

COMPUTER SCIENCE, ASSOCIATE IN SCIENCE DEGREE FOR TRANSFER

Banner Code: 2_AST_CSCI

Control Number: 42844

Financial Aid Eligible

The Associate in Science Degree in Computer Science for Transfer provides opportunities to study the computing environment for business and scientific solution automation. The degree facilitates transfer into the CSU system. An advanced degree such as a baccalaureate degree will prepare students for careers related to business and science programming solutions, and management. Computer science majors are introduced to computing history and evolution, software development, structures and procedures for data manipulation, object oriented methodology, symbolic logic tools for computational algorithms, and computing solutions at machine language level of implementation. Critical thinking and problem solving skills are acquired through individual and group project assignments. Students are encouraged to develop academic and programming skills enabling them to be successful in further study or employment. Students will be prepared for a baccalaureate degree in computer science.

Program Level Learning Outcomes

Upon completion of this program, students will be able to:

1. Design software components and specifications to satisfy small business and scientific problem requirements.
2. Implement algorithms that include basic computation techniques, simple I/O, conditional and iterative structures, and the definition of functions.
3. Utilize object oriented principles for class hierarchies and inheritance to create computing solutions of simple to moderate complexity.
4. Implement programs at machine language level using fundamental high-level programming constructs.
5. Describe formal tools of symbolic logic as they relate to real-life situations, program correctness, database queries, and algorithms.

Associate Degree for Transfer Graduation Requirements

Associate Degrees for Transfer require students to meet the following requirements:

- Completion of 60 semester units or 90 quarter units of degree-applicable courses,
- Minimum overall grade point average of 2.0,
- Minimum grade of "C" (or "P") for each course in the major, and
- Completion of IGETC and/or CSU GE-Breadth.

Students should consult a GWC counselor in order to select the best pathway to meet their educational goals. For students who intend to transfer, the choice of general education will be specific to both their major and transfer institution.

Course	Title	Units
Required Courses		
CS G153 or CS G175 or CS G131	Java Programming 1 C++ Programming 1 Python Programming I	3
CS G154 or CS G189 or CS G231	Java Programming 2 C++ Programming 2 Python Programming 2	3
CS G242	Computer Architecture and Organization	3
CS G262	Discrete Structures	3
MATH G180	Calculus 1	4
MATH G185	Calculus 2	4
PHYS G185	Calculus Based Physics: Mechanics	4
PHYS G280	Calculus Based Physics: Electricity/ Magnetism	4-5
or BIOL G180	Cell and Molecular Biology	
or BIOL G186	Diversity of Organisms	
or CHEM G180	General Chemistry A	
Major Total		28-29
GE Pattern (CSU GE-Breadth or IGETC)		37-39
Total Units		60

Recommended Program Sequence

These sequences are general course maps for students to finish all major and general education requirements for two-year completion of degrees, completion of short-term certificates, and/or fulfillment of transfer requirements. However, this may not be an appropriate path for all students. The two-year sequence is based on English and Math placement and meeting other course prerequisites. **Students are advised to meet with a GWC Counselor to review course selections and sequences to ensure that completion of this program will meet a student's transfer and career goals.**

Year 1:

Course	Title	Units
Semester 1		
ENGL G100	Freshman Composition [^]	4
COUN G154	Planning for STEM (Computer Science, Engineering, Physics and Math)	3
CS G153 or CS G175 or CS G131	Java Programming 1 C++ Programming 1 Python Programming I	3
MATH G180	Calculus 1	4
Units		14

Course	Title	Units
Semester 2		
Area A3:	Critical Thinking course	3-4
CS G154 or CS G189 or CS G231	Java Programming 2 C++ Programming 2 Python Programming 2	3
MATH G185	Calculus 2	4
Area A1:	Oral Communication course	3

Course	Title	Units
Area C: Arts & Humanities course		3
<i>Units</i>		16-17

Year 2:

Course	Title	Units
Semester 3		
CS G242	Computer Architecture and Organization	3
PHYS G185	Calculus Based Physics: Mechanics	4
HIST G170	History Of The United States To 1876	3
or HIST G175	History of the United States Since 1876	
Area D: Social & Behavioral Science course		3
Area C1: Arts course		3
<i>Units</i>		16

Course	Title	Units
Semester 4		
CS G262	Discrete Structures	3
PHYS G280	Calculus Based Physics: Electricity/ Magnetism	4
or CHEM G180	General Chemistry A	
PSCI G181	American Government: The Politics of Race and Ethnicity	3
Area D: Social & Behavioral Science course		3
Area B2: Life Science course		3
<i>Units</i>		16

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Program sequence may not be recommended for students who self-place into ENGL G100S. Students should see a Counselor for appropriate advisement.

Note: CHEM G180 has a prerequisite of CHEM G130 or passing the Chemistry Placement Exam. See Counselor.