

# Computer Science

## Associate in Science Degree in Liberal Arts and Sciences Certificate of Proficiency

Program **CMPTP.SCI.AS**

CIP 240101

Certificate **CMPTP.SCI.CERT**

CIP 110101

The Computer Science programs serve two distinct groups of students. The Associate in Science degree option prepares graduates for transfer as juniors to colleges and universities offering baccalaureate majors in computer science, information systems, and related fields. Mercer has dual admission and articulation agreements with Rutgers University, The College of New Jersey, and New Jersey Institute of Technology (NJIT).

The Certificate of Proficiency program is designed for students who have previously completed degrees in mathematics, science, or engineering. Certificate students gain marketable programming skills which complement their previous academic study. In addition, the Certificate program satisfies many Computer Science master's degree "bridge" requirements.

### PROGRAM OUTCOMES

- Apply the fundamental concepts and techniques of computation, algorithms, and software design to a specific problem in a variety of applied fields;
- Provide detailed specifications, analyze the problem, and design a solution that functions as desired, has satisfactory performance, is reliable and maintainable, and meets desired criteria;
- Apply a firm understanding in areas of mathematics and science;
- Discuss the societal implications of computer software.

Admission to the A.S. option requires a high school diploma or equivalent with four years of college-prep mathematics. One or more years of high school science is recommended. While acceptance may be granted for students not prepared to begin the mathematics sequence of courses at the calculus level, these students should begin the mathematics sequence at the level determined by placement test results.

A student must earn a grade of C or higher in core courses to progress in the program. Computer science, mathematics and lab science courses are considered to be curriculum core courses.

**NOTE:** All program listings are subject to periodic updates. Please consult your program advisor, academic division, or [www.mccc.edu/programs\\_degree](http://www.mccc.edu/programs_degree)

### A.S. Curriculum

Code	Course (lecture/lab hours)	Credits
<b>FIRST SEMESTER</b>		
CMN 111	Speech: Human Communication (3/0)	3
COS 101	Introduction to Computer Science (3/2)	4
CSW 100	College Success and Personal Wellness (2/0)†	2
ENG 101	English Composition I (3/0)	3
MAT 151	Calculus I (4/0)	4
<b>SECOND SEMESTER</b>		
COS 102	Computer Science I – Algorithms and Programming (3/2)	4
ENG 102	English Composition II (3/0)	3
MAT 152	Calculus II (4/0)	4
— —	Humanities general education elective	3
— —	Social Science general education elective	3
<b>THIRD SEMESTER</b>		
COS 231	Fundamentals of Computer Architecture and Assembly Language (3/2)	4
MAT 251	Calculus III (4/0)	4
MAT 201	Probability and Statistics for Science and Engineering (4/0)	4
— —	Science elective <sup>1</sup>	4-5
— —	General Education elective <sup>2</sup>	3
<b>FOURTH SEMESTER</b>		
COS 204	Discrete Mathematical Structures (4/0)	4
COS 210	Computer Science II – Data Structures (3/2)	4
— —	Program elective <sup>3</sup>	3-4
— —	Science elective <sup>1</sup>	4
		63-65

<sup>1</sup> Choose from PHY 101 and 102; PHY 115 and 215; BIO 101 and 102; CHE 101 and 102.

<sup>2</sup> Select course from the following general education categories: Social Science, Humanities, Historical Perspective, Diversity and Global Perspective.

<sup>3</sup> In consultation with an academic advisor, select from the course categories of COS, DMA, IST, or MAT.

† Some exemptions apply. Consult academic advisor for details.

### Certificate Curriculum

Code	Course (lecture/lab hours)	Credits
ENG 101	English Composition I (3/0)	3
MAT 151	Calculus I (4/0)	4
MAT 152	Calculus II (4/0)	4
COS 101	Introduction to Computer Science (3/2)	4
COS 102	Computer Science I – Algorithms and Programming (3/2)	4
COS 210	Computer Science II – Data Structures (3/2)	4
COS 231	Fundamentals of Computer Architecture and Assembly Language (3/2)	4
— —	Program elective <sup>1</sup>	3-4
		30-31

<sup>1</sup> In consultation with an academic advisor, select from the course categories of COS, DMA, IST, or MAT.