

# COMPUTER INFORMATION SYSTEMS: PROGRAMMING (CISP)

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## CISP 10 Principles of Object-Oriented Design

**2.5 Units** (Degree Applicable, CSU)

Lecture: 27 Lab: 54

**Advisory:** CISP 21 or CISP 31 or CISP 41

Object-oriented design, patterns, and use of Unified Modeling Language (UML) in different programming languages that will enable students to build large packages and business applications. The course also covers Agile and Scrum methodologies.

## CISP 11 Programming in Visual Basic

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 54

**Corequisite:** CISP 11L

**Advisory:** CISB 11 or CISB 15 or CISP 10

Visual Basic (VB) programming in the business environment includes: planning and writing object-oriented applications using Windows Forms and Web Forms; user interface design classes, objects, properties, methods and events; control structures; lists and arrays; printing and print previews; accessing a database.

## CISP 11L Programming in Visual Basic Laboratory

**0.5 Units** (Degree Applicable, CSU, UC)

Lab: 27

**Corequisite:** CISP 11

Laboratory for CISP 11 Programming in Visual Basic (VB). Planning and writing object-oriented applications in the business environment; using Windows Forms and Web Forms; user interface design classes, objects, properties, methods, and events; control structures; lists and arrays; printing and print previews; accessing a database.

## CISP 21 Programming in Java

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 54

**Corequisite:** CISP 21L

**Advisory:** CISP 10 and (CISB 11 or CISB 15)

Design and development of object-oriented Java programming applications. Includes object-oriented business programs and applications, documentation and debugging techniques, user-interface, objects, various data types, methods, events, elementary control structures, arrays, and inheritance. Student must take CISP 21L concurrently.

## CISP 21L Programming in Java Laboratory

**0.5 Units** (Degree Applicable, CSU, UC)

Lab: 27

**Corequisite:** CISP 21

Laboratory for CISP 21 - Java Programming exercises focusing on design and development of object-oriented business programs and applications, documentation and debugging techniques, user-interface, objects, variables, methods, events, elementary control structures, lists, arrays, and inheritance. Concurrent enrollment in the lecture course CISP 21 - Programming in Java is required.

## CISP 24 Advanced Java Programming

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 54

**Corequisite:** CISP 24L

**Advisory:** CISP 21 and CISP 21L

Advanced object-oriented programming using Java: designing, coding, testing, and implementing multi-tier applications in serialization, multithreading, Advanced Swing Components (ASC), networking, server-side technology which include servlets, remote method invocation (RMI), Java server pages, Java Database Connectivity (JDBC), public key infrastructure (PKI), mobile applications, and security. Student must be enrolled in CISP 24L, a concurrent lab co-requisite.

## CISP 24L Advanced Java Laboratory

**0.5 Units** (Degree Applicable, CSU, UC)

Lab: 27

**Corequisite:** CISP 24

Laboratory for advanced programming concepts using Java: designing, coding, testing, and implementing multi-tier applications in serialization, multithreading, Advanced Swing Components (ASC), networking, server-side technology which include servlets, remote method invocation (RMI), Java server pages, Java Database Connectivity (JDBC), public key infrastructure (PKI), mobile applications, and security. Student must be enrolled in CISP 24, a concurrent lecture co-requisite.

## CISP 31 Programming in C++

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 54

**Corequisite:** CISP 31L

**Advisory:** CISP 10 or (CISP 11 and CISP 11L) or (CISP 21 and CISP 21L)

Object-oriented programming in C++ including object-oriented design, documentation, and debugging techniques. Elementary control structures, classes, overload operators and functions, and single and multiple inheritance. Student must be enrolled in CISP 31L, a concurrent laboratory co-requisite.

## CISP 31L Programming in C++ Laboratory

**0.5 Units** (Degree Applicable, CSU, UC)

Lab: 27

**Corequisite:** CISP 31

Laboratory for object-oriented programming in C++ including object-oriented design, documentation, and debugging techniques. Elementary control structures, classes, overload operators and functions, and single and multiple inheritance. Student must be enrolled in CISP 31, a concurrent lecture co-requisite.

