

MONTE VISTA CHRISTIAN SCHOOL
MATH 4351, AP Statistics
Course Syllabus

Course Description:

An introduction of fundamental methods of data collection and analysis, and how to use these methods to draw conclusions about real world applications. Content includes exploratory data analysis, study planning, probability models, and statistical inference. This class is designed for the highly motivated student who has demonstrated excellence in mathematical reasoning and critical thinking.

Curricular Mapping:

This course will aid students in the development of the probability skills already developed in earlier math courses. Students will build upon skills previously acquired regarding the numerical and graphical description of distributions. Students will gain practice in using formulas to find values for key descriptors, as well as isolating variables. While much of the content covered in this course does not appear in any other high school level math courses, the knowledge and abilities obtained from this course will greatly benefit students whose future studies (in fields such as biology, economics, psychology, etc.) will require a background in statistical methods.

Course Objectives:

Upon the successful completion of this course the student will be able to:

1. Describe distributions by finding measures of center and spread and constructing appropriate graphs.
2. Provide explanations for relationships between variables using graphs and numerical measures.
3. Calculate probabilities using appropriate probability laws.
4. Perform calculations involving random variables and their distributions.
5. Complete significance tests, including various forms of z-tests, t-tests, and chi-square procedures.
6. Pass the AP Statistics test.

Texts:

Your necessary digital texts for this class will be part of a “Required Course Materials Fee” thru the EdTech bookstore. This is a bundle purchase of digital texts for your full schedule of classes and will be available for purchase after 7/18/16. For further instructions please visit the [16-17 School Year](#) icon on the MVCS homepage. Please note: some courses may require additional purchases outside of the course materials fee.

Course Outline:

- I. Exploring Data: Observing patterns and departures from patterns
 - A. Interpreting graphical displays of distributions of univariate data (dotplot, stemplot, histogram, time series plot, density curve)
 - B. Summarizing distributions of univariate data
 - C. Comparing distributions of univariate data (dotplots, back-to-back stemplots, parallel boxplots)
 - D. Exploring bivariate data
 - E. Exploring categorical data (frequency tables, two-way tables)
- II. Planning a Study: Deciding what and how to measure
 - A. Overview of methods of data collection
 - B. Planning and conducting surveys
 - C. Planning and conducting experiments
- III. Anticipating Patterns: Producing models using probability and simulation
 - A. Probability as relative frequency
 - B. Combining independent random variables
 - C. The normal distribution
 - D. Simulating sampling distributions of sample means and sample proportions
- IV. Statistical Inference: Confirming models
 - A. Confidence intervals
 - B. Tests of significance
 - C. Special case of normally distributed data

Grading:

All student grades will be weighted as follows:

<u>Grade Book Categories</u>		<u>Semester Weighted Grading Configuration</u>	
Tests	50%	Quarter	40%
Quizzes	30%	Quarter	40%
Homework	20%	Final Exam	20%

Tests

Tests will be given approximately every two weeks with the completion of each chapter.

Quizzes

Quizzes will generally be given approximately once a week and will always be announced.

Homework

Homework will be assigned almost every day. Assignments for the week will be written on Focus every Monday. Students should expect about 45 minutes of homework on a daily basis. Although calculators will be used extensively in this course, students are still expected to make it clear how they got their answers by showing work whenever possible. Late homework will not be accepted for a grade, but homework passes are given out at the beginning of every month.

High School Standard Grading Policy:

Please refer to the policy and procedures posted online in our Student Handbook.

Class Policies:

Please see the instructor if you have any concerns with your ability to follow these policies.

1. Attendance: Students are expected to miss as few classes as possible. As with most math courses, ideas will constantly be built on each other, and it will be quite difficult to understand what is being taught without having learned previously covered material. If a student misses class, it is his or her responsibility to learn what was missed (by asking another student or checking online), complete all assigned work, and voluntarily turn the work in. It is not the instructor's responsibility to tell you what was missed, or to ask you for absent work.
2. Materials: In addition to having a copy of the textbook, students are also required to have a graphing calculator with statistical capability for use both at school and at home. I will be providing instruction for using the TI-Nspire calculator for statistical analysis and testing, and it is strongly recommended that the student purchase this model of calculator. In addition, students are encouraged to keep an organized binder.
3. Apps: This class may require the student to purchase a maximum of \$30 in apps during the school year. Students will be given 48 hours to purchase and download any required apps for this course.

School Policies and Expected Student Learning Results (ESLRs):

Students are subject to all academic policies of the school as found in the Parent-Student Handbook. Furthermore, it is each student's responsibility to read and follow all academic policies of Monte Vista Christian School. In addition to addressing each ESLR every year, we target a specific ESLR each academic year for particular focus.