

BACHELOR OF SCIENCE IN COMPUTER SCIENCE – COMP ASSOCIATE DEGREE FOR TRANSFER (ADT) ROADMAP

This is a sample pathway for students who transfer to San Francisco State University in the current Bulletin year with an AS-T in Computer Science. 29 units in the major (MATH 226, MATH 227, PHYS 220/PHYS 222, PHYS 230/PHYS 232, CSC 210, CSC 211, CSC 220, CSC 230, CSC 256) and all lower division GE requirements have been satisfied. Additional units in the major may have been satisfied. Check with a major advisor about the most appropriate course sequence. **Degree completion guaranteed in 60 units**; see the Associate Degree for Transfer (ADT) section for more information (<http://bulletin.sfsu.edu/undergraduate-admissions/transfer-students/>).

To Do at SF State:

Enough total units to reach 120 minimum for graduation; 30 units minimum at the upper division level; to include the following:

University-Wide Requirements: 9-15 Units

- American Institutions (0-6 units): US History, US Government, CA Government. If not met in transfer, see next bullet.
- Upper division GE (9 units): Courses may satisfy the US History or US/CA Government requirements, and UD-C or UD-D at the same time, if approved for multiple areas. Check Note 1.
- Students entering the major with the AS-T in Computer Science are not required to fulfill SF State Studies and Complementary Studies requirements.

Computer Science Major: 42 Units

MATH 226/MATH 227, PHYS 220/PHYS 222/PHYS 230/PHYS 232, and CSC 210/CSC 211/CSC 220/CSC 230/CSC 256 met in transfer.

- Mathematics: 6 units
- Core/GWAR: 12 units
- Advanced CSC requirements: 24 units, including electives.
- Senior Presentation: required oral presentation during senior year (0 units)

University Electives: 3 or More Units

Depends on course choices made at the community college, how transferred units are applied to the requirements above, and course choices at SF State. Some courses may meet more than one requirement, e.g. in both UD GE and in the major.

Course	Title	Units
First Semester		
CSC 300GW	Ethics, Communication, and Tools for Software Development - GWAR	3
CSC 340	Programming Methodology	3
MATH 324	Probability and Statistics with Computing	3
MATH 325	Linear Algebra	3
US History (http://bulletin.sfsu.edu/undergraduate-education/american-institutions/#USHaGR) or University Elective if US History met in transfer		3
		Units
		15
Second Semester		
CSC 317	Introduction to Web Software Development	3
CSC 413	Software Development	3
CSC 510	Analysis of Algorithms I	3
GE Area UD–C: Upper-Division Arts and/or Humanities		3
U.S. and California Government (http://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg) or University Elective if US/CA Government met in transfer		3
		Units
		15

Third Semester

CSC 415	Operating System Principles	3
CSC 600	Programming Paradigms and Languages	3
Major Elective - Take Two ¹		6
GE Area UD-B: Upper-Division Physical and/or Life Sciences		3
	Units	15

Fourth Semester

CSC 648	Software Engineering	3
Major Elective – Take Two ¹		6
GE Area UD-D: Upper-Division Social Sciences		3
University Elective		3
	Units	15
	Total Units	60

¹ **Major Electives (12 units)**

All students must complete four 3-unit senior electives. At least 9 units must be CSC courses. In addition to the courses listed below, any 600-level CSC course, with the exception of the advanced requirements courses CSC 600 and CSC 648, can be used as an elective. The department also allows one CSC graduate course to be used as a senior elective (700-level or higher, and non-paired excluding CSC 895, CSC 898, CSC 897, and CSC 899). Exceptions must be approved in advance by a senior advisor.

- CSC 508 Machine Learning and Data Science for Personalized Medicine (3 units)
- CSC 520 Theory of Computing (3 units)
- CSC 615 UNIX Programming (3 units)
- CSC 620 Natural Language Technologies (3 units)
- CSC 621 Biomedical Imaging and Analysis (3 units)
- CSC 630 Computer Graphics Systems Design (3 units)
- CSC 631 Multiplayer Game Development (3 units)
- CSC 637 Software Techniques for Computer Music (3 units)
- CSC 641 Computer Performance Evaluation (3 units)
- CSC 642 Human-Computer Interaction (3 units)
- CSC 645 Computer Networks (3 units)
- CSC 651 System Administration (3 units)
- CSC 652 Introduction to Security and Data Privacy (3 units)
- CSC 656 Computer Organization (3 units)
- CSC 658 Programming Cafe (3 units)
- CSC 664 Multimedia Systems (3 units)
- CSC 665 Artificial Intelligence (3 units)
- CSC 667 Internet Application Design and Development (3 units)
- CSC 668 Advanced Object Oriented Software Design and Development (3 units)
- CSC 675 Introduction to Database Systems (3 units)
- CSC 690 Interactive Multimedia Application Development (3 units)
- CSC 698 Topics in Computing (3 units)
- CSC 699 Independent Study (1-3 units)
- MATH 400 Numerical Analysis (3 units)
- MATH 425 Applied and Computational Linear Algebra (3 units)