

Bethlehem Central High School

Mathematics Electives



Introduction to Computer Science

Prerequisite: Algebra II AB or Honors Algebra II BC

This course is a broad introduction to a variety of fundamental topics in computer science. Students will consider problems in an application area that can be solved with software. Students will be introduced to important areas of computer science including abstraction, computer organization, representation of information, history of computing, ethics, and the development and evaluation of algorithmic solutions using an appropriate programming environment. This course may be taken for college credit through a partnership with Siena College.

What do students think of Intro to Computer Science?

"People should take Intro to Computer Science if they want to receive not only a better understanding of how to design and create programs on the computer, but if they also want to learn more about technology, math, working with others and how to problem solve." **Jared Murray**

"It is incredibly fun!! Even if you don't know anything about coding or computer science, it's super easy to follow along. The teachers are really nice and helpful, and so is everyone taking the class too. The classes (at least mine was) are smaller, and so it's easier to communicate and receive help." **Caroline M.**

"If you enjoy using technology and want to understand it better. I like how collaborative the learning is and how the majority of the time is stress free. We work on homework and labs together in class. I am learning so much and I don't have to focus or worry about quizzes and tests." **Sylvia**

AP Computer Science - **NEW OFFERING**

Prerequisite: Introduction to Computer Science

AP Computer Science is an introductory college-level computer science course that emphasizes object oriented programming methodology as well as problem solving. The

course emphasizes the process of problem solving in addition to the solution itself. High-level thinking skills are developed as students utilize "real-life" skills such as problem analysis, organizing a solution and knowledge of computer control. Students will learn JAVA programming language to meet the goals of the course.

Applied Advanced Math

Prerequisite: Successful completion of 3 years of math (Senior Level Course Only)

The Applied Advanced Math class explores applications of previously learned topics and introduces new topics, especially topics in discrete math. Some topics include linear programming, graph theory, exploring 2D and 3D geometry, just to name a few. Applied Advanced Math combines Continuous and Discrete mathematics to explore a variety of application based questions. Continuous mathematics provides excellent models and tools for analyzing real-world phenomena that change smoothly over time, including the motion of planets around the sun or the flow of blood through the body. Discrete mathematics provides excellent models and tools for analyzing real-world phenomena that change abruptly and that lie clearly in one state or another. Discrete mathematics is the tool of choice in a host of applications, from computers to telephone call routing and from personnel assignments to genetics.

AP Statistics

Prerequisite: Algebra II

AP Statistics is a college level introduction to statistics. Units include Gathering Data, Displaying and Describing Data, Probability, and Inferential Statistics. Examples of statistics in real life will be presented daily, enhanced by student led discussions to learn data analysis methods which can be applied throughout your education. Students will prepare for the AP Statistics exam with the opportunity to earn college credit upon earning a minimum score (as determined by individual colleges) on that exam.

What do students think of AP Stats?

“After taking AP Stats I see statistics in everyday things and can actually apply classwork to life.”

“ AP Statistics is unique in that it is a high level course that applies to many other classes while still being one of the most fun and interactive classes in the school. The math, reading, and group projects in AP Stats mean that this class can appeal to all students.”

“One should take AP Stats because it profoundly improved my test-taking skills. Stats is also relevant outside the classroom, and I still put my knowledge to use today.”

Applied Real World Math

Prerequisite: Algebra I B

This course focuses on applying previously learned material to real world topics. In Applied Real World Math students will be discussing topics related to taxes, budgeting, trip planning, housing cost options, car buying options, and college expenses. Here are some examples of projects that past students have worked on:

- **Housing Remodel:** Everyone planned a remodel for a part of their house. We included dimensions, shopping for materials, and a budget.
- **Travel Agency:** Pairs of students planned a trip to anywhere in the world within a certain budget. Students presented their trips and voted on a favorite.
- **Thanksgiving Meal:** Students planned for either a budget-friendly or fancy Thanksgiving menu. They were responsible for scaling the recipes they found and finding the total cost required for the entire meal.

What do students think about Applied Real World Math?

"Some key things I learned in this class was how to manage insurance, learning stuff with college budgets and talking about our careers in the future. I like how you make us think about the future because you are getting us prepared for the real world and I love that about this class!" **Sarah Crewell**

"I like this class because it's math but it's math that will actually help me in the near future for getting a job, and a house and car." **Evan Parrish**

"In this class this year more than I ever have in school, I have learned valuable lessons and things that are good to know for life." **Ethan Sheraw**

