2 OR Foundations in Algebra, Intermediate Algebra, and Geometry

**Recommended Grade Levels:** 12th

**Duration:** Semester

**Course Availability:** A listing of when this course is offered in the current school year can be found on the [VirtualSC Current Course Offerings page](#) (opens in a new window).

**Class Times:** This course has scheduled instructional meetings. Information on scheduled meetings for each course is communicated by the teacher. Recordings of these meetings will be available for students unable to attend. Students should expect to spend 7-9 hours a week working on this course independently, in addition to any live meetings, and are expected to meet the deadlines posted in the course pacing guide.

**Textbook:** None

**Required Course Materials:** Access to use and submit work from Google Sheets or Excel

TI 83/84 Graphing Calculator. If a calculator cannot be purchased or is unavailable, you may go to [www.desmos.com](http://www.desmos.com) (opens in a new window), which can be used on your computer or downloaded to your Android or Apple phone or tablet.

**Outside Websites:** A list of links to websites and online textbooks used in this course can be found here: [VSC Course Links Document Folder \(opens in a new window\)](#). Students will need to be able to access all of these links to access all course materials.

**Final Exam:** Students in this course take a VirtualSC final exam. Details on scheduling and taking final exams can be found on the [Final Exam Page](#) (opens in a new window) of the VirtualSC webpage.

## Course Description

This course includes the following topics: introductory probability, counting techniques, and probability distributions. Statistic topics include data organization, distributions, central limit theorem, confidence intervals, and hypothesis testing. GeoGebra and Microsoft Excel/Google Sheets is used throughout this course for graphing, analyzing data, and finding statistics. GeoGebra is a free and can be downloaded on computers, tablets, and some phones.

As with any other course that a student takes with VirtualSC, the student should have consistent access to a computer with reliable internet and be familiar with basic computer procedures (Word, Excel, email, etc.).

The curriculum used in this course is guided by the [SCCCR Standards for Mathematics](#) (opens in a new window).

## Scope and Sequence

- Unit 0: Introduction to the Course
- Unit 1: Introduction to Probability
  - What is Probability?
  - Simple and Compound Events and Counting Techniques
  - Venn Diagrams, Contingency Tables, and Compound Events
  - Formulas for Finding Probabilities
- Unit 2: Introduction to Statistics
  - Overview of Statistics
  - Sampling Methods
  - Data Collection and Experimental Methods
  - Analyzing Data
- Statistics Project Phase 1: Planning the Study
  - Step 1: Question, Population, Variables, and Sampling Techniques
  - Step 2: Survey Questions
- Unit 3: Statistical Graphs and Measures
  - Graphs for Qualitative Data
  - Graphs for Univariate Quantitative Data
  - Measures of Variability
  - Graphs for Bivariate Data
- Statistics Project Phase 2: Collecting and Processing the Data
  - Step 3: Collecting and Processing the data: Descriptive Statistics
- Unit 4: Probability Distributions
  - Discrete Probability Distributions
  - Binomial Distributions

- Continuous Random Variables and the Normal Curve
  - Sampling Distributions
- Statistics Project Phase 3: Reporting the Study Results
  - Step 4: Official Report
- Review and Final Exam

Students will be sent a full list of assignments and their due dates at the beginning of the course.

Current pacing guides for this course can be found on the [Current Course Offerings page](#) (opens in a new window) on the VirtualSC website.

## Course Grades

### **Initial Credit Courses:**

The final grade in this course results from the following:

- Coursework: 80%
- Final Exam: 20%

## **VirtualSC Details**

Information on VirtualSC student guidelines, policies and technology requirements can be found in the [VirtualSC Student Support Portal \(opens in a new window\)](#).