

Computer Science 4316 Fundamentals of Programming

Student Learning Outcomes

- 1. Construct a Visual Basic .NET program using Microsoft Visual Studio**
Students will be able to utilize the Microsoft Visual Studio integrated development environment to create Visual Basic .NET solutions that include forms with controls and code that make the forms functional. The integrated debugger can be used to find syntax and run time errors.
- 2. Create Visual Basic .NET applications**
Students will be able to create projects with forms that may include labels, picture boxes, text boxes, group boxes, list boxes, check boxes, and radio buttons and modify applicable control properties. Event procedures can be developed to allow a user to interact with the form. Students will be able to create applications with multiple forms and menus. Students can perform file input and output, work with databases and create web applications.
- 3. Build on Visual Basic programming fundamentals**
Students will be able to effectively utilize decision structures such as If...Then...Else and Select...Case statements, loops and nested loops, logical operators, relational operators, arithmetic operators, procedures, functions, and arrays. Students will be able to validate input and format output. Students will be able to utilize methods from predefined classes in their programs. Students can create classes along with class properties, methods and event procedures and then instantiate objects from those classes.
- 4. Develop an algorithm to solve a given problem and translate it into a working VB .NET program**
Students will be able to develop an algorithm to solve a given problem. The student can translate an algorithm into a program that includes forms and Visual Basic code. Students recognize and use recommended programming style and technique.

Course Content

Textbook: *Starting out with Visual Basic 2008*, Fourth Edition, by Tony Gaddis / Kip Irvine

The following chapters including the particular sections listed are covered. (See textbook "Contents")

Chapter 7: Multiple Forms, Standard Modules, and Menus

- Multiple Forms
- Standard Modules
- Menus

Chapter 8: Arrays, Timers, and More

- Arrays and Multidimensional Arrays
- Enabled Property, Timer Control, and Splash Screen
- Anchoring and Docking Controls
- Random Numbers

Chapter 9: Files, Printing and Structures

- Using Files
- OpenFileDialog, SaveFileDialog, FontDialog, and ColorDialog Controls
- PrintDocument Control
- Structures

Chapter 10: Working with Databases

- Database Management Systems
- Database Concepts
- DataGridView Control
- Data-Bound Controls
- Structured Query Language (SQL)

Chapter 11: Developing Web Applications

- Programming for the Web
- Creating ASP.NET Applications
- Web Server Controls
- Designing Web Forms
- Applications with Multiple Web Pages
- Using Databases

Chapter 12: Classes, Collections, and Scrollable Controls

- Classes and Objects
- Creating a Class
- Collections
- Object Browser
- Scroll Bars and Track Bars
- Introduction to Inheritance

Additional Content

Any section or chapter not listed previously.