

# COMPUTER SCIENCE A.S.-T

The curriculum in Computer Science is designed to provide the transfer student the opportunity to earn an Associate in Science in Computer Science for Transfer degree. Computer Science is the study of computers, their design, and their uses for computation, data processing, and systems control, including design and development of computer hardware and software, and programming. Computer Science provides a foundation of knowledge for students with career objectives in a wide range of computing and computer-related professions.

AS.CIS.CS.OPTB.AST or AS.CIS.CS.OPTCAST

## Program Map

### Design Your Future!

Begin by exploring MSJC program maps to find career or transfer (<https://msjc.emsicc.com/?radius=&region=All%20Regions>) opportunities. Program maps show the recommended course sequence that leads to graduation or transfer. The maps were developed by program experts to give you the skills and knowledge you need to succeed.

- **Starting in Spring?** Choose Fall Semester 1 courses.
- **Are you a part-time student?** Start Fall Semester 1 courses and follow the course sequence.

## CSU: General Education Option B

Fall Semester 1		Units
CSIS-113A	C++ Programming - Level 1	3
MATH-211	Analytic Geometry and Calculus I	4
ENGL-101	College Composition	3
COMM-100	Public Speaking	3
PSYC-101	Introduction to Psychology	3
<b>Units</b>		<b>16</b>
Spring Semester 1		
CSIS-211	Introduction to Data Structures and Algorithms	3
MATH-212	Analytic Geometry and Calculus II	4
ENGL-103	Critical Thinking and Writing	3
PS-101	Introduction to American Government and Politics	3
ANTH-145	Introduction to Linguistic Anthropology (formerly Introduction to Language and Linguistics)	3
<b>Units</b>		<b>16</b>
Fall Semester 2		
CSIS-118B	Computer Organization & Assembly Language	3
BIOL-100 or BIOL-115 or BIOL-150	Human Biology or Introductory Topics in Biology: Cells to Ecosystems (formerly Topics in Biology) or General Biology I	4
PHY-201	Mechanics and Wave Motion	4
HIST-112	U.S. History Since 1865	3

ART-100	Art Appreciation	3
<b>Units</b>		<b>17</b>
Spring Semester 2		
CSIS-213	Discrete Structures	3
PHY-202	Electricity and Magnetism	4
PHIL-101	Introduction to Philosophy I	3
Select one of the following:		3
PS/ETHS-103	Ethnic Politics in America	
HIST/ETHS-160	Black History in the American Context	
LIT/ETHS-275	Latinx/Chicanx Literature	
LIT/ETHS-280	Multiethnic Literature (formerly ENGL-280)	
<b>Units</b>		<b>13</b>
<b>Total Units</b>		<b>62</b>

**Recommended:** Students should take courses the summer before the Fall start of the semester.

## CSUSM: General Education Option B

Fall Semester 1		Units
CSIS-113A	C++ Programming - Level 1	3
MATH-211	Analytic Geometry and Calculus I	4
ENGL-101	College Composition	3
COMM-100	Public Speaking	3
PSYC-101	Introduction to Psychology	3
<b>Units</b>		<b>16</b>
Spring Semester 1		
CSIS-211	Introduction to Data Structures and Algorithms	3
MATH-212	Analytic Geometry and Calculus II	4
ENGL-103	Critical Thinking and Writing	3
CSIS-123A	C++ Programming - Level 2	3
ANTH-145	Introduction to Linguistic Anthropology (formerly Introduction to Language and Linguistics)	3
<b>Units</b>		<b>16</b>
Summer 1		
PS-101	Introduction to American Government and Politics	3
<b>Units</b>		<b>3</b>
Fall Semester 2		
CSIS-118B	Computer Organization & Assembly Language	3
BIOL-100 or BIOL-150	Human Biology or General Biology I	4
PHY-201	Mechanics and Wave Motion	4
HIST-112	U.S. History Since 1865	3
MATH-218	Linear Algebra	3
<b>Units</b>		<b>17</b>
Spring Semester 2		
CSIS-213	Discrete Structures	3
PHY-202	Electricity and Magnetism	4
PHIL-101	Introduction to Philosophy I	3
ART-100	Art Appreciation	3

Select one of the following:	3
PS/ETHS-103 Ethnic Politics in America	
HIST/ETHS-160 Black History in the American Context	
LIT/ETHS-275 Latinx/Chicanx Literature	
LIT/ETHS-280 Multiethnic Literature (formerly ENGL-280)	
<b>Units</b>	<b>16</b>
<b>Total Units</b>	<b>68</b>

**Recommended:** Students should take courses the summer before the Fall start of the semester.

## UC: General Education Option C

Fall Semester 1	Units
CSIS-113A C++ Programming - Level 1	3
MATH-211 Analytic Geometry and Calculus I	4
ENGL-101 College Composition	3
COMM-100 Public Speaking	3
PSYC-101 Introduction to Psychology	3
<b>Units</b>	<b>16</b>

