# 2023 - 2024 COURSE SYLLABUS

## AP Statistics (Two semesters; 5 units each semester)

The Advanced Placement Program offers a course description and examination in Statistics to secondary school students who wish to complete studies equivalent to a one-semester, introductory, non-calculus- based, college course in statistics. This course includes the use of technology, projects, and laboratories, cooperative group problem-solving, and writing, which will support students in building interdisciplinary connections with other subjects and with their world outside of school. For a list of majors that use statistics, click here. Do you see any that interest you?

Statistics Students are exposed to four broad conceptual themes:

1. Selecting Statistical Methods: Deciding what and how to measure and analyze
2. Data Analysis: Describing patterns, trends, associations, and relationships in data
3. Exploring Random Phenomena: Producing models using probability theory and simulation
4. Statistical Argumentation: Justify a conclusion from data and statistical inference.

**AP EXAM**:

All students who take this class are expected to take the AP exam, which is scheduled for Tuesday, May 7th in the afternoon.  Students who successfully complete the course and pass the AP exam with a 3 or higher (score ranges from 1-5) may receive credit, advanced placement, or both for a one-semester introductory college statistics course.

**Prerequisite**:
Passing both semesters of Math 3 or equivalent with a C or better. This is not negotiable.

**Teacher:  Mr. James Lam** (Room T-5)
Email: James-Lam@scusd.edu
Remind (Text): (students) @Lam3Math or @Lam6Math;
                (parents) @APstatsfam (BEST way to contact me)

**Textbook:** The Practice of Statistics (6th Ed.) by Starnes and Tabor

**Class Materials:**
Laptop or Chromebook for use in class for doing simulations, sharing, research, spreadsheets, and participation in College Board activities. Graded work will be submitted in class (or on Google Classroom), but official grades will be kept on Infinite Campus.

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<u>Graphing Calculator</u> with a statistics package, such as TI 83/84 will be required. If you do not have access to a graphing calculator, please click here to borrow one from the Math department. Click here for the most current list of College Board approved calculators if you are considering buying one. Contact me if you have questions.

<u>Notebook or binder</u> on which to do your work and to keep it organized. Some work can be virtual, but you may want a hard copy if you plan on a major that involves statistics. There will be lots of sketches and graphs.

<u>Writing utencils</u>: Paper, Pencils, Straightedge, Graph paper may be helpful, but is not required.

**Grading Policy:**
Grades are based on mastery, which will be determined by assessments, both written and oral, formative and summative. Regular practice will help students perfect the skills needed to master concepts. Participation in class is the most recommended, but if that is not possible, students are expected to communicate with the teacher as soon as possible. Progressing grade reports are available on scusd.edu in Infinite Campus, but assignment submission will be through Google Classroom. The math department complies with district protocol, viewable at scusd.edu.

**GRADING SCALE:**

| 87.5 to 100% | A (This is a challenging achievement) |
|---|---|
| 77.5 to < 87.5% | B |
| 67.5 to < 77.5% | C |
| 57.5 to < 67.5% | D |
| 50 to < 57.5% | F (work with <50% accuracy, or too late receives 50%) |

Category grades are weighted:
  50% Assessments (Individual or Cooperative Tests, Quizzes)
  20% Midterms/Finals
  30% Assignments (Practice, Presentation, Projects, Class Activities, Warm-ups, etc.)

*<u>**AP Exam**</u>*  Students must take the AP Statistics Exam, and participation in the test will be part of the second semester grade.  Failure to take will result in a 50% for any/all related Assessment scores.

<u>**LATE SUBMISSION OR RESUBMISSION:**</u>
It is the student's responsibility to find out what assignments, activities, and notes were missed and make up that work promptly. Check Google Classroom. There is no penalty for late submission or

resubmission if it is completed **within one week** of assignment due date. After that time, up to 80% of grade can be given; else, 50% of the grade will be given.

Make-up Tests/Quizzes:  Only allowed with an <u>excused absence</u> (must be cleared on IC).  You will be allowed up to the amount of days you were out (unless other arrangements made with Mr. Lam). Otherwise, 50% will be given.

Course Outline (Each unit will include Assignments, with up to two quizzes, and a test.):

| Semester 1 | Semester 2 |
| --- | --- |
| Data Analysis | Sampling Distributions |
| Modeling Distributions of Data | Estimating with Confidence |
| Describing Relationships (Regression) | Testing a Claim |
| Collecting Data | Comparing Two Populations |
| Probability: What are the Chances? | Inference for Distributions of Categorical Data |
| Random Variables | More about Regression |
| Final | Final and AP Exam and Final Project |

**Course Objectives:**
Students will acquire and demonstrate knowledge of the concepts, definitions, and properties required to meet the AP Statistics mathematics standards. Students will develop critical thinking and decision- making skills by connecting concepts to practical applications needed to be productive members of society. All students are expected to demonstrate the following objectives:

- Students should be able to gather data responsibly and to work with data represented in a variety of ways: raw, graphical, or tabular and make the connections among these representations.
- Students should be able to communicate mathematics both orally and in well-written sentences, using appropriate terminology, in a variety of applied settings, and should be able to explain solutions to problems.
- Students should be able to model a written description of a physical situation with a function.
- Students should be able to use technology (graphing calculators, spreadsheets, and graphing software) to help solve problems, experiment, interpret results, and verify conclusions.
- Students should develop essential techniques for producing data (surveys, experiments, observational studies), analyzing data (graphical & numerical summaries), modeling data (probability, random variables, sampling distributions), and drawing conclusions from data (inference procedures - confidence intervals and significance tests)

- Students should be able to determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement.
- Students should 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.

