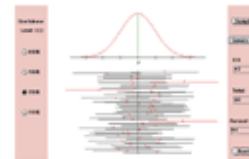


Advanced Placement Statistics Syllabus Andover High School



Instructors:

Mrs. Raatikka Classroom: E109 Phone: 763-506- 8436 email: lori.raatikka@ahschools.us

AP STATISTICS GOOGLE CLASSROOM CODE: [a2mm65x](https://classroom.google.com/j/1a2mm65x)

GOOGLE CLASSROOM: <https://classroom.google.com/c/MTIzMTg1MzU2MDA3?cjc=a2mm65x>

AP STATISTICS (Mrs. Raatikka's) GOOGLE SITE: <https://sites.google.com/ahschools.us/loriraatikkamath/home>

COURSE OUTCOMES:

Statistics is the art and science of collecting, organizing, analyzing, and drawing conclusions from data. This course is an Advanced Placement course, which gives students an opportunity to participate in a college-level learning experience. Students may take the Advanced Placement exam at the beginning of May and may be awarded college credit. It is up to the college to determine if credit will be awarded. Statistics is unlike any other mathematics course which high school students usually take, because of the inclusion of reading and writing assignments. Communication regarding the meaning and context of the numerical results is as important as the numbers themselves. Success in this component of the course takes practice. Students need to show consistent effort in doing assignments, to study for tests and to ask questions in class. This course can be rewarding for many students, as they learn to apply numbers in many different fields of study and work. There will be frequent writing assignments and group discussions based on real data, statistical analyses, and research studies. Participation in class discussions is vitally important, and correct terminology and portrayal of concepts is stressed. Homework, quizzes, tests, and exams all require written expression of methods, results, and interpretations using correct statistical terminology and phrasing. The 4C's of technical writing are stressed. **Written responses need to be clear, concise, correct, and in-context.**

COURSE GOALS: In AP Statistics, students are expected to learn

Skills

- To produce convincing oral and written statistical arguments, using appropriate terminology, in a variety of applied settings.
- Demonstrate mastery of the AP Stats curriculum as determined by the College Board.
- Prepare for further success in college-level mathematics.
- When and how to use technology to aid them in solving statistical problems

Knowledge

- Essential techniques for producing data (surveys, experiments, observational studies, simulations), analyzing data (graphical & numerical summaries), modeling data (probability, random variables, sampling distributions), and drawing conclusions from data (inference procedures – confidence intervals and significance tests)

Habits of mind

- To become critical consumers of published statistical results by heightening their awareness of ways in which statistics can be improperly used to mislead, confuse, or distort the truth.

Course Outline:

Major Topic	Textbook Reference
1 st Semester	
I. Exploring Data	Ch. 1-3
I. Planning a Study	Ch. 4
II. Anticipating Patterns	Ch. 5-6, 7
2 nd Semester	
III. Statistical Inference	Ch. 8-12

The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on sampling and experimentation.

ONLINE AND IN CLASS STUDENT RESPONSIBILITIES-

Throughout the school year, students will be learning online or in a blended hybrid course given any adjustments to Covid state and local updates. The following classroom learning environments are listed and require all students to participate in order to help make students more successful.

Synchronous learning (Synchronous Support Engagement Activities – the first 20 minutes of each class period)

Synchronous class sessions, in which everyone logs in to a web conferencing system (Google Meet) at the required classroom schedule. Students learn by participating in video conferencing. The 20 minutes video conferencing is allowing for student engagements for student support using small group instruction, office hours, and group conferences. Teachers and students will engage in collaboration, feedback, and personalized learning within these engagements. **Attendance will be taken for all synchronized learning.**



Synchronous Engagement Opportunities:
Live, Real-Time Learning

Office Hour Q & A	Group Video Conferences
Small Group Instruction	Collaboration & Feedback

Online etiquette – Basic online meeting etiquette

- Mute your mic when you are not contributing
- Please turn on your camera if possible and turn on Gallery View (everyone is able to look at each other at the same time) make eye contact when you are talking
- Use the Chat field for constructive comments and questions only

Asynchronous learning (Continued self-paced learning)

All students are required to complete daily assignments, lesson videos, quizzes, and assessments (test). Students must participate by going to the google classroom and my google site. Every Monday a weekly calendar of assignments, lessons, quizzes, and test are posted.

<https://sites.google.com/ahschools.us/loriraatikamath/home>

- Academic Honesty: As with traditional classes, academic honesty is a cornerstone of student online coursework.
- Students are responsible for ensuring that they have access to required hardware, software, and an Internet connection.
- Students must take advantage of all the communication options that are available in the course (e.g., email, discussion groups, daily logging into Google classroom) to facilitate learning and complete projects.
- Students need to utilize AP Statistics resources and seek help when needed.

Face-to-Face learning (Starting Sept. 28th week Hybrid Students A and Students B attend class)

- Students in **Cohort A** attend school in-person on **most Tuesdays and Wednesdays**.
- Students in **Cohort B** attend school in-person on **most Thursdays and Fridays**.

