



Reynolds High School – AP Statistics

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7th Period Access Code: M4NM-GSBC-JKHDR

Required Textbook: The Practice of Statistics (Updated 6th edition), by Starnes and Tabor, BFW Publishers, 2020. This barcoded textbook will be available to be checked out to each student and will need to be returned to the bookroom when the you leave or finish class.

Materials:

- Pencils, Pens, Highlighters
- Paper (graph paper may be helpful)
- Binder or spiral
- Graphing Calculator (TI-84 recommended)

Course Description:

AP Statistics is the high school equivalent of an introductory college statistics course. In this course, students develop strategies for collecting, organizing, analyzing, and drawing conclusions from data. Students design, administer, and tabulate results from surveys and experiments. Probability and simulations aid students in constructing models for chance behavior. Sampling distributions provide the logical structure for confidence intervals and hypothesis tests. Students use a TI-84 graphing calculator, Fathom and Minitab statistical software (when possible), and Web-based applets to investigate statistical concepts. To develop effective statistical communication skills, students are required to prepare frequent written and oral analyses of real data.

Class Goals and Expectations:

In AP Statistics, students are expected to learn:

- Big Ideas
 1. *VARIATION AND DISTRIBUTION (VAR)* The distribution of measures for individuals within a sample or population describes variation. The value of a statistic varies from sample to sample. How can we determine whether differences between measures represent random variation or meaningful distinctions? Statistical methods based on probabilistic reasoning provide the basis for shared understandings about variation and about the likelihood that variation between and among measures, samples, and populations is random or meaningful.
 2. *PATTERNS AND UNCERTAINTY (UNC)* Statistical tools allow us to represent and describe patterns in data and to classify departures from patterns. Simulation and probabilistic reasoning allow us to anticipate patterns in data and to determine the likelihood of errors in inference.
 3. *DATA-BASED PREDICTIONS, DECISIONS, AND CONCLUSIONS (DAT)* Data-based regression models describe relationships between variables and are a tool for making predictions for values of a response variable. Collecting data using random sampling or randomized experimental design means that findings may be generalized to the part of the population from which the selection was made. Statistical inference allows us to make data-based decisions.

The Big Ideas crosscut the units in the course. See the table on the next page for a general overview. Each chapter you'll be given a schedule showing how the Big Ideas and associated Essential Understandings connect with specific units and topics.

BIG IDEA MATRIX

	Unit 1: Exploring One-Variable Data	Unit 2: Exploring Two-Variable Data	Unit 3: Collecting Data	Unit 4: Probability, Random Variables, and Probability Distributions	Unit 5: Sampling Distributions	Unit 6: Inference for Categorical Data: Proportions	Unit 7: Inference for Quantitative Data: Means	Unit 8: Inference for Categorical Data: Chi-Square	Unit 9: Inference for Quantitative Data: Slopes
Big Idea 1: Variation and Distribution (VAR)	<p>VAR-1: Given that variation may be random or not, conclusions are uncertain.</p> <p>VAR-2: The normal distribution can be used to represent some population distributions.</p>	<p>VAR-1: Given that variation may be random or not, conclusions are uncertain.</p>	<p>VAR-1: Given that variation may be random or not, conclusions are uncertain.</p> <p>VAR-3: Well-designed experiments can establish evidence of causal relationships.</p>	<p>VAR-1: Given that variation may be random or not, conclusions are uncertain.</p> <p>VAR-4: The likelihood of a random event can be quantified.</p> <p>VAR-5: Probability distributions may be used to model variation in populations.</p>	<p>VAR-1: Given that variation may be random or not, conclusions are uncertain.</p> <p>VAR-6: The normal distribution may be used to model variation.</p>	<p>VAR-1: Given that variation may be random or not, conclusions are uncertain.</p> <p>VAR-6: The normal distribution may be used to model variation.</p>	<p>VAR-1: Given that variation may be random or not, conclusions are uncertain.</p> <p>VAR-7: The <i>t</i>-distribution may be used to model variation.</p>	<p>VAR-1: Given that variation may be random or not, conclusions are uncertain.</p> <p>VAR-8: The chi-square distribution may be used to model variation.</p>	<p>VAR-1: Given that variation may be random or not, conclusions are uncertain.</p> <p>VAR-7: The <i>t</i>-distribution may be used to model variation.</p>
Big Idea 2: Patterns and Uncertainty (UNC)	<p>UNC-1: Graphical representations and statistics allow us to identify and represent key features of data.</p>	<p>UNC-1: Graphical representations and statistics allow us to identify and represent key features of data.</p>		<p>UNC-2: Simulation allows us to anticipate patterns in data.</p> <p>UNC-3: Probabilistic reasoning allows us to anticipate patterns in data.</p>	<p>UNC-3: Probabilistic reasoning allows us to anticipate patterns in data.</p>	<p>UNC-4: An interval of values should be used to estimate parameters, in order to account for uncertainty.</p> <p>UNC-5: Probabilities of Type I and Type II errors influence inference.</p>	<p>UNC-4: An interval of values should be used to estimate parameters, in order to account for uncertainty.</p>		<p>UNC-4: An interval of values should be used to estimate parameters, in order to account for uncertainty.</p>
Big Idea 3: Data-Based Predictions, Decisions, and Conclusions (DAT)		<p>DAT-1: Regression models may allow us to predict responses to changes in an explanatory variable.</p>	<p>DAT-2: The way we collect data influences what we can and cannot say about a population.</p>			<p>DAT-3: Significance testing allows us to make decisions about hypotheses within a particular context.</p>	<p>DAT-3: Significance testing allows us to make decisions about hypotheses within a particular context.</p>	<p>DAT-3: Significance testing allows us to make decisions about hypotheses within a particular context.</p>	<p>DAT-3: Significance testing allows us to make decisions about hypotheses within a particular context.</p>

