COMPUTER SCIENCE (CS)

CS133WS Computer Language I: Web Scripting 4 credits (3 lec, 2 lec lab hrs/wk)
Prerequisite(s): (CS160) or (CS195)
This programming course introduces basic concepts of client-side and server-side scripting languages emphasizing concepts of good website design and construction with the use of scripting languages. Programming focus is on modern event-driven client-server software concepts using HTML/XHTML and JavaScript and PHP. Prior HTML/XHTML knowledge is required for success.
This course may be taken 1 time for credit.
Course classification: LDC

CS160 Introduction To Computer Science 4 credits (3 lec, 2 lec lab hrs/wk)
Introduction to Computer Science is an engaging course designed for beginners. It provides an overview of the field of computer science, covering key concepts and algorithms that underpin modern computing technology. Students will explore various topics, including internet search engine algorithms, number systems, binary math, Boolean logic, computer architecture, artificial intelligence, and the future of computing. Practical programming exercises in a beginner-friendly language will be included, offering hands-on experience in developing simple scripts and applications. This course is ideal for anyone interested in understanding the basics of computing and programming, and it serves as a foundational "big picture" course for those continuing in the CS series.
This course may be taken 1 time for credit.
Course classification: LDC

CS161 Computer Science I 4 credits (3 lec, 2 lec lab hrs/wk)
Prerequisite(s): (CS160) or (ENGR112)
Computer Science I introduces students to the fundamentals of programming using the C++ language. The course covers basic concepts such as variables, control structures, functions, arrays, and elementary data types. Emphasizing problem-solving and algorithmic thinking, it guides students through the development of simple programs and basic software development processes. The course also introduces debugging and testing techniques, laying the groundwork for more advanced programming concepts and practices in subsequent courses.
This course may be taken 1 time for credit.
Course classification: LDC

CS161A Computer Science 1 (A) 4 credits (3 lec, 2 lec lab hrs/wk)
CS161A Provides a friendly, hands-on introduction to the fundamentals of programming using Python. Designed with beginners in mind, this course covers essential topics such as variables, flow control, loops, conditionals, and basic data structures—all in a relaxed, supportive environment. You'll gain familiarity with one of the most popular and versatile programming languages, along with a solid foundation in computational thinking and problem-solving techniques that apply to any language. Through practical exercises and engaging projects, CS161A not only prepares you for more advanced computer science courses but also serves as a standalone resource for anyone eager to harness the power of Python.
This course may be taken 1 time for credit.
Course classification: CTE

CS161B Computer Science I (B) 4 credits (3 lec, 2 lec lab hrs/wk)
CS 161B - Computer Science I is a fast-paced, intensive course designed for technical majors who already have a basic grounding in programming. Leveraging the power of C++, this course deepens your understanding of essential programming concepts—such as variables, control structures, functions, arrays, and elementary data types—while also unveiling the inner workings of computer systems through a lower-level programming perspective inherent in C++. With a strong emphasis on algorithmic thinking and problem-solving, you will rapidly progress from writing simple programs to mastering effective debugging and testing techniques. This streamlined course not only reinforces core programming skills but also provides critical insight into how computers operate, laying a robust foundation for the advanced challenges ahead
This course may be taken 1 time for credit.
Course classification: CTE

CS162 Computer Science II 4 credits (3 lec, 2 lec lab hrs/wk)
Prerequisite(s): (CS161)
Computer Science II is an intermediate-level course that continues the exploration of computer science principles begun in CS 161. This course delves deeper into programming using C++, focusing on advanced concepts in object-oriented programming, including dynamic memory management, generics/templates, inheritance, operator overloading, polymorphism, recursion, and exception handling. Students will learn to develop more sophisticated programs, emphasizing code efficiency, modularity, and reusability. The course also introduces important programming tools and techniques, further enhancing students' problem-solving skills and preparing them for more advanced computer science courses.
This course may be taken 1 time for credit.
Course classification: LDC

CS180 Internship: Computer Science 1-12 credits (3 lab hrs/wk/cr)
Prerequisite(s): Instructor consent
Practical on-site experience that will allow students to explore workplace environments and career options.
This course may be taken 12 times for credit.
Course classification: LDC

CS195 Web Development I 3 credits (2 lec, 2 lec lab hrs/wk)
Prerequisite(s): (CIS120) or (CS160)
This class introduces the basic elements of beginning webpage creation using a text editor and HTML/XHTML. This class will focus on web terminology basic HTML/XHTML coding to include hyperlinks anchors tables forms and frames design principles and accessibility issues. Students will explore the availability of tools for webpage creation site management validation and accessibility checks.
This course may be taken 1 time for credit.
Course classification: LDC

CS205 System Programming & Architecture 4 credits
Prerequisite(s): (CS260)
System Programming and Architecture is designed to bridge the gap between high-level programming and computer hardware. Aligned with the requirements of OSU and PSU, the course is an essential component of the CS Major Transfer Map (MTM). The primary focus is to understand the relationship between C programs, assembly code, and machine architecture. We will explore key aspects of computer architecture, data representation in assembly, and the compilation process. Additionally, this course serves as an introduction to the C programming language, equipping students for junior-level courses that require a proficiency in C. Students will learn to write well-structured C programs, debug effectively, and gain a foundational understanding of how software interacts with hardware.
This course may be taken 1 time for credit.
Course classification: LDC

CS244 Systems Analysis 3 credits (3 lec hrs/wk)
Prerequisite(s): (CIS125DB)
This course will introduce methods and modeling tools used in the systems development process. Emphasis is on structured analysis of computer information systems. Assignments will include the use of project management software CASE tools and graphic tools applied to problems similar to those found in systems in business and industry.
This course may be taken 1 time for credit.
Course classification: LDC

CS260 Data Structures 4 credits
Prerequisite(s): (CS162)
Data Structures is an advanced course that builds upon the foundational knowledge acquired in earlier computer science courses. It delves into the design, implementation, and analysis of complex data structures and algorithms. Emphasizing practical applications, the course covers binary search trees, hash tables, graphs, and heaps, equipping students with the skills to manage and manipulate large sets of data efficiently. Students will also learn about memory management and algorithm efficiency, vital for developing optimized and scalable software. Through a combination of theoretical learning and hands-on projects, CS 260 prepares students for tackling real-world computational problems with advanced programming techniques.
This course may be taken 1 time for credit.
Course classification: LDC

CS280 CWE: Computer Science 1-12 credits (3 lab hrs/wk/cr)
Prerequisite(s): Instructor consent
Practical on-site experience that will allow students to test knowledge learned in the classroom and explore a variety of workplaces in which to apply that knowledge
This course may be taken 12 times for credit.
Course classification: LDC