Google Classroom

To encourage blended learning (daily virtual learning), online assignments and video lessons will be posted daily through Google Classroom. All Google Classroom assignments will be graded. Students should be familiar with how to navigate the online platform, communicate with their teacher, and submit assignments on time. If there are technology limitations, please notify the teacher.

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GOOGLE CLASSROOM: <https://classroom.google.com/c/MTIzMTg1MzU2MDA3>

GOOGLE SITE <https://sites.google.com/ahschools.us/loriraatikamath/home>

Office Hours

All students can participate in office hours by joining Google Hangouts either alone or with other students. My Monday office hours will have a video conference feed going the entire hour and students can join the call and exit once their query is resolved.

Classroom communication plan (address questions)

- Send your questions to my email address or attend the open office hours.
- I will respond to your emails within 24 hours.

SUPPLIES – what items do I need to be successful?

- **3-ring binder (2 ½” binder)** , paper, pencil
- Awesome positive attitude
- Graphing Calculator (recommended TI-83 or TI- 84)
- Our textbook is **The Practice of Statistics (6th Edition- available online Sapling** at your Lock and key



GRADING - how will my success be measured and evaluated?

Each semester (12 weeks) grade will consist of:

Homework –Practice and Quizzes (formative quizzes)	15%
Tests (and Performance Assessments)	85%

GRADES-how will my success be reported?

- Our shared goal is **DEMONSTRATED MASTERY OF THE MATERIAL** on the way toward acing the AP exam. Percentage weights used for computerized grading during the quarter; 15% Assignments/Homework and quizzes; 85% Tests, projects; possible cumulative exam(s) covering the qtr./semester’s material. I also reserve the right to use my own non-computerized professional judgment of your mastery in assigning your transcript grade.
- Approximate cutoffs: 93%+ = A, 90%+ = A-, 87% = B+, 83%+=B, 80%+=B-, 77%+=C+, 73%+=C, 70%+=C-, 67%=D+, 63%+=D, 60%+=D-, under 60% = F (or my professional judgment)

Formative assignments - (15% of grade) what should I do to be successful?

Formative assessments take place daily, as they serve as a tool to inform and improve the teaching process and prepare students for summative assessment. Examples are daily homework, quizzes, performance assessments, and think-group-share. These represent 15% of the overall grade for the marking period.

- Read each section before we cover it in class.
- Have all work completed to the best of your ability before class begins.
- Students, especially at the beginning of the year, are pushed to write complete responses in their homework, on write-ups from the activities and investigations, and especially on quizzes and exams. Key words such as: brief paragraph, discuss, compare, contrast, and interpret are fleshed out early in the year so students can practice communicating effectively throughout the year. Student responses are graded on statistical accuracy and communication of statistical concepts.

AP STATISTICS CLASSROOM RUL ES

In order to ensure a productive scholarly environment, the classroom rules are as follows:

1. Respect the ideas, property, and physical well-being of everyone in the class
2. Use appropriate words and tone of voice when speaking
3. Limit activities and conversations to class material
4. Listen carefully to class instruction and follow teacher directions
5. Turn off and put away all electronic devices.

- Knowledge of, respect for and compliance with the AHS academic honesty and integrity policy.
- Students are asked to surrender their phones at the beginning of class and store in group bins in front of room.

CONSEQUENCES FOR CHOOSING TO BREAK THE RUL ES

If students choose to break the rules, the consequences are as follows:

1. Verbal warning; electronic devices will be confiscated
2. Talk with teacher and contact home
3. Referral to administration

- Students are exposed to AP Statistics free response questions throughout the year. This exposure is mostly in-class, although some questions are assigned as homework. Beginning late in the second trimester, students begin practicing free response questions with a time limit, initially about 18 minutes and gradually working down to 12 minutes.
- Be responsible about homework without having it ‘checked’ daily. (students may check solutions from teacher’s webpage)
- Formative quizzes may be given regularly. Formatives are often times used for feedback to check for understanding and can be retaken for full credit.

Homework is for ***your benefit!*** Students who consistently make an effort to keep up with homework perform substantially better on unit tests and the final.

Your note packets are very important. Keep them organized and take good notes so you have a resource to go back to for help.

Summative Assessments:

The summative unit exams represent 85% of the overall grade for the marking period. Summative assessment is designed to provide a culminating demonstration of learning and to assess mastery of knowledge at the conclusion of the unit or course. Summative Assessments may include unit exams involving free response assessment, multiple choice assessment and projects. Students must demonstrate their knowledge, understanding of concepts, and/or skills while answering the unit-guiding question based on AP-College Board Standards.

Reassessment Opportunity

Students will be given the opportunity to relearn and retest on both formative and summative exams. Students will need to complete additional review materials relating to both multiple choice and free response summative exams questions. Each student should complete this retesting process within one week from the return of the unit test.

Students Responsibility for Reassessment

- The student is the advocate for the remediation.
- Complete the required and necessary relearning steps in order to reassess.
- This may mean additional time with the teacher before or after school, additional practice work, or other interventions.
- Communicate as soon as possible after the assessment that you would like to reassess parts or all of the summative assessment.

