

MATHEMATICS DEPARTMENT

C PROGRAMMING (AE/H): COURSE #354

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.

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Course Frequency: Semester course, five times per week

Credits Offered: Two and a half

prerequisites: B- in Geometry AE or H

Background to the Curriculum

This course was begun in 1997 and replaced older courses in BASIC and PASCAL. It matches the content of a college course in that subject.

Core Topics/Concepts/Skills

Syntax and semantics

Use of subprograms

Data structures

Program development

Algorithm design

Course-End Learning Objectives

<u>Learning objectives</u>	<u>Corresponding state standards, where applicable</u>
1] variables, data types, arithmetic expressions 2] program copying 3] arrays 4] functions 5] structures 6] character strings 7] pointers 8] the preprocessor 9] data structures 10] input/output	

Assessment

Students are assessed by in-class tests, as well as programs they write. Students with a 90 average in term 1 can contract with the teacher for honors credits.

Materials and Resources

Programming in ANSI – C, SAMS Publishing, 1994.