

## 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. In fact, more than 90% of Southeast students participate in internships, clinical opportunities, student teaching, research assistantships, and study abroad. All graduates find employment in their field or start the graduate programs of their choice within a few months of graduation.

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

Demonstrated Career Proficiency is a Requirement of all Southeast Students		
CL001/CL002	First Semester	Complete the FOCUS2 assessment and develop a Career Action Plan.
CL003	Junior Year	Students gain information about career planning and job searching resources.
CL004	Senior Year	Students demonstrate advanced proficiency by identifying a position in their field, developing a cover letter, and tailoring a resume for the position. Materials are critiqued to ensure preparedness for a successful job search.

### 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.

**To learn more**  
Office of Admissions  
(573) 651-2590  
[admissions@semo.edu](mailto:admissions@semo.edu)  
[www.semo.edu](http://www.semo.edu)

**To explore  
the College  
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[www.semo.edu/costa](http://www.semo.edu/costa)

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[www.semo.edu/costa/advising](http://www.semo.edu/costa/advising)

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This is a guide based on the 2015-2016 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 DegreeWorks 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:

- \_\_\_ BI151 Biological Reasoning (3)
  - \_\_\_ BI153 Introduction to Organismal Biology (4)
  - \_\_\_ BI154 Genetics and Cellular Biology I (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 (not already listed above):

UI100 First Year Seminar, EN100 English Composition, Artistic Expression, Written Expression, Oral Expression, Literary Expression, Behavioral Systems, Living Systems\* or Physical Systems\*, Development of a Major Civilization, Economic Systems, Political Systems, Social Systems, and one IU/UI3XX.

\*dependent upon which science sequence is chosen in the major.

### 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	Artistic Expression	3
	<b>MA140</b>	5	Behavioral Systems	3
			Written Expression	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
			Literary Expression	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
	Living/Physical Systems	3	Develop of a Major Civ	3
	Oral Expression	3	Economic Systems	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
	Political Systems	3	Social Systems	3
			IU/UI3xx	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, career proficiencies (CL001-004), Writing Proficiency Exam (WP003), and completion of the Measure of Academic Proficiency and Progress (MAPP) at the senior level.

Refer to the Undergraduate Bulletin or DegreeWorks for additional graduation requirements (i.e. minimum GPA and coursework) for your program of study.

Revised  
7/16/2015