

## Mathematics Department- Academic Expectations for Computer Science AP and Honors Classes



AP courses provide students with the mathematics content and analytical skills expected in a college level course. Teachers of AP courses follow a required course outline and prepare students with the knowledge and skills necessary to be successful on the Advanced Placement examination which takes place in May. Before signing up for an AP course, please review the chart below and ask yourself if you are a student who



- is interested in the content?
- has excellent attendance?
- is willing to invest the extra time needed for a college level class?
- has strong organizational and time management skills?
- has strong reading and writing skills and is willing to improve them?
- is an independent learner?

The chart below provides an approximation of the time and assignments for each AP course offered in the Mathematics Department and may vary from student to student. Different teachers for the same course may have slightly different procedures, but the time commitment is about the same. And according to school policy, students are reminded that they may not drop an AP course until the end of the first quarter and until they show sufficient effort in the class.

Area of Study	# of pages to read/prepare for each class	# of hours to study/prepare	Tests, Essays, Papers	Major Projects	Summer Assignments	Comments
<b>AP® Computer Science A</b> <i>Over view of Java Programming language with a theoretical introduction to programming techniques and patterns</i>	Required chapter readings of about 30 pages plus comprehensive notes taken on each chapter by the student. About 15 coding questions per night	45 minutes per class.  About an hour and a half for tests	About 2 tests per month. Plus quizzes, both pop and scheduled.  Tests made up of multiple choice and free response sections.  Quizzes are all short answer	Programming projects throughout the year.  After AP Exam: final project.	Logic exercises to develop problem solving.	This is a difficult course which is different from any other offered. Students are required to change the way they think and develop new problem solving techniques.  Students who are successful in geometry, especially with proofs are greatly encouraged to take the class.
<b>AP® Computer Science Principles</b> <i>A comprehensive introduction to the Development, Foundations and Societal Impacts of modern computing</i>	20-30 pages reading articles and textbook  or  10-20 problem set	About an hour, including homework time.	1-2 Quizzes per month 1 Unit Tests per Month 2 Essays /Journal per Month 1 Paper per Month	1 - Explore Performance Task 1 – Create Performance Task	Read 70-100 pages Respond to Journal Prompts	This course develops critical thinking, writing and discussion skills. There is also emphasis on Number Systems, Binary Arithmetic, Boolean Algebra, computer programming, abstraction, and application development.
<b>STEM Engineering</b> <i>Course will cover basic engineering concepts and a survey of different types of engineering. This class is ideal for students interested in STEM education or project-based learning. Class is honors weighted.</i>	Readings will be about 10 pages a week.  Homework will consist of 10-15 problems  There is a fee for this class.	About 30-45 minutes per class period outside of class will be required	There will be -2 tests a quarter.  There will be 2-3 large projects per quarter as well.	There will be 2 – 3 major projects per quarter. These will require out of class time to work with groups		This is a class that will give the students a chance to experience STEM problem solving. This class will cover aspects of Physics and it will focus on projects and deliverables. There will be a large component of group work.