Introduction to Python

Overview

Students will be introduced to the world of programming through the high-level, open source Python language. The course will guide students from the fundamentals such as operating systems and Unix commands in-depth topics such as algorithms.

Requirements

- Algebra and Geometry required; Algebra 2 recommended
- Decent grasp of verbal reasoning
- Be motivated to learn about programming and technology

Goals

- Work with Integrated Development Environments and familiarize with Unix systems
- Understand Python data structures, classes, objects, functions, and common packages
- Apply principles to real-world applications and processes

Schedule

Unit 1: **Introduction**	Operating Systems, Unix Environment Software Requirements “Hello World”
Unit 2: **Basics / Syntax**	Data Types Lists & Dictionaries Dictionaries
Unit 3: **Functions**	Conditionals Functions Scope
Unit 4: **Loops**	For Loops and While Loops Recursion
Unit 5: **Misc**	Lambda Functions Advanced Parameter Control Mini-Project
Unit 6: **Numpy & Arrays**	Numpy Arrays Importing Other packages
Unit 7: **Objects**	Object-orientated programming Classes Methods
Unit 8: **Advanced Topics**	Introduction to Algorithms Other languages Web Design
Project	Review & Project Examples Project: Object-orientated game