

## **MATHEMATICS DEPARTMENT**

**STATISTICS H/AP: COURSE #347**

### **Contact Information**

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### **The Department's Educational Philosophy**

The study of mathematics will enhance the ability of all students to problem solve and to reason. Through a strong standardized departmental program that emphasizes problem solving, communicating, reasoning and proof, making connections, and using representations, students will develop self-confidence and a positive attitude towards mathematics.

Our curriculum matches that of the Massachusetts Mathematics Curriculum Framework, and we are philosophically aligned with the National Council of Teachers of Mathematics Standards.

### **Guiding Principles**

- Mathematical ideas should be explored in ways that stimulate curiosity, create enjoyment of mathematics, and develop depth of understanding.
- Effective mathematics programs focus on problem solving and require teachers who have a deep knowledge of the discipline.
- Technology is an essential tool in a mathematics education, and all students should gain facility in using it where advantageous.
- All students should have a high-quality mathematics program.
- Assessment of student learning in mathematics should take many forms to inform instruction and learning.
- All students should understand the basic structure of mathematics.
- All students should recognize that the techniques of mathematics are reflections of its theory and structure.
- All students should gain facility in applying mathematical skills and concepts.
- All students should understand the role of inductive and deductive reasoning in mathematic and real life situations.

## **STATISTICS H/AP: COURSE #347**

**Course Frequency:** Semester course, five times per week

**Credits Offered:** Two and a half

**Prerequisites:** B- in Probability/Statistics

### **Background to the Curriculum**

This course was developed and introduced during the 2006-2007 school year. It is meant to expand on topics from Probability/Statistics for the stronger students and to thus prepare them for the ETS Statistics AP exam.

### **Core Topics/Questions/Concepts/Skills**

- Review of Probability Models
- Testing Hypotheses
- Sampling Distribution Models
- Comparing Proportions
- Confidence Intervals
- One and Two Sample t-Tests
- Inferences About Means
- Inferences When Variables Are Related

## Course-End Learning Objectives

<u>Learning objectives</u>	<u>Corresponding state standards, where applicable</u>
<ol style="list-style-type: none"><li>1] Review the material in Probability/Statistics and elaborate on Probability models introduced at the end of the first semester.</li><li>2] Sample distribution models.</li><li>3] Design confidence intervals for proportions.</li><li>4] Test hypothesis about proportions.</li><li>5] Use p-values.</li><li>6] Use the null hypothesis and alternating hypothesis.</li><li>7] Compare 2 proportions.</li><li>8] Make inferences about means.</li><li>9] Use one and two sample t-tests.</li><li>10] Use paired samples.</li><li>11] Compare counts.</li><li>12] Make inferences for regression.</li></ol>	Since this is a college level course, state standards do not correlate.

## Assessment

Students are generally assessed by in class exams or quizzes.

## Technology and Health Learning Objectives Addressed in This Course

(This section is for faculty and administrative reference; students and parents may disregard.)

<u>Course activity: skills &amp;/or topics taught</u>	<u>Standard(s) addressed through this activity</u>
1] Students will use the T183 extensively to obtain relevant information.	

## Materials and Resources

Stats, Modeling the World, David Bock, Pearson Education Company, 2007.