Collapse all

Probability and Statistics, Part 2

ATTENTION

Grading may take up to 7 days at semester end and during the summer semester!
Submit your **last assignment two weeks** before your school's semester ends.

The prerequisites for this course are: Algebra 2, Geometry, and Algebra 2 (recommended)
OR
Integrated Math 1, Integrated Math 2, and Integrated Math 3 (recommended),
AND
Probability and Statistics, Part 1

How to Take This Course

Each unit includes guided notes that align with the lesson videos. The lesson quizzes, unit tests, and final exam are all based on the content covered in these videos. Most lessons also include links to optional resources or practice assignments. You're encouraged to explore these additional materials if you'd like extra support or more practice on specific topics.

Complete all the quizzes and the assignment in each unit. Once the quizzes for a unit are complete, you will have access to the unit test. We recommend you complete the unit assignment before you attempt the unit test; the assignment will help you prepare. You will have access to the final after you have been enrolled in the course for at least 30 days, all unit tests are completed, and your assignments are graded.

Allow 3-4 school days for an assignment to be graded. To understand the course grading, read the full course instructions.

- Course Instructions
- How This Course Works & Suggested Timeline
- Submitting Your Assignments
- Ask The Teacher

Meet your teacher for this course and ask a question.

Need help with the course? We offer online tutoring; find more details about it here.

- MANDATORY QUIZ — Completion

You are required to take this quiz before you start the course. To prepare, read the course instructions and the "submitting your assignments" document, watch the video on the how this course works page and review the suggested timeline.

- Learning Objectives & Standards Met By This Course

Unit 1: Sampling and Experimental Design

In this unit, you will:

- Distinguish between population and sample.
- Describe different sampling methods.
- Explain potential sources of bias and error.
- Differentiate between an experiment and a survey.
- Design a survey or experiment to answer a research question.

- Unit 1 Guided Notes

These guided notes correspond to the instructional videos. You may use them on the unit quizzes, unit tests, and course final.

As you work through the lessons, you are encouraged to work through the practice problem set, and check your answers against the key.

Both the guided notes and the practice problem set are for your use; they will not be submitted for grading.

- 1.1 Populations vs Samples
- Quiz 1.1 — Completion
- 1.2 Sampling Types
- Quiz 1.2 — Completion
- 1.3 Bias
- Quiz 1.3 — Completion
- 1.4 Experimental vs Observational Studies
- Quiz 1.4 — Completion
- Unit 1 Assignment: Collecting Trustworthy Data — Completion
- Unit 1 Test
  - Not available unless: The activity **Quiz 1.1** is marked complete ... — Show more

Unit 2: Probability Distributions

In this unit, you will:

- Explain what a probability distribution is.
- Calculate binomial and geometric probabilities.
- Describe properties of the normal distribution.
- Use z-scores and the Empirical Rule to calculate probabilities.

- Unit 2 Guided Notes

These guided notes correspond to the instructional videos. You may use them on the unit quizzes, unit tests, and course final.

As you work through the lessons, you are encouraged to work through the practice problem set, and check your answers against the key.

Both the guided notes and the practice problem set are for your use; they will not be submitted for grading.

- 2.1 Intro to Probability Distributions
- Quiz 2.1 — Completion
- 2.2 Binomial Distributions
- Quiz 2.2 — Completion
- 2.3 Geometric Distributions
- Quiz 2.3 — Completion
- 2.4 Normal Distribution
- Quiz 2.4 — Completion
- 2.5 Standard Scores (z-scores)
- Quiz 2.5 — Completion
- Unit 2 Assignment: Examining Distributions — Completion
- Unit 2 Test
  - Not available unless: The activity **Quiz 2.1** is marked complete ... — Show more

Unit 3: Estimation and Confidence Intervals

In this unit, you will:

- Explain and apply the ideas of a sampling distribution.
- Interpret the Central Limit Theorem in context.
- Calculate and interpret confidence intervals for proportions and means.
- Explain and calculate the margin of error.

