

# COMPUTER SCIENCE

## Computer Science

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The Computer Science Program is designed to provide students with fundamental training in the theoretical and practical aspects of computer science. Coupled with the program's strong mathematics component, this training provides graduates with the necessary background for employment in a wide variety of computing fields or for a smooth entry into graduate-level study. The Bachelor of Science degree in Computer Science at Norfolk State University is accredited by the Computing Accreditation Commission of ABET, <https://www.abet.org> (<https://www.abet.org/>), under the General Criteria and the Computer Science Program Criteria.

### Program Educational Objectives

A graduate of the Undergraduate Computer Science Program at Norfolk State University will be able to do the following:

1. Make significant contributions to work products independently and within multi-disciplinary teams;
2. Communicate effectively in oral, written, and graphical forms;
3. Pursue advanced study or engage in professional practice within the computing profession;
4. Engage in the practice of lifelong learning to educate themselves about advancements and emerging technologies within and surrounding the computing profession;
5. Practice ethical, social, and professional behaviors in all endeavors;
6. Apply computing/computer science principles and practices to solve a variety of problems.

### Student Learning Outcomes

Upon graduation, computer science students will be able to demonstrate the following skills:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions;
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline;
3. Communicate effectively in a variety of professional contexts;
4. Recognize professional responsibilities and make informed judgments in computing practice, taking into account legal, ethical, diversity, equity, inclusion, and accessibility principles consistent with the mission of the institution. based on legal and ethical principles;
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

### General Department Requirements

Computer Science and Information Technology majors must complete at least 120 credits to complete the B.S. degree. Additionally:

Students must meet prerequisites or their equivalents prior to enrolling in more advanced computer science or information technology courses.

Computer Science majors must earn at least a "C" grade in all English, Science, Mathematics and Computer Science courses. Also majors with a specialty in computer engineering must receive a "C" grade or better in all engineering courses, and majors with a specialty in information systems must receive a "C" grade or better in all courses taken in the School of Business.

Information Technology majors must earn at least a "C" grade in SEM 101 Spartan Seminar 101 (plus SEM 102 and SEM 201), all English, Science, Mathematics, Computer Science courses, and all courses with the ITE, CIT, and IMT prefixes.

## Information Technology

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The Information Technology Program aims to provide graduates with the skills and knowledge to take on appropriate professional positions in Information Technology upon graduation and grow into leadership positions or pursue research or graduate studies in the field.

### Program Educational Objectives

A graduate of the Undergraduate Computer Science Program at Norfolk State University will be able:

1. To work successfully, both independently and in team environments.
2. To communicate effectively, both orally and in writing.
3. To pursue advanced study or engage in professional practice within the computing profession.
4. To engage in the practice of lifelong learning to enhance their capabilities.
5. To practice ethical behavior in their professional endeavors.
6. To address contemporary issues by using evolving technologies, analytical thinking, and design methodologies.

### Student Learning Outcomes

Upon graduation, computer science students will be able to demonstrate the following:

1. An ability to apply knowledge of computing and mathematics appropriate to the discipline;
2. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
3. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;
4. An ability to function effectively on teams to accomplish a common goal;
5. An understanding of professional, ethical, legal, security, and social issues and responsibilities;
6. An ability to communicate effectively with a range of audiences;
7. An ability to analyze the local and global impact of computing on individuals, organizations and society;
8. Recognition of the need for, and an ability to engage in, continuing professional development;
9. An ability to use current techniques, skills, and tools necessary for computing practices;

10. An ability to use and apply current technical concepts and practices in the core information technologies;
11. An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems;
12. An ability to effectively integrate IT-based solutions into the user environment;
13. An understanding of best practices and standards and their application;
14. An ability to assist in the creation of an effective project plan.

## Computer Science Programs

### B.S. PROGRAMS

- Bachelor of Science in Computer Science - Standard Track (<https://catalog.nsu.edu/undergraduate/science-engineering-technology/computer-science/computer-science-bs-standard-track/>)
- Bachelor of Science in Computer Science - Computer Engineering Track (<https://catalog.nsu.edu/undergraduate/science-engineering-technology/computer-science/computer-science-bs-track-ce/>)
- Bachelor of Science in Computer Science - IA Track (<https://catalog.nsu.edu/undergraduate/science-engineering-technology/computer-science/computer-science-bs-track-ia/>)
- Bachelor of Science in Computer Science - Cybersecurity Track (<https://catalog.nsu.edu/undergraduate/science-engineering-technology/computer-science/computer-science-bs-track-cyb/>)
- Bachelor of Science in Computer Science - Software Engineering Track (<https://catalog.nsu.edu/undergraduate/science-engineering-technology/computer-science/computer-science-bs-track-is/>)
- Bachelor of Science in Information Technology (<https://catalog.nsu.edu/undergraduate/science-engineering-technology/computer-science/information-technology-bs/>)
- Minor in Game Design and Development (<https://catalog.nsu.edu/undergraduate/science-engineering-technology/computer-science/computer-science-minor-game-design-track/>)
- Minor in Computer Science (<https://catalog.nsu.edu/undergraduate/science-engineering-technology/computer-science/computer-science-minor-standard-track/>)

### B.S./M.S. ACCELERATED PROGRAMS

- B.S./M.S. Accelerated Program in Computer Science (<https://catalog.nsu.edu/graduate/science-engineering-technology/computer-science/ms-computer-science/#cscbsmstext>)
- B.S./M.S. Accelerated Program in Cybersecurity (<https://catalog.nsu.edu/graduate/science-engineering-technology/computer-science/ms-cybersecurity/#programtext>)