

# COMPUTER SCIENCE (CS)

**CS G102** **4 Units (54 lecture hours; 54 lab hours)**  
**Computer Software Development, Introduction**  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This course will introduce students to the basic principles of computers and software development. Computer architecture concepts and principles of operation, operating systems basics, file management, and software development principles will be discussed, demonstrated and practiced. Common programming languages, including Java, C, C++, and Visual Basic will be discussed and small programs in each language will be written. Graded or Pass/No Pass option.

**CS G127** **4 Units (54 lecture hours; 54 lab hours)**  
**Introduction to Programming With PHP and MySQL**  
**Advisory:** CS G102 or CS G130.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.

This course will cover the fundamentals of Web-based software development using the PHP scripting language together with HTML and MySQL Open Source Database. The process of software development will be discussed to include: designing, writing source code, executing, and testing and debugging. Data types, arithmetic and logical expressions, debugging, looping, branching, modularization, simple database access, simple database structures and simple HTML will be discussed in lectures and practiced through lab projects. Web-based Internet applications will be designed and created. Graded or Pass/No Pass option.

**CS G130** **4 Units (54 lecture hours; 54 lab hours)**  
**Survey Of Computer Science/Information Technology**  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU; UC.

This class surveys computer science and information technology with emphasis on computer business applications. The student will be exposed to computer concepts including components of a computer, operating systems, utility programs, terminology, communications, networking, internet usage, ethical issues and computer application software, such as word processing, spreadsheets, database, database query and presentation software. The student will complete projects in a desktop computer environment. Lecture & lab. Graded or Pass/No Pass option. **C-ID:** ITIS 120.

**CS G131** **4 Units (54 lecture hours; 54 lab hours)**  
**Python Programming I**  
**Advisory:** CS G102.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU; UC.

This course will cover the fundamentals of programming using Python language. The process of software development will be discussed to include: designing, writing source code, executing, and testing and debugging. Data types, arithmetic and logical expressions, debugging, looping, branching, modularization, simple database access, simple database structures and simple Graphical User Interface will be discussed in lectures and practiced through lab projects. Business, scientific and mathematics applications will be designed and created. Graded or Pass/No Pass option.

**CS G135** **4 Units (54 lecture hours; 54 lab hours)**  
**UNIX/Linux Operating System**  
**Advisory:** CS G102.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU; UC.

This course provides an overview of UNIX / Linux Operating System. Students will learn concepts such as file system, variables and permissions, plus file and directory management commands, editors, filters, links and redirection. Lab sessions will be provided to practice and finish homework's executing UNIX / Linux commands, both in the shell and the Graphical User Interface (GUI) environments. Graded or Pass/No Pass option.

**CS G153** **4 Units (54 lecture hours; 54 lab hours)**  
**Java Programming, Introduction**  
**Advisory:** CS G102 and MATH G030.

**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU; UC.

This course will cover the fundamentals of software development using the Java Language. The discussions of software development process will include: designing, writing source code, compiling, linking, executing, and debugging. Data types, arithmetic and logical expressions, debugging, looping, branching, modularization, dynamic memory allocation, classes and objects will be discussed in lectures and practiced through lab projects. Both console and GUI-based (Graphical User Interface) applications will be designed and created. Graded or Pass/No Pass option. **C-ID:** COMP 122.

**CS G154 4 Units (54 lecture hours; 54 lab hours)****Data Structures with Java****Prerequisite(s):** CS G153 or CS G175.**Grading Mode:** Standard Letter**Transfer Credit:** CSU; UC.

Formerly: Java Data Structures, Advanced. Advanced programming techniques and Object Oriented Programming principles in Java will be exploited in learning the concepts of data structures. Students will gain theoretical and hands-on experience with the implementation of typical data structures (e.g., arrays, queues, stacks, linked-lists, trees, hashing, and graphs) used in programming applications. Principles of recursion, sorting, searching, optimization, classes, objects, inheritance, and polymorphism will be explored and practiced. Graded. **C-ID:** COMP 132.