- Unit 3 Guided Notes

These guided notes correspond to the instructional videos. You may use them on the unit quizzes, unit tests, and course final.

As you work through the lessons, you are encouraged to work through the practice problem set, and check your answers against the key.

Both the guided notes and the practice problem set are for your use; they will not be submitted for grading.

- 3.1 Sampling Distributions and Central Limit Theorem
- Quiz 3.1 — Completion
- 3.2 Margin of Error
- Quiz 3.2 — Completion
- 3.3 Confidence Intervals
- Quiz 3.3 — Completion
- 3.4 More Confidence Intervals
- Quiz 3.4 — Completion
- Unit 3 Assignment: Checking Confidence — Completion
- Unit 3 Test
  - Not available unless: The activity **Quiz 3.1** is marked complete ... — Show more

Unit 4: Hypothesis Testing

In this unit, you will:

- State null and alternative hypotheses.
- Identify Type I and Type II errors.
- Use technology to perform tests for proportions and means.
- Interpret p-values and make conclusions in context.

- Unit 4 Guided Notes

These guided notes correspond to the instructional videos. You may use them on the unit quizzes, unit tests, and course final.

As you work through the lessons, you are encouraged to work through the practice problem set, and check your answers against the key.

Both the guided notes and the practice problem set are for your use; they will not be submitted for grading.

- 4.1 Null and Alternative Hypotheses
- Quiz 4.1 — Completion
- 4.2 Errors (Type I and II)
- Quiz 4.2 — Completion
- 4.3 Significance Levels
- Quiz 4.3 — Completion
- 4.4 Tests for Proportions and Means
- Quiz 4.4 — Completion
- 4.5 Real World Applications
- Quiz 4.5 — Completion
- Unit 4 Assignment: The Testing Project — Completion
- Unit 4 Test
  - Not available unless: The activity **Quiz 4.1** is marked complete ... — Show more

Unit 5: Advanced Data Analysis

In this unit, you will:

- Apply chi-square tests for categorical data.
- Compare two proportions or two means.
- Interpret regression models and residuals.
- Complete a full statistical investigation and present results.

- Unit 5 Guided Notes

These guided notes correspond to the instructional videos. You may use them on the unit quizzes, unit tests, and course final.

As you work through the lessons, you are encouraged to work through the practice problem set, and check your answers against the key.

Both the guided notes and the practice problem set are for your use; they will not be submitted for grading.

- 5.1 Chi-Square Tests
- Quiz 5.1 — Completion
- 5.2 Comparing Two Proportions or Means
- Quiz 5.2 — Completion
- 5.3 Regression Analysis: Interpreting Slope and Residuals
- Quiz 5.3 — Completion
- 5.4 Regression for Inference with Desmos
- Quiz 5.4 — Completion
- 5.5 Minitab Outputs
- Quiz 5.5 — Completion
- Unit 5 Assignment: Advanced Data Analysis — Completion
- Unit 5 Test
  - Not available unless: The activity **Quiz 5.1** is marked complete ... — Show more

Final Exam

You will have access to the final after you have been enrolled in the course for at least 30 days and when all unit tests are completed, and your assignments are graded.

Warning: You have only ONE attempt at the final. Are you ready to take the final? We highly recommend you take the practice final first, and if you are weak in any area, review the relevant course material again. You have unlimited attempts at the practice final; it will help you to prepare.

Remember, if you want to improve your grade in this course, you need to do that BEFORE you take the final exam.

Good Luck!

- Not available unless: The activity **MANDATORY QUIZ** is marked complete

Course Completion & Requesting a Transcript

Transcript - Send a transcript to your school to report the credits you earned. A transcript will list all the courses you have taken with us, including those still in progress.

Feedback - Before you go, we would appreciate your opinion on the course; please take 1 minute to complete the feedback form. We hope you enjoyed this course!

- Course Feedback

Thank you for taking this course! Let us know what you think about it.

- Request a Transcript

Notify your school that you have completed your course. Send them a transcript by email or mail. A transcript will list all the courses you have completed and those in progress.