Introduction to Computer Programming—Visual Basic
CS 0004
3 Credits

1. This is a first course in computer science designed to be of special interest to students majoring in one of the social sciences or humanities. The objectives of this course are to use the computer in an interactive environment to analyze problems, to develop algorithms, to learn the Visual Basic language, to design code and to document programs using techniques of good programming.

2. One year of high school algebra is a prerequisite.

3. The grade is determined by the student’s performance on programming assignments, two examinations, and a comprehensive final exam.


The following topics are covered in the University of Pittsburgh CS 0004 course:

1. General
   - Introduction:
     - Hardware
     - Software
     - Operating Systems
   - Problem Solving:
     - Analysis of problems
     - Development of algorithms
     - Flowcharts
     - Pseudo-code
     - Hierarchy charts
   - Programming Styles
     - Procedural
     - Object Oriented

2. Programming Concepts
   - Syntax
   - Data types
   - Variables and Constants
     - Class Level
     - Local
   - Ascii values
   - Order of Operations
   - Operators:
     - Arithmetic
     - Relational
     - Logical
   - Decision statements:
     - If-Then
     - If-Then-Else
     - If-Then-Else-If
     - Select-Case
   - Loops:
     - For/Next
     - Pretest/Posttest with:
       - Do/While loops
       - Do/Until loops
     - Sentinel vs. Counting
   - Arithmetic Functions
   - Arrays:
     - 1-Dimensional
     - 2-Dimensional
### 2. Programming Concepts (cont.)

- **Strings and string manipulation:**
  - Functions & Methods
- **Formatting output:**
  - FormatNumber
  - FormatCurrency
  - FormatPercent
  - Zone Formatting
- **Simple file operations:**
  - StreamReader
  - StreamWriter
- **Sequence Search**
- **Simple sorting**
- **Documentation**
- **Counters and Accumulators**

### 3. Visual Basic Concepts

- **Form design**
- **ToolBox objects**
  - Label
  - TextBox
  - Button
  - GroupBox
  - ListBox
  - CheckBox
  - Radio Button
  - Placing objects
  - Property Sheet and properties
  - IDE
  - Event-driven paradigm
  - Debugging
  - Focus
  - Font style and size
  - Menus
  - Folders & files structure
  - Simple graphics
  - Scope of variables
  - Option Explicit/Option Strict
  - Multiple forms

### Additional course credit information for CS 0004:

**At the University of Pittsburgh:**

Course credits can count in three ways: toward the requirements for a major, toward elective requirements, and/or toward the total number of credits needed to graduate. For this course

- **Majors:** As CS 0004 is a preparatory programming course, it does not fulfill a major requirement in Computer Engineering, Computer Science, or Information Sciences (although it provides preparation for the courses needed for those major requirements).
- **Electives:** Individual Schools and Colleges of the University (such as Engineering, Arts & Sciences, Business, Information Sciences, and so on) have different policies about elective credits and may count this course as an elective. Students interested in studying at the University of Pittsburgh should contact their School/College of interest to see if this course would be counted.
- **Graduation:** This course’s credits count toward the number of credits needed for graduation.

**At colleges and universities other than the University of Pittsburgh:** students should contact their school/college of interest to see how this course’s credits would be counted.