## CISP 34 Advanced C++ Programming

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 54

**Corequisite:** CISP 34L

**Advisory:** CISP 31 and CISP 31L

Object-oriented programming in C++ concepts and principles. Covers data structures: vectors, linked lists, queues, stacks and hash tables, graphical-user interface (GUI), database access, and web services. Students must be enrolled in CISP 34L, a concurrent lab co-requisite.

**CISP 34L Advanced C++ Programming Laboratory****0.5 Units** (Degree Applicable, CSU, UC)

Lab: 27

**Corequisite:** CISP 34

Laboratory for object-oriented programming in C++ concepts. Covers principles covers data structures: vectors, linked lists, queues, stacks and hash tables, graphical-user interface (GUI), database access, and web services. Students must be enrolled in CISP 34, a concurrent lecture co-requisite.

**CISP 41 Programming in C#****3 Units** (Degree Applicable, CSU)

Lecture: 54

**Corequisite:** CISP 41L**Advisory:** CISP 10

Design and development of object-oriented C# programming applications. Includes object-oriented business programs and applications, documentation and debugging techniques, user-interface, objects, various data types, methods, events, elementary control structures, arrays, and inheritance. Student must be enrolled in CISP 41L, a concurrent lab co-requisite.

**CISP 41L Programming in C# Laboratory****0.5 Units** (Degree Applicable, CSU)

Lab: 27

**Corequisite:** CISP 41

Laboratory for CISP 41 - C# Programming exercises focusing on design and development of object-oriented business programs and applications, documentation and debugging techniques, user-interface, objects, variables, methods, events, elementary control structures, lists, arrays, and inheritance. Concurrent enrollment in the lecture course CISP 41 - Programming in C# is required.

**CISP 71 Programming in Python****3 Units** (Degree Applicable)

Lecture: 54

**Corequisite:** CISP 71L**Advisory:** CISP 10

Design and development of object-oriented Python programming applications. Includes object-oriented business programs and applications, documentation and debugging techniques, user-interface, objects, various data types, methods, events, elementary control structures, arrays, inheritance, polymorphism, file operations, database interaction, and networking. Student must take CISP 71L concurrently.

**CISP 71L Programming in Python Laboratory****0.5 Units** (Degree Applicable)

Lab: 27

**Corequisite:** CISP 71**Advisory:** CISP 10

Python Programming exercises focusing on design and development of object-oriented business programs and applications, documentation and debugging techniques, user-interface, objects, variables, methods, events, elementary control structures, lists, arrays, inheritance, polymorphism, file operations, database interaction, and networking. Concurrent enrollment in CISP 71 is required.

**CISP 74 Advanced Programming in Python****3 Units** (Degree Applicable)

Lecture: 54

**Corequisite:** CISP 74L**Advisory:** CISP 10 and CISP 71 and CISP 71L

Advanced object-oriented programming using Python. Topics include: (data structures and algorithms; extensible markup language (XML) processing; threads and concurrency; web scraping; web applications; scalable applications on the Amazon web services (AWS) cloud ; web services interaction; operating systems interaction; and real world tasks automation. Student must enroll in CISP 74L concurrently.

**CISP 74L Advanced Programming in Python Laboratory****0.5 Units** (Degree Applicable)

Lab: 27

**Corequisite:** CISP 74**Advisory:** CISP 10 and CISP 71 and CISP 71L

Laboratory for advanced object-oriented programming using Python. Topics include data structures and algorithms; extensible markup language (XML) processing; threads and concurrency; web scraping; web applications; scalable applications on the Amazon web services (AWS) cloud ; web services interaction; operating systems interaction; and real world tasks automation. Student must be enrolled in CISP 74, a concurrent lecture co-requisite.

**CISP 81 Work Experience in Computer Programming****1-4 Units** (Degree Applicable)

(May be taken for Pass/No Pass only)

**Prerequisite:** *Compliance with Work Experience regulations as designated in the College Catalog.*

Provides students with actual on-the-job experience in computer programming at an approved worksite, which is related to classroom based learning. A minimum of 75 paid clock hours or 60 non-paid clock hours per semester of supervised work is required for each one unit of credit. It is recommended that the hours per week be equally distributed throughout the semester. Work experience placement is not guaranteed, but assistance is provided.