**Academic Expectations:**
- Attendance – Have good attendance whenever possible. If you must be absent for an extended period of time, contact me and keep updated through Google Classroom.
- Work Ethic – You may need to work both individually and with a group and participate enthusiastically and constructively. It is bad form to leave your group hanging.
- Prepare for class- Do all assigned work on time for upcoming class discussions and activities.

**Behavioral Expectations:** (See JFK Student Handbook for details.)

**Extra Help:** The tutoring schedule will be announced soon after the start of school.

**General Classroom Rules:**
The following few rules guide classroom behavior and activity.

- Respect the speaker, whether it is the teacher, a student, or someone else.
- Students will sit in their assigned seats during class unless otherwise instructed.
- Cell Phones off, or silenced.  If you choose to listen to music, I hear it, I take it.
- Electronic devices should be used for class purposes (see below)
- There will be no eating during class. Drinks allowed in closed/capped containers.
- NO Passes allowed during first/last 10 minutes of class.

**Electronic Devices: (read carefully, this is my pet peeve)**

Please use your electronic devices to support your learning and have the good judgment not to use them for other purposes during class. Immediately put it away when asked until class is dismissed. If you are using your electronic devices inappropriately, I **will not ask** you to put it away.  This is your first, last, and only warning.

Failure to adhere to this policy will automatically result in a "U" for your citizenship grade.  Secondly, if there are any "retakes" of a quiz/test, you will not be entitled to it.  In addition, any "extra credits" (non-HW) that you may be given will become null and void.  Lastly, if you choose to waste your time in class, do **NOT** come to me for help outside of class (tutoring), seek help elsewhere.

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**Academic Dishonesty:**
Academic dishonesty is considered a serious offense in any class. This is an (AP) Advanced Placement class.  Students cheating will receive the lowest grade possible for that assignment and will not be allowed to redo it. In addition, disciplinary measures may include, (and not limited to) parent contact, referrals, suspension, or expulsion.  I encourage collaboration on all practice assignments and some quizzes, but I expect the work you submit (assignments, projects, exam/quiz, etc.) to be your own.

***Teachers value a lot of qualities: excellence, intelligence, courage, enthusiasm, maturity, a respect for others, perseverance, a sense of humor, confidence, open-mindedness, depth, kindness, etc…***

***The most important value is academic honesty.***

If we tolerate academic dishonesty, we lose trust and credibility. The entire process of learning becomes a sham.  Can anybody profess to be perfectly honest in every situation? Perhaps not. But when we work to preserve academic honesty, we create an environment where:
- Equity is preserved.
- We can trust what we say and do.

The activity-based, technology-based nature of this course will require a good deal of collaboration with your colleagues on homework assignments, and in-class lab assignments. As a result, the lines between healthy discussion and inappropriate sharing of ideas/work can become unclear for some students.

Detailed clarifications are below. But I expect all students to adopt the following rules:
- All work I turn in will be my own.
- If I worked with somebody else on an assignment, I will say so.
- I will not bring unauthorized aid into any testing situation.
- I will cite all outside sources.
- I will not fabricate sources or data.
- I will not assist in helping anybody else be dishonest in their work.

**COLLABORATION**: Students may work together to help each other understand homework questions. In fact, this is encouraged. ***If you worked with other people on an assignment, please state this directly on the assignment.***

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**CHEATING / COPYING**: A student uses another student's work (whether oral, written, or computerized) as a basis for figuring out how to complete their own work.

    Some examples:
- copying homework assignments
- Using another student's assignment / project / response as a basis for forming their own ideas for completing an assignment / project ( borrowing homeworks or projects for "inspiration" )
- Use of any "AI" source (ChatGPT, etc.)
- Giving a student the opportunity to cheat or copy (either by actively giving an assignment, or by "leaving it there" for somebody to "discover." )

**In short: "Understand together. Write it up alone. State who you worked with."**

**CALCULATOR POLICY:**
- You may use the built-in programs / commands on the TI 84 on any test, project, or exam.
- If I have personally downloaded programs or lists into your TI 84, then you may use those on any test, project or exam.
- You may NOT bring into any test, project or exam any programs, notes or lists not specifically approved by me.
- If you have lists or programs from other courses you currently take, talk to me, and I will see if they will be allowed into the room.

**Acceptable use of outside resources:**
- Quoting or paraphrasing other sources requires citing your source, including website if an Internet - based source. Failure to do so, and masking this information as your own work, is evidence of cheating and plagiarism.

**Getting data for a project:**
All data for an activity or a project must be collected as outlined in the procedures of the project. This requires one of the following:
- A clear description of the procedure used to get the data.
- A clear citation of the course of the data - I must be able to track it down, based on your citation.

**In other words: All data must be legitimate. Plagiarizing or fabricating data is another example of academic dishonesty.**

\*\*Syllabus assembled from past AP Stats syllabi of Ms. Vicki Feliz-Smith and Mr. Chris Jackson