Python Course Application

There are multiple computing course options for Brookline High School students. In order to take one of our many advanced computing options students must first take one of the following introductory computing courses: SNAP!, Exploring Computer Science Engineering or Robotics (See course descriptions on the back of this page). Any student may opt to take one of these courses and should select the requested course through the family portal when choosing electives.

Python is one of our more advanced computing courses that students may take upon completion of one of the introductory courses listed above (unless they have extensive computing experience outside of BHS). Students CANNOT register for Python online. Rather, they must fill out this application and return it to their teacher or to Mr. Paris in the math office (Room 268).

Name: _____   Current Grade (circle one):   9   10   11

Current Math Course: _____

Prerequiste Course Taken:

- ❏ SNAP!
- ❏ Exploring Computer Science Engineering
- ❏ Robotics

If you have not taken one of these prerequisite courses please describe (in detail) your computing experience:

_____

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Most students take Python for elective credit. However, some students who need a 0.5 math credit can opt to take Python for math credit. Circle your preference below:

    Python for Elective Credit   Python for Math Crediit

Turn in your completed application to your math teacher or to Mr. Paris in the math office (Rm. 268).

Due: March 15, 2020

Introductory Coding Courses

CE4100/MA1500 Exploring Computer Science Engineering

The Exploring Computer Science Engineering course is a project based course taught in a collaborative learning environment. Assignments and instruction are contextualized to be socially relevant and meaningful for diverse students. Students explore, experiment, research, problem solve, create algorithms and create projects to recommend and install hardware and software, create web sites using html, css and javascript, write computer programs coding in programming languages such as scratch, app inventor, and small basic which allow students to program phones, tablets, robots, desktop and laptop computers. Topics include: Human computer interaction, problem solving, web design, programming, computing and data analysis, and robotics.

CE4101/MA1501 Computer Programming: Snap!

This course explores a variety of computational thinking and programming concepts. It introduces the students to SNAP!, a block-based programming language similar to Scratch. Students' experiences in this course will provide them the coding background knowledge they need to move on to pure language based coding. Concepts taught are variables, conditionals and Booleans, loops, lists and custom blocks. The course ends with a comprehensive individualized, student driven project that unifies these coding skills. Students should be comfortable with abstract thinking and be prepared to complete labs regularly in a timely fashion. All necessary technology will be made available to students.

CE4500 Autonomous Robotics I

Autonomous Robotics I is a project-based course where students develop computing and mechanical design skills and build autonomous robots that use sensors and actuators to perform simple tasks in response to their environment. Students also explore ethical and aesthetic questions in robotics and computing as they apply to designing, building and deploying their robots to solve real-world problems. Skills developed in this course include: Block- and text-based computing for embedded and robotics systems, mechanical design, autonomous goal planning and execution, sensor data acquisition and analysis, actuator control, and error detection & recovery. Project include: maze solving, odometry, object identification & categorization, prosthetic & assistive technologies, wearables and kinetic sculpture & lighting. Students interested in pursuing robotics throughout high school can elect Autonomous Robotics more than once, with skills developed in one semester applied to project in subsequent semesters.

And here is a description of Python:

CE4102/MA1502 or Computer Programming: Python

This course explores a variety of computational thinking and programming concepts using the industry-standard Python programming language. We will briefly review the core concepts of variables, loops, and conditionals before moving on to the meat of the course: data structures (lists, dictionaries), abstraction (functions, classes), and software design. Students will learn to deconstruct complex tasks into simpler stand-alone parts, write generic code to solve those tasks, and synthesize those solutions into an integrated program with rich behavior. The course is heavily lab-based: students will complete 6 unit projects, primarily in class. They will also be responsible for completing readings and pencil-and-paper homework outside of class. Although no prior knowledge of Python is required, students should be comfortable working with variables, conditionals (i.e. "if" statements), and loops in some language (Scratch, Snap, Javascript, Basic, etc.). This knowledge can be acquired from a previous formal course, or through self-study of online tutorials. Computers will be provided to students for in-class use.