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# AP Statistics (40326)

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2011-2012

## Instructor Information

**Name:** Mr. Tim Kuehl, BS, MS

**Office Location:** 1321 (Inside room 1323)

**Office Hours:** 1<sup>st</sup> and 8<sup>th</sup> hour, after school until 3:15 (in fall) or 3:45 (non-fall) or by appointment

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## General Course Information

**Title:** AP Statistics (40326)

**Department:** Mathematics

**Credits:** 1 credit

**Length:** 2 semesters

**Elective or Required:** Elective

**Grade Level:** 10-12

**Semester:** Both

**Meeting Schedule:** 4<sup>th</sup> hour

**Prerequisites:** Advanced Algebra and approval of the math department

**Course Description:** Statistics surround us in modern education, business, and life. The need for people to become statistically literate is imperative for them to be able to fully comprehend information that will continually bombard them in life. In this class, students go beyond the basic statistics they have learned to explore the statistics of both categorical and quantitative data, constructing and interpreting graphical displays of distributions of univariate and bivariate data (dotplot, stemplot, histogram, cumulative frequency plot, scatter plots, two-way tables), summarizing distributions of univariate data, comparing distributions of univariate data (dotplots, back-to-back stemplots, parallel boxplots), exploring bivariate data, transformations to achieve linearity: logarithmic and power transformations, methods of data collection, planning and conducting experiments, discussing results and types of conclusions that can be drawn from observational studies, experiments, and surveys, probability, combining independent random variables, the normal distribution, properties of the normal distribution, sampling distributions, statistical inference, point estimators and confidence intervals, and tests of significance. *AP Statistics* is a college-prep course.

## Parent-Instructor Communication

The instructor will strive to contact the parents when he observes tendencies including – but not limited to – the following: lack of academic effort, poor and failing grades, and classroom misconduct. Parents are urged to communicate with the instructor when they have questions and concerns. Contact by email is preferred by the instructor. The instructor will make every effort to respond to voice mails and emails in a timely manner.

## Course Details

**Course Purpose:** Statistics is a course in which students will be introduced to and learn the basics of the branch of mathematics called Statistics.

### **Course Goals:**

This course will:

- Allow students to display their God-given talents by applying Statistics to various real-world and mathematical situations in service to Him.
- Allow students to prepare for college-level courses which involve research and data analysis.

**Course Outcomes:**

The students will:

- Critique statistical results and reports of others
- Collect and analyze a set of univariate data completely using appropriate statistical methods
- Collect and analyze a set of bivariate data completely using appropriate statistical methods
- Calculate the probability of an event
- Test a hypothesis applying the appropriate test or determine a confidence interval for an outcome

**Student Materials:**

- Texts: *The Practice of Statistics, Yates, Moore & Starnes © 2003* and *Introduction to Statistics and Data Analysis, Peck, Olsen, and Devore © 2007*
- Pencil/Pen
- TI-83/84 type graphics calculator
- Three-ring binder (at least 1" width) with dividers
- Loose-leaf Paper or notebook
- Student Planner

**Instructional Strategies**

Statistics is best learned in context, so most of the class time will be used to collect and analyze different sets of data. Class time will also be used to discuss the readings and to discuss the statistical techniques being applied and the results. Time will also be given to correct homework in class and to discuss the problems. During the second semester, the class switches to an "independent study" atmosphere, with limited instructor lecture.

**Assignments & Assessments**

Work will generally revolve around readings and application problems. All work will be completed on structured worksheets designed to focus on the key concepts of Statistics and its applications. Quizzes will be given approximately every two sections, with a test at the end of each unit. Within each unit there will be smaller projects having students apply all the statistics in that unit. A semester project will be worked on throughout the semester having students collect and analyze univariate and bivariate data.

**Grading****KML Standard Grading Scale:**

95-100%	A	87-90%	B	79-82%	C	72-74%	D
93-94%	A-	85-86%	B-	77-78%	C-	70-71%	D-
91-92%	B+	83-84%	C+	75-76%	D+	0-69%	F

**Grading Policy:**

The final semester grade in this course is calculated based on all of the assignments given over the course of the semester using the percentage breakdown: Homework/Classwork (10%), Quizzes (20%), Projects (20%), Tests (30%), and Semester Project (20%). For this reason, the semester grade shown in PowerSchool is a better indicator of student achievement during the course than the quarter grade. Class participation will be considered in grade adjustments at the end of each quarter.

**Grading Procedures:** Grades will be entered into PowerSchool regularly. If grades are not updated during the school week, they will be updated by Sunday evening. Homework is graded on a five point scale depending on work shown, timeliness, organization, completeness, and number correct. Quizzes and tests are graded on a "points received/points possible" percentage. Projects will either be graded by points or given a letter grade based on a rubric.

**Make Up Work:** Homework grades cannot be made up unless you were absent. Homework, quizzes and tests are to be made up within the number of days you have been absent. If you were only ill for the one day or

were absent due to a preplan, you are expected to make up a quiz/test the day you return (the next day). Projects are due on their due date or the day you return from illness.

**Late and Incomplete Work:** You will receive a zero if your homework is not done on the day due. It is advised that you still do the homework for practice for quizzes and tests. Habitually coming to class with your homework incomplete or failure to make up a quiz, test, or project within the grace period given will result in an academic detention and a reduction in grade (usually 5% per day late).

