

Suffolk University  
College of Arts and Sciences  
Mathematics and Computer Science Department

Existing Course: CMPSC 120     Programming for the World Wide Web - 4 Semester Credits

Course Description: This course is a hands-on introduction to computer science for non-CS majors by way of learning how to build interesting, interactive, and programmed webpages. We do not use any drag-and-drop software for this purpose, but rather we learn to build webpages using the basics of HTML and the programming language PHP. Applications of topics in a wide variety of disciplines will culminate in a final term project designed and implemented by the student. [4 semester credits]

Course Objectives:

1. To provide a general introduction to the discipline of computer science.
2. To facilitate a general problem-solving approach to real-world applications involving programmable webpage solutions, applicable to a wide range of disciplines.
3. To introduce the student to structured data languages, including HTML and XML.
4. To introduce the student to basic programming constructs, such as conditionals and loops.
5. To introduce the student to procedural programming constructs.
6. To introduce the student to multicomponent programming, involving linkage and interaction with databases.
7. To introduce the student to long-term and larger-scale programming concepts, resulting in a term project of significant scope.

Course Goals:

1. The student will have a general introduction to computer science.
2. The student will be able to create programmed webpages that process data input and present computed output via the web browser mechanism.
3. The student will gain experience in problem-solving, utilizing logic skills in application to actual programming problems with real-world applications.
4. The student will gain experience in working in groups on multi-component projects.
5. The student will bring web-based programming skills to aid in study of other disciplines.

Course Syllabus:

0. Getting Started
  1. Email, Chat, and Firefox Web Browser
  2. Learning About the Course
  3. Installing Java, JEdit and Other Software
  4. RSS Feeds and Podcasts
  
1. History of Computer Science
  1. The Analytical Engine
  2. Key Historical Figures
  3. Moving from Mechanical to Electronic
  4. Formation of the Internet
  5. The PC Revolution

2. Fundamentals of the Internet
  1. Internet Protocol Addresses
  2. Domain Names
  3. Protocols: http, https, ftp, sftp
  4. Using Ping and Tracert: Packets
  5. IP Locator
  6. Web Servers
3. Web Server Account
  1. Saving Textfiles Locally
  2. Saving Textfiles to a Webserver
  3. Accessing files on the Webserver
  4. Basic HTML to create a first webpage
4. Time
  1. How Humans Tell Time and Dates
  2. How Computers Tell Time
  3. Starting PHP with echo, date(), and time() functions
  4. Converting between different calendar systems
5. Basic HTML
  1. Core tags: <html>, <head>, <body>
  2. Basic formatting
  3. Lists
  4. Tables
  5. Using Barebones HTML
  6. Images and FTP
6. HTML Forms
  1. Form Elements
  2. PHP Variables
  3. Linking Form Elements to PHP Variables
  4. Creating Functioning Forms
  5. Webpages That Email Data
7. PHP Programming Constructs
  1. Computations
  2. Conditionals: if-then
  3. For loops
  4. Increments
  5. Operators
  6. Applications: Analyzing a Business Problem
8. Theory of Computing
  1. Alan Turing
  2. The Turing Machine
  3. Applications to Modern Day Computing

9. Style Sheets & Fine Tuning
  1. Headers and Footers
  2. Style Sheets
  3. Menus
  
10. mySQL Databases
  1. Database Program, Database, Database Table
  2. Basic SQL Syntax
  3. Connecting to the mySQL Database Program
  4. Creating Tables with mySQL Helper
  5. INSERT, SELECT Syntax
  
11. Final Project
  1. Design of a Project of Significant Scope
  2. Preliminary Prototype
  3. Functioning Device

Textbook: “<? - An Introduction to Computer Science Using PHP”, Robert Curtis. (Lulu.com - 2006)

Background on PHP: PHP (historically: “Personal Home Page”) is a web-based, server-side programming language. This free server-side software is available from most commercially-available web space providers, and is widely recognized as the standard for web-based programming. PHP works “inside” of HTML, providing advanced programming constructions inside of HTML pages. The execution of these PHP programs occurs upon loading of a PHP webpage. Competing software to PHP includes Microsoft’s ASP (Active Server Pages).

Although this course will focus on programming in HTML and PHP, the emphasis of this course will be an academic introduction to computer science. Through hands-on experience in writing programmed webpages in PHP, the student will learn the basic concepts of computer science in addition to gaining valuable practical skills that can be applied to a variety of disciplines in their academic studies.