**CS G167 4 Units (54 lecture hours; 54 lab hours)****iPhone Programming with Objective C****Advisory:** Successful completion of at least one course in C programming or one of these Object Oriented (OO) languages, C++, C# (CSharp), or Java, and should understand OO design and development concepts.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course will cover the fundamentals of iPhone application development using the Objective-C Language and the iPhone SDK (Software Development Kit). The application development process will include: designing for MVC (Model-View-Controller), writing source code, compiling, linking, executing, debugging, and testing. The theory and use of Cocoa and Cocoa Touch, Xcode, Interface Builder, Core Audio / Animation /Data /Location, UIKit (User Interface), GameKit and App design will be discussed in lectures and practiced through lab projects. iPhone applications will be designed and created. Graded or Pass/No Pass option.

**CS G175 4 Units (54 lecture hours; 54 lab hours)****C++ Programming****Advisory:** CS G102 and MATH G030 or MATH G040.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU; UC.

This course will cover the fundamentals of software development using the C++ Language. The discussions of software development process will include: designing, writing source code, compiling, linking, executing, and debugging. Data types, arithmetic and logical expressions, debugging, looping, branching, modularization, static and dynamic memory allocation, classes and objects will be discussed in lectures and practiced through lab projects. Both console and GUI-based (Graphical User Interface) applications will be designed and created. Graded or Pass/No Pass option. **C-ID:** COMP 122.

**CS G178 4 Units (54 lecture hours; 54 lab hours)****Visual C# .Net****Advisory:** CS G153 or CS G175.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course will cover software development in the Microsoft .NET framework. Visual C# .NET will be used as the development tool to discuss and practice Windows-based applications and Web-based applications. This course prepares students for Microsoft.NET Framework Web-Based Development Certificate and Windows Client Development Certificate. Graded or Pass/No Pass option.

**CS G179 4 Units (54 lecture hours; 54 lab hours)****C++ Programming, Advanced****Advisory:** Experience with Object Oriented Programming in C++, including templates.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU; UC.

This course covers advanced features of software development using the C++ language. Topics covered will include input/output streams, file input and output, exception handling, Standard Template Library (STL) including string class, sequential and associative containers. Understanding function objects, STL algorithms, adaptive containers, bitset class and smart pointers will also be discussed in lectures and practiced through lab projects. Graded or Pass/No Pass option.

**CS G189 4 Units (54 lecture hours; 54 lab hours)****Data Structures With C++****Advisory:** CS G153 or CS G175.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU; UC.

This lecture and laboratory course will cover the Data Structures and Object Oriented Programming concepts using the C++ language. Arrays, queues, stacks, linked-lists, trees, hashing, graphs, recursion, sorting, searching, optimization, classes, objects, inheritance, and polymorphism will be discussed and practiced. Graded or Pass/No Pass option. **C-ID:** COMP 132.

**CS G196 4 Units (54 lecture hours; 54 lab hours)****Web Programming With .NET****Advisory:** CS G177 or CS G178.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU; UC.

Students will study and build eCommerce and eBusiness applications using various tools, languages, & utilities to include: Visual Basic .Net, C#, Code Behind, Active Server Pages.Net, ActiveX Data Objects.Net, Structured Query Language (SQL) & Common Gateway Interface. Web services will be discussed and implemented using XML, SOAP, WSDL, & UDDI. This course prepares students for Microsoft .NET Framework Web-Based Development Certificate. Graded or Pass/No Pass option.

**CS G242** **3 Units (54 lecture hours)**  
**Computer Architecture and Organization**  
**Advisory:** CS G153 or CS G175.

**Grading Mode:** Standard Letter

**Transfer Credit:** CSU; UC.

This course will cover the organization and behavior of real computer systems at the assembly-language level. The mapping of statements and constructs in a high-level language onto sequences of machine instructions is studied, as well as the internal representation of simple data types and structures. Numerical computation is examined, noting the various data representation errors and potential procedural errors. Graded. **C-ID:** COMP 142.

**CS G262** **3 Units (54 lecture hours)**  
**Discrete Structures**  
**Prerequisite(s):** CS G153 or CS G175 and MATH G030 or MATH G040 or Math Placement Assessment.

**Grading Mode:** Standard Letter

**Transfer Credit:** CSU; UC.

This course is an introduction to the discrete structures used in Computer Science with an emphasis on their applications. Topics covered include: Functions, Relations and Sets; Basic Logic; Proof Techniques; Basics of Counting; Graphs and Trees; and Discrete Probability. Graded. **C-ID:** COMP 152.