

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. 35 units in the major (MATH 225, MATH 226, MATH 227, PHYS 220/PHYS 222, PHYS 230/PHYS 232, CSC 101, CSC 215, 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 225, MATH 226, MATH 227, PHYS 220, PHYS 222, PHYS 230, PHYS 232, CSC 101, CSC 215, CSC 220, CSC 230, and CSC 256 met in transfer.

- Mathematics: 3 units
- Core Computer Science Requirements: 12 units
- Advanced Computer Science 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 - GVAR (Core Computer Science Requirement)	3
CSC 317	Introduction to Web Software Development (Core Computer Science Requirement)	3
CSC 340	Programming Methodology (Core Computer Science Requirement)	3
MATH 324	Probability and Statistics with Computing (Major Mathematics and Physics)	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 413	Software Development (Core Computer Science Requirement)	3
CSC 415	Operating System Principles (Advanced Computer Science Requirement)	3

CSC 510	Analysis of Algorithms I (Advanced Computer Science Requirement)	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		
Major Elective - Take Three ¹		9
GE Area UD-B: Upper-Division Physical and/or Life Sciences		3
University Elective		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 (15 units)**

All students must complete five 3-unit senior electives. At least 12 units must be CSC courses. In addition to the courses listed below, any 600-level CSC course, with the exception of [CSC 601](#), CSC 602, CSC 648, and [CSC 694](#) 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, CSC 899). Exceptions must be approved in advance by a senior advisor.

CSC 520 Theory of Computing (3 units)

CSC 600 Programming Paradigms and Languages (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 641 Computer Performance Evaluation (3 units)

CSC 642 Human-Computer Interaction (3 units)

CSC 645 Computer Networks (3 units)

CSC 647 Introduction to Quantum Computing and Quantum Information Science (3 units)

CSC 649 Search Engines (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 657 Bioinformatics Computing (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 671 Deep Learning (3 units)

CSC 675 Introduction to Database Systems (3 units)

CSC 676 Soft Computing and Decision Support Systems (3 units)

CSC 680 Application Development for Mobile Devices (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)

MATH 448 Introduction to Statistical Learning and Data Mining (3 units)