BACHELOR OF ARTS IN PHYSICS – PHYS ASSOCIATE DEGREE FOR TRANSFER 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 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 320</td>
<td>Modern Physics I and Modern Physics Laboratory (Major Upper-Division Core)</td>
<td>5</td>
</tr>
<tr>
<td>&amp; PHYS 321</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US History</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>or University Elective if US History met in transfer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Elective (if selecting MATH 245) or MATH 325</td>
<td>Linear Algebra (if selecting MATH 376)</td>
<td>3</td>
</tr>
<tr>
<td>GE Area UD-B: Upper-Division Physical and/or Life Sciences</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Units</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 245 or MATH 376</td>
<td>Elementary Differential Equations and Linear Algebra (Major Prerequisite or Ordinary Differential Equations I)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 370</td>
<td>Thermodynamics and Statistical Mechanics (Major Upper-Division Core)</td>
<td>3</td>
</tr>
<tr>
<td>Major Elective (4 units)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>GE Area UD-C: Upper-Division Arts and/or Humanities</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>University Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Units</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Third Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 330</td>
<td>Analytical Mechanics I (Major Upper-Division Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 385</td>
<td>Introduction to Theoretical Physics I (Major Upper-Division Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 490</td>
<td>Physics Project Laboratory (Major Upper-Division Core)</td>
<td>2</td>
</tr>
<tr>
<td>U.S. and California Government</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>or University Elective if US/CA Government met before transfer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GE Area UD-D: Upper-Division Social Sciences</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Units</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Fourth Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 360</td>
<td>Electricity and Magnetism I (Major Upper-Division Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 491GW</td>
<td>Advanced Laboratory II - GWAR (GE Area UD-D: Upper-Division Social Sciences)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 695</td>
<td>Culminating Experience in Physics (GE Area UD-D: Upper-Division Social Sciences)</td>
<td>1</td>
</tr>
</tbody>
</table>
University Electives - Take Four

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
</tr>
</tbody>
</table>

1. PHYS 320/PHYS 321 offered fall semesters only.
2. PHYS 360, PHYS 370, PHYS 491GW, and PHYS 695 offered spring semesters only.
3. The Physics major requires a minimum of four elective units; PHYS 325 (offered in spring semesters) and PHYS 460 (offered in fall semesters) are strongly recommended.

**To Do at SF State:**

Enough total units to reach 120 minimum for graduation; 40 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, California State and Local Government requirements if not taken before transfer.
- Upper-Division GE (9 units): Courses required for the major may double-count if approved for UD GE.
- Students entering the major with the AS-T in Physics are not required to fulfill SF State Studies requirements.
- Complementary Studies is met in major with required mathematics.

**Physics B.A. Major: 25–28 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 equivalent not completed before transfer).
- Upper-Division Requirements (21 units).
- Upper-Division Electives (4 units).

**University Electives: 21 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. Upper-division electives recommended in order to meet the minimum 40-unit requirement.