- **Course Skills**

1. *Selecting Statistical Methods*
Select methods for collecting and/or analyzing data for statistical inference.
2. *Data Analysis*
Describe patterns, trends, associations, and relationships in data.
3. *Using Probability and Simulation*
Explore random phenomena.
4. *Statistical Argumentation*
Develop an explanation or justify a conclusion using evidence from data, definitions, or statistical inference.

Students will develop these skills incrementally as the course progresses. After a skill is introduced, it continues to spiral through remaining units of the course. See the individual chapter pages given at the beginning of each chapter for details.

Teachers have the responsibility to set and maintain standards of classroom behavior appropriate to the discipline and method of teaching. Students may not engage in any activity which the teacher deems disruptive or counterproductive to the goals of the class. Cell phones can be a nuisance and are not to be used in the classroom. Students should have laptops available for online activities when requested. Reynolds High School student conduct rules also apply.

My AP Classroom:

There are materials available through the College Board website that I will be assigning. In order to access them, you will need to join my AP Classroom through their website. Joining the AP Classroom does not mean you have to sign up for the test. We will use these materials in the course regardless of your intention to take the test. To join the AP Classroom, go to <https://myap.collegeboard.org> and use the **join code 44M7QD if you're in 3rd period** and **join code 3VY699 if you're in 7th period**.

Grading Policy:

Your grade will be based on proficiency in the state standards for this course. Your grade will be determined by both formal and informal assessments. Your final grade will be reported on a traditional A-F scale. Honors grades will be awarded to any student earning an A, B, or C.

Students' grades will be weighted:

80% based on Mastery (Chapter Tests, Semester Exams, Projects)

10% based on Quizzes and AP Problems

10% based on Homework (Book assignments and Online Assignments)

Every week, there will be at least one quiz or test. If you miss an assignment or quiz, make arrangements with me to complete them. Homework from the book will be assigned daily. Free Response problems from past AP tests will be assigned at least once per chapter and turned in as a homework assignment. Tests will be given at the end of each chapter. Arrangements need to be made with me for make-ups or retakes. A test may only be retaken one time for a top score of 75%. Tests missed due to an unexcused absence may be made up, but may not be retaken. In order to retake a test, I require a student complete an additional review assignment. Retakes will be available for a limited time after a chapter test is completed. Projects will occur at least once a semester which require students to collect data, process data, and present results to the class.

Earning College Credit:

AP Test: During this course, we will focus on preparing for the AP Exam. Completing a high score on this exam displays college level understanding of the topics of Statistics as defined by the AP College Board. This exam is administered on Thursday, May 7, 2024. It is graded by the College Board in June and awards a score of 1 – 5, usually available by the first week of July. Most colleges and universities award credit based on earning a 3 or above on this test. However, this is at the discretion of the individual institution. Students should take the time to research the policy of the college they intend to attend. Students will need to register for the AP Test by mid-November.

Mt Hood Community College Dual Credit: This course is available for dual credit through Mt Hood Community College. The grade reported for RHS' first semester will correspond with MHCC's MTH 243 Statistics I in Winter Quarter and RHS' second semester grade will correspond with MTH 244 Statistics II in Spring Semester. If you enroll in Statistics through Mt Hood, your first semester grade will be entered for MTH 243 and your second semester grade will be entered for MTH 244. More information will be shared in a syllabus addendum in October to address Mt Hood's course description.

Additional Information:

I will be giving out a schedule of assignments for each chapter as we begin it. This will allow you to keep up with our content objectives even when you miss class. These will also be posted on the Schoology site. **You are responsible for the class material, even when you are absent.** I suggest getting notes from a classmate or checking in with myself as soon as possible.

I will be available in 719 afterschool for additional help.

Academic Honesty:

Cheating, plagiarism, and other acts of academic dishonesty are regarded as serious offenses. Teachers have the responsibility to submit, in a written report to the appropriate Vice Principal, any such incident that cannot be resolved between the instructor and the student. Depending on the nature of the offense, serious penalties may be imposed, ranging from loss of points to expulsion from the class.