Spring Semester 1	Units
CSIS-211 Introduction to Data Structures and Algorithms	3
MATH-212 Analytic Geometry and Calculus II	4
ENGL-103 Critical Thinking and Writing	3
PS-101 Introduction to American Government and Politics	3
or HIST-111 or HIST-112 or U.S. History to 1877 or U.S. History Since 1865	
ANTH-145 Introduction to Linguistic Anthropology (formerly Introduction to Language and Linguistics)	3
<b>Units</b>	<b>16</b>

Fall Semester 2	Units
CSIS-118B Computer Organization & Assembly Language	3
BIOL-100 Human Biology	4
or BIOL-115 or BIOL-150 or Introductory Topics in Biology: Cells to Ecosystems (formerly Topics in Biology) or General Biology I	
PHY-201 Mechanics and Wave Motion	4
Select one of the following:	3

PS/ETHS-103 Ethnic Politics in America	
HIST-160 Black History in the American Context	
or ETHS-160 or Black History in American Context	
LIT/ETHS-240 American Indian Literature (formerly ENGL-240)	
LIT/ETHS-275 Latinx/Chicanx Literature	
LIT/ETHS-280 Multiethnic Literature (formerly ENGL-280)	
ART-100 Art Appreciation	3
<b>Units</b>	<b>17</b>

Spring Semester 2	Units
CSIS-213 Discrete Structures	3
PHY-202 Electricity and Magnetism	4

PHIL-101 Introduction to Philosophy I	3
Select one of the following:	4
SPAN-101 Elementary Spanish I	
FREN-101 Elementary French I	
ASL-100 American Sign Language I	
<b>Units</b>	<b>14</b>
<b>Total Units</b>	<b>63</b>

**Recommended:** Students should take courses the summer before the Fall start of the semester.

**NOTE:** For students who did not meet the LOTE requirement in high school, they may fulfill Area 6 by demonstrating proficiency by completing ASL-100 American Sign Language I, FREN-101 Elementary French I or SPAN-101 Elementary Spanish I with a grade C or better. Languages other than English for Native Speakers are also acceptable for meeting this requirement.

## Requirements

Course	Title	Credits
<b>Required Core Courses</b>		
CSIS-113A or CSIS-113B	C++ Programming - Level 1 Java Programming - Level 1	3
CSIS-118B	Computer Organization & Assembly Language	3
CSIS-211	Introduction to Data Structures and Algorithms	3
CSIS-213	Discrete Structures	3
MATH-211	Analytic Geometry and Calculus I	4
MATH-212 or MATH-212H	Analytic Geometry and Calculus II Honors Analytic Geometry and Calculus II	4
PHY-201	Mechanics and Wave Motion	4
Select one of the following:		4
PHY-202	Electricity and Magnetism	
PHY-202H	Honors Electricity and Magnetism	
BIOL-150	General Biology I	
BIOL-150H	Honors General Biology I	
<b>Total Units</b>		<b>28</b>

Course	Title	Credits
<b>Units for Major</b>		
<b>CSU General Education Pattern or IGETC Pattern</b>		<b>37-39</b>
<b>Possible double counting (CSU): 9 units</b>		
<b>Possible double counting (IGETC): 6-9 units</b>		

**Transferable Electives (as needed to reach 60 CSU transferable units)**

**Total Units for A.S.-T Degree: 60 units**

The overall requirements for this Associates Degree for Transfer (ADT) can be met by:

- Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University (CSU) or University of California (UC).

- Completion of California State University General Education-Breadth Requirements (CSUGE) or the Intersegmental General Education Transfer Curriculum (IGETC).
- Completion of a minimum of 18 semester units or 27 quarter units in a major or area of emphasis, as determined by the community college district.
- Completion of a minimum grade point average of 2.0.

ADTs also require that students earn a C or better in all courses required for the major or area of emphasis. A "P" (Pass) grade is acceptable if pass is defined as a grade of C or better. ADTs are intended for students who plan to complete a bachelor's degree in a similar major at a CSU campus. A student completing an ADT is guaranteed admission to the CSU system, but not a particular campus or major. Students should meet with a Counselor to develop a comprehensive educational plan to further understand university and transfer requirements.

## Career Exploration

Discover information about careers that interest you!

1. Take a **Career Quiz** (<https://msjc.emsicc.com/assessment/>) to learn about yourself and receive career suggestions based on your interests.
2. Search available **in-demand jobs** (<https://msjc.emsicc.com/browse-careers/>) in your career areas of interest and find up-to-date salaries and education requirements.
3. Find the **MSJC Program** (<https://msjc.emsicc.com/browse-programs/>) that connects your interests to a career.

Note: There are no guaranteed positions for students completing these programs. Education and work experience required will vary by employer. The salary and benefits for specific occupations will be dependent on work experience, education, background, and employer.