

# COMPUTER SCIENCE, MINOR (CAPITAL)

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Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

## Program Description

Computing has become an essential component of many disciplines, and it is driving innovation in fields far beyond computer science. The minor in Computer Science at Penn State Harrisburg provides basic proficiency in computer science, with an emphasis on building both a theoretical framework for computer science and providing practical skills needed to apply computer science to other fields of study. The knowledge and skills gained in the minor expands opportunities for students seeking careers in the growing number of fields that require a strong foundation in computer science. In addition, for students seeking to pursue graduate study, the minor provides background knowledge for the computing intensive aspects of their chosen discipline.

The minor begins with the second-level course in computer programming (CMPSC 122 or CMPSC 132), a course in object-oriented programming in either Java or C++ (CMPSC 221 or CMPSC 330), a course in discrete math for computer science (CMPSC 360), and a course in data structures (CMPSC 462). These twelve credits are followed with an additional six credits of 400-level work in computer science (CMPSC).

## What is Computer Science?

Computer science is the study of computational methods, including their principles and foundations, their efficient implementation, their analyses, and their practical application in wide-ranging areas. It includes the foundations of software development, computational problem solving, the principles of system software, and the fundamental principles and limits of computing. It is much more than just programming. It includes the mathematical foundations that support analyzing, evaluating, and proving the correctness of computational solutions. It includes specializations such as artificial intelligence, machine learning, cybersecurity, data mining, high-performance computing, computer networks, computer graphics, computer vision, quantum computing, and others. It is continually evolving with the development of new and faster forms of computation and with the identification of new problems that require computational solutions.