

# COMPUTER SCIENCE (CS)

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## CS 142 Object-Oriented Programming I 5 Credits

Introduces the design and implementation of computer programs, including basic object-oriented programming with functions, classes, and objects.

**Prerequisite:** Prerequisite: Appropriate placement or a C or better in MATH 097 or equivalent.

## CS 143 Object-Oriented Programming II 5 Credits

Develops fundamental concepts and techniques for analysis, design, and implementation of computer programs using an object-oriented language. Includes recursive techniques and simple data structures.

**Prerequisite:** Prerequisite: CS 142.

**Distribution Requirements:** Specified Electives

## CS 310 Database Systems 5 Credits

Covers database and SQL fundamentals. Includes data retrieval, organization, security, and code for managing data.

**Prerequisite:** Prerequisite: Completion of AS-T Track 2 with CS142 & 143, CS DTA/MRP, Associate in Computer Science (either track); Associate in Computer Science from Grays Harbor College; computer science degree from accredited institution; or instructor permission.

## CS 320 Cybersecurity with Networking 5 Credits

Introduces network addressing and protocols, cybersecurity audits, vulnerability assessment, and security event mitigation.

**Prerequisite:** Prerequisite: Completion of AS-T Track 2 with CS142 & 143, CS DTA/MRP, Associate in Computer Science (either track); Associate in Computer Science from Grays Harbor College; computer science degree from accredited institution; or instructor permission.

## CS 330 Discrete Math for Computer Science 5 Credits

Introduces topics in discrete math and computer science. Topics include Boolean logic, set theory, mathematical proof, combinatorics, induction, recursion, number theory, and graph theory.

**Prerequisite:** Prerequisite: Completion of AS-T Track 2 with CS142 & 143, CS DTA/MRP, Associate in Computer Science (either track); Associate in Computer Science from Grays Harbor College; computer science degree from accredited institution; or instructor permission.

## CS 340 Mobile Application Development 5 Credits

Covers mobile app development, packaging, and release. Includes significant design and development work.

**Prerequisite:** Prerequisite: CS 310

## CS 350 Cloud Computing 5 Credits

Introduces a prominent cloud service provider. Covers cloud concepts, virtual machines (VMs), and storage. CS 320 recommended.

**Prerequisite:** Prerequisite: CS 310

## CS 360 Algorithms and Data Structures 5 Credits

Covers identification and use of data structures and algorithms along with computation of space and time complexities.

**Prerequisite:** Prerequisite: CS 330

## CS 370 Web Programming 5 Credits

Introduces concepts of web programming and how to create scalable web applications.

**Prerequisite:** Prerequisite: CS 310 with a C or better and CS 350

## CS 380 Computer Architecture 5 Credits

Explains how hardware components execute instructions and process data. Introduces overall system organization, including the memory hierarchy, caches, input/output, and parallelism. Provides insights into the interactions and dependencies between hardware and software.

**Prerequisite:** Prerequisite: Completion of CS 360 or concurrent enrollment in CS 360

## CS 410 Software Engineering 5 Credits

Introduces development lifecycle methodologies, software deployment, ticketing systems, alerts, documentation, and testing.

**Prerequisite:** Prerequisite: CS 370

## CS 420 Operating Systems 5 Credits

Offers a comprehensive study of modern operating systems, focusing on the principles, design, and implementation of operating systems in contemporary computing environments.

**Prerequisite:** Prerequisite: CS 380

## CS 440 System Administration 5 Credits

Covers system management and monitoring. Includes problem troubleshooting and resolution, internet services, and content moderation issues.

**Prerequisite:** Prerequisite: CS 350

## CS 450 Machine Learning 5 Credits

Introduces concepts, techniques, and algorithms in machine learning. Includes regression, classification, neural networks/deep learning, and other topics. CS 310 recommended.

**Prerequisite:** Prerequisite: Both CS 360 and MATH 305

## CS 490 Senior Project I 5 Credits

Introduces task breakdown, project scheduling, and related ethical issues. Students design, plan, and begin to develop a multi-quarter project.

**Prerequisite:** Prerequisite: Both CS 380 and CS 410

## CS 491 Senior Project II 5 Credits

Continues development of CS 490 projects. Students will finish development, review their initial schedule, and present their capstone projects.

**Prerequisite:** Prerequisite: CS 490