

COMPUTER SCIENCE, ASSOCIATE IN SCIENCE

Program Description

The **Associate in Science (A.S.) in Computer Science** is designed for students who plan to transfer to a four-year institution to pursue a bachelor's degree in computer science or a related computing field.

This program provides a strong foundation in programming, problem solving, and computational thinking. Students develop skills in programming languages, algorithms, data structures, and computer systems while strengthening their mathematical and analytical abilities. Coursework emphasizes logical reasoning, software development, and the application of computing technologies to solve complex problems.

The program prepares students for continued study in computer science and related fields within the rapidly evolving technology sector.

Transfer Information

The A.S. in Computer Science is structured to align with bachelor's degree programs in computer science, software engineering, information technology, and related computing disciplines.

Students are encouraged to work closely with faculty and Advising & Transfer Services to ensure coursework aligns with the requirements of their intended transfer institution. Because computer science programs often require specific mathematics and programming prerequisites, students should carefully follow the recommended course sequence for their degree plan.

Students planning to transfer within New Jersey can explore the "Transfer Programs" feature on NJ Transfer (www.njtransfer.org (<http://www.njtransfer.org>)) to review articulation agreements and institutional requirements.

Career Information

The A.S. in Computer Science is designed primarily for transfer. A bachelor's degree is typically required for professional roles in computer science and software development.

With further education, graduates may pursue careers such as:

- Software Developer
- Computer Programmer
- Systems Analyst
- Web or Application Developer
- Data Scientist or Data Analyst
- Cybersecurity Specialist

Students are encouraged to consult with faculty and Career Services early in their academic journey to explore transfer pathways, internships, and career opportunities in computing and technology fields.

Code	Title	Credit Hours
Communications		
ENGL 151	English I	3
ENGL 152	English II	3
Humanities		
Humanities Gen. Ed. Requirement (https://catalog.ocean.edu/academic-information/general-education/)		3
Social Sciences		
Social Science Gen. Ed. Requirement (https://catalog.ocean.edu/academic-information/general-education/)		3
Humanities or Social Science		
Humanities or Social Science Gen. Ed. Requirement (https://catalog.ocean.edu/academic-information/general-education/)		3
Mathematics-Science-Technology		
CSIT 165	Programming I	4
Mathematics Gen. Ed. Requirement (https://catalog.ocean.edu/academic-information/general-education/)		4
Lab Science Gen. Ed. Requirement (https://catalog.ocean.edu/academic-information/general-education/)		4
Additional General Education Credit		
Any Course from the Gen. Ed. Course List (https://catalog.ocean.edu/academic-information/general-education/)		3-4
Program Requirement		
Any STSC - Student Success Seminar course ¹		
Department Concentration		
To satisfy the department concentration, students must earn 12 credits from the academic area of Computer Studies. The course prefix for the Computer Studies concentration is CSIT. ²		12
CSIT or MATH electives ³		6
Elective Courses		
Electives to meet 60 credits		9-10

¹ A variety of STSC -Student Success Seminar courses are available.

Please speak to your academic advisor for assistance when selecting.

² CSIT Electives can be chosen from all CSIT courses with the exception of CSIT 110, CSIT 123, CSIT 126, CSIT 131, CSIT 133, and CSIT 160

³ Choose either a MATH or CSIT elective depending on your transfer pathway. MATH electives can be chosen from MATH 270, MATH 275, or MATH 267. CSIT electives can be chosen from all CSIT courses with the exception of CSIT 110, CSIT 123, CSIT 126, CSIT 131, CSIT 133 and CSIT 160.

The program outlined here will prepare students for transfer to a four-year college to obtain a Bachelor of Science degree in Computer Science and provide a solid base of knowledge for a career in the Computer Science field. The curriculum follows closely program requirements of prominent four-year higher education institutions in New Jersey and is designed to address the preparation of our students for a future in Computer Science.

Program Learning Outcomes

1. State the basic concepts of a modern computer architecture including the main functions of an operating system and ancillary software and how the major computer data, instruction and addressing formats influence computer performance.
2. Describe the software development life cycle(SDLC) and how it applies to recognizing solutions to the problems involved in program

portability and data design by collecting, organizing and evaluating information

3. Illustrate the benefits of Object-Oriented software development and the rationale of derived classes (including private, protected and public data members and methods).
4. Analyze (big O) algorithms for sequential and binary searches, hashing, and common selection, exchange and insertion sorting algorithms
5. Differentiate between the concepts, data structure and benefits involved in logically representing common data structures, such as tables, ordered lists, stacks, queues and trees.
6. Demonstrate independent thinking through mathematical, scientific, and philosophical reasoning.
7. Explain how technology has had an impact on society and the environment.
8. Demonstrate knowledge and skills in the areas of Computer Science to solve technical and computational problems.