Technology

It is recommended that all students have a TI-83/TI-83+/TI-84 graphing calculator for use in class, at home, and on the AP Exam. Students will use their graphing calculator extensively throughout the course. Although calculators will be available for students to sign out in class, I encourage families to consider purchasing a graphing calculator with statistics capabilities for use at home.

HELP-how can I increase my opportunity for success?

- Options include study groups outside school w/classmates, extra work before/after school, peer tutors, Homework Hotlines, and other math teachers. In AP Statistics, another great resource is the variety of online resources available. Our #1 shared goal is mastery of the course material on the way toward acing the AP exam, and I am willing to help out a responsible hard-working student in most any way I can. If you have suggestions to improve class, please see me! Be sure and communicate your needs and concerns.

How to succeed in AP Statistics-what qualities will it take to be successful?

- Your best effort and greatest responsibility.
 - 1) *****Do lots of problems*****
 - 2) **Work hard and consistently**
 - 3) **Come every day**
 - 4) **Try *all* of your homework**

Unit 1: Exploring One-Variable

Data Chapter 1 Data Analysis

Time Frame: Weeks 1- 2

Introduction: The Science and Art of Data

- 1.1 Analyzing Categorical Data
- 1.2 Displaying Quantitative Data with Graphs
- 1.3 Describing Quantitative Data with Numbers

Chapter 2 Modeling Distributions of Data

Time Frame: Week 3-4

- 2.1 Describing Location in a Distribution
- 2.2 Density Curves and Normal Distributions

Unit 2: Exploring Two-Variable Data

Chapter 3 Exploring Two-Variable Data

Time Frame: Weeks 5-6

- 3.1 Scatterplots and Correlation
- 3.2 Least-Squares Regression

Unit 3: Collecting Data

Chapter 4 Collecting Data

Time Frame: Week 7-8

- 4.1 Sampling and Surveys
- 4.2 Experiments
- 4.3 Using Studies Wisely

Unit 4: Probability, Random Variables, and Probability Distributions

Chapter 5 Probability: What Are the Chances?

Time Frame: Weeks 8-9

- 5.1 Randomness, Probability, and Simulation
- 5.2 Probability Rules
- 5.3 Conditional Probability and Independence

Chapter 6 Random Variables and Probability Distributions

Time Frame: Weeks 10-11

- 6.1 Discrete and Continuous Random Variables
- 6.2 Transforming and Combining Random Variables
- 6.3 Binomial and Geometric Random Variables

Unit 5: Sampling Distributions

Chapter 7 Sampling Distributions

Time Frame: Weeks 12-13

- 7.1 What Is a Sampling Distribution?
- 7.2 Sample Proportions
- 7.3 Sample Means

Unit 6: Inference for Categorical Data: Proportions

Chapter 8 Estimating Proportions with Confidence

Time Frame: Weeks 14-15

- 8.1 Confidence Intervals: The Basics
- 8.2 Estimating a Population Proportion
- 8.3 Estimating a Difference in Proportions

Unit 6 Continued: Inference for Categorical Data: Proportions

Chapter 9 Testing a Claim about Proportions

Time Frame: Weeks 16-17

- 9.1 Significance Tests: The Basics
- 9.2 Tests about a Population Proportion
- 9.3 Tests about a Difference in Proportions

Unit 7: Inference for Quantitative Data: Means

Chapter 10 Estimating Means with Confidence

Time Frame: Weeks 18-19

- 10.1 Estimating a Population Mean
- 10.2 Estimating a Difference in Means

Chapter 11 Testing Claims About Means

Time Frame: Weeks 19-20

- 11.1 Test about a Population Mean
- 11.2 Test about a Difference in Means

Unit 8: Inference for Categorical Data: Chi-Square & Unit 9: Inference for Quantitative Data: Slopes

Chapter 12 Inference for Distributions (Categorical) and Relationships (Linear Regression)

- 12.1 Chi-Square Tests for Goodness of Fit
- 12.2 Inference for Two-Way Tables
- 12.3 Inference for Slope

Time Frame: Weeks 21-22

Exam Review Practice Exam & Review for the AP exam

Time Frame: Weeks 23-24

AP Statistics Exam 5/13/21 @ 12PM

Additional online web resources;

Some links to visit for enhanced learning...

online glossary of statistical terms:

http://www.stats.gla.ac.uk/steps/glossary/hypothesis_testing.html

online texts that may be a good resource:

<http://davidmlane.com/hyperstat/>

<https://www.statsmedic.com/review-course>

<https://www.khanacademy.org/math/statistics-probability>

<https://stattrek.com/>

<https://www.macmillanlearning.com/studentresources/highschool/hsbridgepage/tps6e.html>

Career Resources

<http://www.amstat.org/careers/index.cfm?fuseaction=presentation>

which schools give college credit for AP studies??

<http://www.collegeboard.com/ap/creditpolicy>

Spring Review Sessions- for AP Exam Friday, May 13th NOON TEST (\$95 unless state contributes)

- 3 - after school sessions
- 3 - evening sessions
- If you can't come to a session pick up materials