**Major Assignments:** Failure to complete all major assignments in a course results in an automatic "F" for the course. Major assignments include all tests and projects for this class.

### **Classroom Procedures**

**Attendance:** Students are expected to attend all scheduled classes in accordance with the attendance policy as outlined in the KML Student Handbook. In the event of an absence, it is the responsibility of the student to follow all necessary steps as outlined in the handbook and this syllabus.

**Tardiness:** Students are expected to be inside the door of the classroom when the class bell rings in accordance with the tardiness policy as outlined in the KML Student Handbook. The instructor will notify students if they have been marked tardy. Habitual failure to bring materials required for class will also result in a tardy being issued as it demonstrates you are not ready for class in a timely manner.

**Academic Dishonesty:** KML expects all students will honor the principles of honesty and truth as taught in God's Word. This means that all academic work will be done by the student to whom it was assigned without unauthorized aid of any kind. Research sources must be cited fully and accurately. The school reserves the right to use academic screening methods to check the authenticity of student work. Refer to the KML Student Handbook for additional guidelines concerning penalties for cheating.

**Behavior:** Students are expected to respect the instructor, fellow students, and the learning environment at all times. Discussion of topics should be done in an orderly atmosphere with only one person talking at a time and with permission. Students are expected to remain focused on the topic being discussed. Disruptions to the learning atmosphere will not be tolerated, with adequate warnings being given before a detention is issued.

When given time to work in class, students are allowed to leave their desks to turn in work, get needed materials, sharpen pencils, work on the computers, etc. This should be done without visiting other students. For all other reasons (to go to the bathroom, to work with another student, etc.) permission should be requested first. Students must remain in their desks until the bell rings and may not stand by the door or in the hallway.

You are allowed to have games on your calculator, but may not play them during class.

#### **Daily Routine:**

- Enter class and begin correcting the work due for that day
- Questions taken on homework due (if any)
- Discussion on the next topic
- Time to work on the assignment covering the next topic

**Academic Progress:** It is the intent of KML that all students enrolled in this course should complete it successfully. The instructor will strive diligently to help students to succeed. When it becomes apparent to the instructor that a student has placed himself/herself in jeopardy of meeting the minimum requirements of the course, the instructor may begin the procedure outlined in the Academic Progress Policy of the KML Student Handbook in order to remedy the situation.

**Course Help:** If you are struggling in this class, DO NOT let it linger! As is typical with math, future concepts depend on the sound understanding of previous concepts, so do not fall behind! There are many avenues of assistance for this class listed at the class website, but your primary source should be Mr. Kuehl.

### **Other Information:**

**Representing Your Savior by Using Your Talents:** By virtue of being in this class, you have shown yourself to be blessed by God with mathematical ability. God asks us to use our gifts and talents to serve and represent Him. As such, you will be asked to represent your Savior and your school in various math competitions during the year. Participation in these meets does not automatically make you a member of the KML Math Team. You must meet the other criteria of being a team member to be considered a member of the math team. Participation in a math meet will earn you 10 free quiz points (as long as you score a point and work faithfully) and award winning participation in a math meet will be considered for grade adjustment at the end of a quarter.

Another way you can serve God with your talents is to use your abilities to help others by becoming a peer tutor. I will either omit the lowest test grade or give a partial grade raise for any student that is a peer tutor during that semester. In order to take advantage of this, you must sign-up to be a peer tutor with Mrs. Boeldt at the beginning of the semester. The peer tutoring can be done during the school day or during ELP.

### **Homework:**

You should spend 20 to 40 minutes a night on work for this class in addition to the time given during class. The problems assigned have been carefully selected and completed by the instructor himself to offer you practice on problems that should help you develop your skills and prepare you for assessment on quizzes, tests, and projects. In Statistics, it is necessary to complete each problem – there is no “busy work”. Keep in mind that homework is mostly graded on work shown, timeliness, and organization, and to a lesser extent number correct and completeness. Homework is for your benefit – to allow you to practice under non-threatening conditions.

If there is no homework assigned, or you are done with it, there are still plenty of things to do. You can:

- review and clarify your notes
- work ahead on assignments, especially reading guides
- review for the quiz or test
- work on the unit or semester project

If you need extra practice on a section you can:

- use the odd problems from the section or chapter review (the answers are in the back of the text)
- make corrections on your homework or quizzes
- go to the textbook’s website for online tutoring and practice tests

### **Calculators:**

- be sure you have your name engraved on it
- don’t use it as a crutch to do simple calculations you should do in your head
- store the calculator safely in your locker - don’t leave it unattended on a table or in your book bag
- the school reserves the right to delete offensive and unnecessary programs from your calculator
- no password programs are allowed on your calculator

### **Website:**

- The class website is available through the school’s website or [www.mathdragon.net](http://www.mathdragon.net)
- The website contains the entire class outline, with all assignments, special links, readings, etc.
- Assignments that are posted on the small white board are also posted on the class website
- Hand-outs in class can be downloaded at the class website
- Graph paper is in the black trays in the back of the room and is available on the class website
- A link to the textbook’s web site is on the class website
- Links for help and tutoring and other useful sites are on the class website