

# BACHELOR OF SCIENCE IN PHYSICS – PHYS ASSOCIATE DEGREE FOR TRANSFER (ADT) ROADMAP

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This is a sample pathway for students who transfer to San Francisco State University in the current Bulletin year with an AS-T in Physics. Twenty-four units in the major (MATH 226, MATH 227, MATH 228, PHYS 220, PHYS 222, PHYS 230, PHYS 232, PHYS 240, and PHYS 242) 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): If not met before transfer, refer to the next bullet for advice.
- 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.
- Students entering the major with the AS-T in Physics are not required to fulfill SF State Studies or Complementary Studies requirements.

### Physics B.S. Major: 44-47 Units

MATH 226, MATH 227, MATH 228, PHYS 220, PHYS 222, PHYS 230, PHYS 232, PHYS 240, and PHYS 242 met in transfer.

- Prerequisites (3 units if MATH 245 or equivalent not completed before transfer).
- Upper-Division Requirements (34 units)
- Upper-Division Electives (10 units): May be units in astronomy, physics, mathematics, or related sciences.

### University Electives: 1 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., both in UD GE and the major.

Course	Title	Units
<b>First Semester</b>		
Select One (UD-C, USH, CSLG):		3
HIST 470	The U.S. Constitution to 1896 (AERM, SJ)	
HIST 471	The U.S. Constitution Since 1896 (AERM, SJ)	
Select One:		3
University Elective (if selecting MATH 245)		
MATH 325	Linear Algebra (if selecting MATH 376)	
GE Area UD-B: Upper-Division Physical and/or Life Sciences		3
	<b>Units</b>	<b>9</b>
<b>Second Semester</b>		
CSC 309	Computer Programming (Major Upper-Division Core)	3
Select One (Major Lower-Division Prerequisite):		3
MATH 245	Elementary Differential Equations and Linear Algebra	
MATH 376	Ordinary Differential Equations I	
GE Area UD-D: Upper-Division Social Sciences		3
	<b>Units</b>	<b>9</b>

**Third Semester**

PHYS 320 & PHYS 321	Modern Physics I and Modern Physics Laboratory (Major Upper-Division Core)	5
PHYS 330	Analytical Mechanics I (Major Upper- Division Core)	3
PHYS 385	Introduction to Theoretical Physics I (Major Upper-Division Core)	3
<b>Units</b>		<b>11</b>

**Fourth Semester**

PHYS 360	Electricity and Magnetism I (Major Upper- Division Core)	3
PHYS 370	Thermodynamics and Statistical Mechanics (Major Upper-Division Core)	3
Major Elective (10 Units Total) - Take One <sup>2</sup>		3
<b>Units</b>		<b>9</b>

**Fifth Semester**

PHYS 430	Quantum Mechanics I (Major Upper-Division Core)	3
PHYS 460	Electricity and Magnetism II (Major Upper- Division Core)	3
PHYS 491GW	Advanced Laboratory Techniques I - GVAR (Major Upper-Division Core)	3
Major Elective (10 Units Total) - Take One <sup>2</sup>		3
<b>Units</b>		<b>12</b>

**Sixth Semester**

PHYS 457	Introduction to Analog Electronics (Major Upper-Division Core)	4
PHYS 695	Culminating Experience in Physics (Major Upper-Division Core)	1
Major Elective (10 Units Total) - Take One <sup>2</sup>		4
University Elective		1
<b>Units</b>		<b>10</b>
<b>Total Units</b>		<b>60</b>

<sup>1</sup> Additional upper-division elective units in astronomy, mathematics, or physics may be substituted for CSC 309 by students proficient in computer programming, subject to approval by the department chair.

<sup>2</sup> **Major Electives (10 units)**

Upper-division astronomy, physics, mathematics, or related sciences courses. If MATH 325 was taken, those units can be applied to this requirement.