

AP STATISTICS COURSE SYLLABUS

Mt. Vernon Township High School

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ABOUT THE AP STATISTICS COURSE

The AP Statistics course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes evident in the content, skills, and assessment in the AP Statistics course: exploring data, sampling and experimentation, probability and simulation, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding.

COLLEGE COURSE EQUIVALENT

The AP Statistics course is equivalent to a one-semester, introductory, non-calculus-based college course in statistics.

PREREQUISITES

The AP Statistics course is an excellent option for any secondary school student who has successfully completed a second-year course in algebra and who possesses sufficient mathematical maturity and quantitative reasoning ability. Because second-year algebra is the prerequisite course, AP Statistics is usually taken in either the junior or senior year. Decisions about whether to take AP Statistics and when to take it depend on a student's plans:

- Students planning to take a science course in their senior year will benefit greatly from taking AP Statistics in their junior year.
- For students who would otherwise take no mathematics in their senior year, AP Statistics allows them to continue to develop their quantitative skills.
- Students who wish to leave open the option of taking calculus in college should include precalculus in their high school program and perhaps take AP Statistics concurrently with precalculus.
- Students with the appropriate mathematical background are encouraged to take both AP Statistics and AP Calculus in high school.

COURSE FRAMEWORK COMPONENTS

This course framework provides a clear and detailed description of the course requirements necessary for student success.

The course framework includes two essential components:

- Course Skills
 - The course skills are central to the study and practice of statistics. Students should develop and apply the described skills on a regular basis over the span of the course.
- Course Content

- The course content is organized into commonly taught units of study that provide a suggested sequence for the course. These units comprise the content and conceptual understandings that colleges and universities typically expect students to master to qualify for college credit and/or placement. This content is grounded in big ideas, which are cross-cutting concepts that build conceptual understanding and spiral throughout the course.

COURSE SKILLS

Skill Category 1: Selecting Statistical Methods – Select methods for collecting and/or analyzing data for statistical inference.

- 1.A Identify the question to be answered or problem to be solved (not assessed).
- 1.B Identify key and relevant information to answer a question or solve a problem.
- 1.C Describe an appropriate method for gathering and representing data.
- 1.D Identify an appropriate inference method for confidence intervals.
- 1.E Identify an appropriate inference method for significance tests.
- 1.F Identify null and alternative hypotheses.

Skill Category 2: Data Analysis – Describe patterns, trends, associations, and relationships in data.

- 2.A Describe data presented numerically or graphically.
- 2.B Construct numerical or graphical representations of distributions.
- 2.C Calculate summary statistics, relative positions of points within a distribution, correlation, and predicted response.
- 2.D Compare distributions or relative positions of points within a distribution.

Skill Category 3: Using Probability and Simulation – Explore random phenomena.

- 3.A Determine relative frequencies, proportions, or probabilities using simulation or calculations.
- 3.B Determine parameters for probability distributions.
- 3.C Describe probability distributions.
- 3.D Construct a confidence interval, provided conditions for inference are met.
- 3.E Calculate a test statistic and find a p-value, provided conditions for inference are met.

Skill Category 4: Statistical Argumentation – Develop an explanation or justify a conclusion using evidence from data, definitions, or statistical inference.

- 4.A Make an appropriate claim or draw an appropriate conclusion.
- 4.B Interpret statistical calculations and findings to assign meaning or assess a claim.
- 4.C Verify that inference procedures apply in a given situation.
- 4.D Justify a claim based on a confidence interval.
- 4.E Justify a claim using a decision based on significance tests.

