

## Bachelor of Science (BS)

# Computer Science

Playing a video game, downloading MP3s, or talking on a cell phone depend on software.

Computer scientists design, analyze and develop software for the computer systems and networks that power today's world. Software applications include personal computing, entertainment systems, and life-critical applications such as medical and flight systems. Computer scientists are the people that develop this software, which requires a high degree of specialization. The computer science program at Southeast is one of only five programs in Missouri to hold accreditation by the Computing Accreditation Commission of ABET, (<http://www.abet.org>).



### Computer Science students will...

- Obtain a thorough understanding of the fundamental principles of computing and mathematics.
- Demonstrate fundamental software engineering skills on a non-trivial project to the satisfaction of a client.
- Demonstrate programming proficiency in a modern language.
- Be prepared to enter the workforce or be accepted into the graduate school of choice.

### Career Planning

Career preparation is part of the mission of Southeast. 100% of programs offer our students an internship, study-abroad program, clinical opportunity, student teaching or research internship.

The Office of Career Services in Academic Hall 057 can provide students with professional career counseling and coaching, resume critiques, practice interviews, job search strategies, career events, networking opportunities, and more.

### Internship and Employment Opportunities of Recent Graduates

- Boeing
- Garmin
- Microsoft
- A T & T
- Edward Jones
- Maritz
- Big River Telephone
- Element 74
- Vintage Software
- MedAssets

### Graduate Schools and Programs of Recent Graduates

- University of Missouri
- Missouri State University
- Auburn University
- University of Illinois

### Admission Requirements

A high school student interested in majoring in Computer Science should complete four years of mathematics that includes trigonometry and an introduction to calculus. Four years of science, which includes both chemistry and physics is highly recommended. A strong background in English is essential.

### Transfer and Dual Credit Students

If you have dual credit or transfer credit, please visit our transfer course equivalencies guide at [semo.edu/transfercredit](http://semo.edu/transfercredit).

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This is a guide based on the 2018-2019 Undergraduate Bulletin and is subject to change. The time it takes to earn a degree will vary based on several factors such as the area of specialization chosen by the student, dual enrollment, remediation, and summer enrollment. Students will meet with an academic advisor each semester and use Degree Works to monitor their individual progress.

### CURRICULUM CHECKLIST

*"Critical Courses" are italicized and bolded. Data shows that students who have completed this course in the first two years and have earned the noted grade are most likely to complete this program of study.*

#### Computer Science Required Courses:

A grade of "C" or better is required in each course that is a prerequisite course.

- \_\_\_ CS003 Computer Science Assessment (0)
- \_\_\_ CS155 Computer Science I (4)
- \_\_\_ CS245 Discrete Structures I (3)
- \_\_\_ CS265 Computer Science II (4)
- \_\_\_ CS280 Computer Systems (3)
- \_\_\_ CS300 Computer Science III (4)
- \_\_\_ CS315 C and the Unix Environment (3)
- \_\_\_ CS331 Applications Programming (3)
- \_\_\_ CS345 Discrete Structures II (3)
- \_\_\_ CS350 Analysis of Algorithms (3)
- \_\_\_ CS380 Computer Operating Systems (3)
- \_\_\_ CS390 Programming Languages (3)
- \_\_\_ CS440 Database (3)
- \_\_\_ CS445 Software Engineering I (3)
- \_\_\_ CS480 Data Communications (3)
- \_\_\_ CS495 Senior Seminar (1)
- \_\_\_ **MA140 Analytic Geometry and Calculus I (5)**
- \_\_\_ MA145 Analytic Geometry and Calculus II (4)
- \_\_\_ MA223 Elementary Probability and Statistics (3)
- \_\_\_ MA345 Linear Algebra (3)
- \_\_\_ IU309 Writing for Science and Technology (3)
- \_\_\_ UI450 Capstone Experience (3)

**Choose 3 hours of CS300-599 level elective:**  
\_\_\_ CS Elective (3)

#### Cognate Discipline Support:

There is a 12-hour science requirement, which must include a two-semester laboratory science sequence from among the following:

Biology:

- \_\_\_ BI163 Evolution & Ecology (4)
- \_\_\_ BI173 Cell and Organismal Biology (4)
- \_\_\_ BI283 Genetics (4)
- OR

Chemistry:

- \_\_\_ CH185 General Chemistry (5)
- \_\_\_ CH186 Foundations of Inorganic Chemistry (3)
- \_\_\_ CH187 Inorganic Chemistry and qualitative Analysis Lab (2)
- OR

Introductory Physics:

- \_\_\_ PH120 Introductory Physics I (5)
- \_\_\_ PH121 Introductory Physics II (5)
- OR

General Physics:

- \_\_\_ PH230 General Physics I (5)
- \_\_\_ PH231 General Physics II (5)

For the remainder of the 12-hour requirement, the student must take science course(s) suitable to science majors from among Biology, Chemistry, Geosciences, Engineering Physics, or Physics.

**University Studies Requirements** – some requirements may be fulfilled by coursework in major program

- Social and Behavioral Sciences – 3 hours
- Constitution requirement – 3 hours
- US History requirement – 3 hours
- Written Communication – 6 hours
- Oral Communication – 3 hours
- Natural Sciences – 7 hours (from two disciplines, one to include a lab)
- Mathematics – 3 hours
- Humanities & Fine Arts – 9 hours (from at least two disciplines)
- Additional requirements – 5 hours (to include UI100 for native students)

### SAMPLE FOUR-YEAR PLAN

	Fall Semester		Spring Semester	
	Course #	Hrs	Course #	Hrs
<b>FIRST YEAR</b>	UI100	3	CS265	4
	EN100	3	MA145	4
	CS155	4	University Studies	3
	<b>MA140</b>	5	University Studies	3
			University Studies	3
	<b>Total</b>	<b>15</b>	<b>Total</b>	<b>17</b>
Milestone: maintain 2.0 cumulative GPA				
<b>SECOND YEAR</b>	CS245	3	CS280	3
	CS300	4	CS345	3
	MA223	3	MA345	3
	Science Course*	3-5	Science Course	4-5
			University Studies	3
	<b>Total</b>	<b>13-15</b>	<b>Total</b>	<b>16-17</b>
Milestone: maintain 2.0 cumulative GPA				
<i>(summer courses are encouraged to avoid 18 hour semesters)</i>				
<b>THIRD YEAR</b>	CS315	3	CS331	3
	CS350	3	CS380	3
	Science Course	3-5	CS440	3
	University Studies	3	University Studies	3
	University Studies	3	University Studies	3
	<b>Total</b>	<b>15-17</b>	<b>Total</b>	<b>15</b>
Milestone: maintain 2.0 cumulative GPA				
<b>FOURTH YEAR</b>	CS390	3	CS003	0
	CS445	3	CS495	1
	CS480	3	CS elective	3
	IU309	3	UI450	3
	University Studies	3	University Studies	3
			Elective	3
			Elective	1-3
	<b>Total</b>	<b>15</b>	<b>Total</b>	<b>14-16</b>
Milestone: maintain 2.0 cumulative GPA				

A "Milestone" signifies a significant stage for a student in the completion of a degree.

\*One of the science courses will satisfy either Living Systems or Physical Systems

**Degree requirements for all students:** a minimum of 120 credit hours, completion of University Studies program, completion of 39 senior division hours (300-599), Writing Proficiency Exam (WP003), and completion of the Measure of Academic Proficiency and Progress (MAP) at the senior level. Refer to the Undergraduate Bulletin or Degree Works for additional graduation requirements for your program.

Revised  
5/22/2019

**Degree Map 2018-2019**

**To learn more**  
Office of Admissions  
(573) 651-2590  
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semo.edu

**To explore**  
the Harrison College of Business  
and Computing online, visit  
semo.edu/business-computing

**For advising**  
Center for Academic Advising  
semo.edu/advising