COURSE CONTENT

Unit 1: Exploring One-Variable Data	Exam Weighting 15 – 23%
Unit 2: Exploring Two-Variable Data	Exam Weighting 5 – 7%
Unit 3: Collecting Data	Exam Weighting 12 – 15%
Unit 4: Probability, Random Variables, and Probability Distributions	Exam Weighting 10 – 20%
Unit 5: Sampling Distributions	Exam Weighting 7 – 12%
Unit 6: Inference for Categorical Data: Proportions	Exam Weighting 12 – 15%
Unit 7: Inference for Quantitative Data: Means	Exam Weighting 10 – 18%
Unit 8: Inference for Categorical Data: Chi-Square	Exam Weighting 2 – 5%
Unit 9: Inference for Quantitative Data: Slopes	Exam Weighting 2 – 5%

COURSE OUTLINE

Unit 1: Exploring One-Variable Data	~14 – 16 Class Periods
Unit 2: Exploring Two-Variable Data	~10 – 11 Class Periods
Unit 3: Collecting Data	~9 – 10 Class Periods
Unit 4: Probability, Random Variables, and Probability Distributions	~18 – 20 Class Periods
Unit 5: Sampling Distributions	~10 – 12 Class Periods
Unit 6: Inference for Categorical Data: Proportions	~16 – 18 Class Periods
Unit 7: Inference for Quantitative Data: Means	~14 – 16 Class Periods
Unit 8: Inference for Categorical Data: Chi-Square	~10 – 11 Class Periods
Unit 9: Inference for Quantitative Data: Slopes	~7 – 8 Class Periods

COURSE GRADES

Summer work, which consists of Khan Academy assignments, will be scored as follows: videos, practice questions, and articles are worth 1 point each and are graded upon participation. If a video is not watched all the way through, it will not be recorded. So, please pay close attention to this. Quizzes and Unit Tests are worth the equivalent amount to the questions asked. Therefore, if a quiz has 5 questions, it is worth 5 points. Quizzes and Unit Tests are graded based upon the questions answered correctly. Quizzes and Unit Tests may be taken more than once. These parameters will carry over into the school year anytime an assignment is made in Khan Academy.

Each unit is comprised of roughly 3 – 6 lessons. Some lessons are broken down into smaller parts. Each lesson will have at least one “Check Your Understanding”, which is the homework

for that lesson. These are scored based upon participation. A quiz is given after 1 – 2 lessons. Quizzes are worth approximately 10 – 15 points and are scored based upon the number of questions answered correctly. Each unit will have a unit test worth 100 points.

College Board assignments will be assigned daily. These assignments normally consist of a video, multiple videos, or practice AP Statistics Exam questions and are scored based upon participation. Much like the Khan Academy videos, make sure to watch these videos all the way through so your participation is accurate.

A pre-test will be given at the beginning of the semester. This will not be for a grade. However, a post-test will be given at the end of the semester. A test grade will be earned based upon the student's growth from the pre-test to the post-test.

CLASSROOM EXPECTATIONS

You are expected to have a pencil, binder, filler paper, charged Chromebook, and calculator for every class period. You will be given the opportunity to check out a graphing calculator to use for the school year.

You are expected to be in the classroom when the tardy bell rings.

You are expected to sit in your assigned seat for the entire class period.

You are expected to limit drinks to water in a closed container and not bring any food into the classroom.

You are expected to complete all assessments in the allotted class period(s).

You are expected to refer to Google Classroom for all missed class periods.

You are expected to gather any missed materials from the corresponding folder for your class.

You are expected to ASK QUESTIONS. These can either be in class, via email or Google Classroom.

CLASSROOM CONSEQUENCES

All first offenses will receive a verbal warning.

Second offenses will receive a verbal warning and a phone call/email home.

Third and subsequent offenses will receive a referral.

Using a utensil other than a pencil on ANY work turned in to the teacher will result in an automatic half-credit deduction.

Any work not turned in by the due date will automatically be entered as a zero. In the case of an EXCUSED absence, work must be turned in based upon the specifications detailed in the Student Handbook. *Note that this does NOT pertain to field trips or school-approved

functions. Students involved in these are expected to complete and turn in work as though they were present in class.

Assessments not completed during the allotted time period(s) will result in point deductions of the unanswered questions. No re-take opportunities will be granted nor will there be an opportunity to do corrections on the original assessment.

SYLLABUS ACKNOWLEDGEMENT

I have read and understand the AP Statistics Syllabus for the 2019-2020 school year and agree to abide by the guidelines and rules set for this course.

Student Name: _____

Student Signature: _____ Date: _____

Parent/Guardian Name: _____

Parent/Guardian Signature: _____ Date: _____