BACHELOR OF SCIENCE IN BIOLOGY: CONCENTRATION IN PHYSIOLOGY – BIOL ASSOCIATE DEGREE FOR TRANSFER ROADMAP

This is a sample pathway for students who transfer to San Francisco State University in 2017–2018 with an AS-T in Biology. Thirty-two units in the major (BIOL 230/BIOL 240, CHEM 115/CHEM 215/CHEM 216, MATH 226, required PHYS sequence) and 33 units of lower division GE requirements 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).

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 130</td>
<td>General Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 124 or MATH 227</td>
<td>Elementary Statistics 1 or Calculus II</td>
<td>3-4</td>
</tr>
<tr>
<td>GE Area A: Written English Communication II (A4)</td>
<td>or University Elective if A4 met in transfer</td>
<td>3</td>
</tr>
<tr>
<td>or University Elective if US History met before transfer 2</td>
<td>or University Elective if US History met before transfer 2</td>
<td>3</td>
</tr>
<tr>
<td>GE Area C: Arts (C1) or Humanities (C2) or Humanities: Literature (C3)</td>
<td>or University Elective if US History met before transfer 2</td>
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<tr>
<td><strong>Units</strong></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 350</td>
<td>Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 355</td>
<td>Genetics 3</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 340 or CHEM 349</td>
<td>Biochemistry I or General Biochemistry</td>
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</tr>
<tr>
<td>Upper Division GE: UD-C or UD-D</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>GE Area D: Social Sciences (D1) or U.S. History (D2) or U.S. and California Government (D3)</td>
<td>or University Elective if US History met before transfer 2</td>
<td>3</td>
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<tr>
<td><strong>Units</strong></td>
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<td>15</td>
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<tr>
<td><strong>Third Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 612 or BIOL 630</td>
<td>Human Physiology or Animal Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 613GW or BIOL 631GW</td>
<td>Human Physiology Laboratory - GWAR or Animal Physiology Laboratory - GWAR</td>
<td>3-4</td>
</tr>
<tr>
<td>Major Physiology Core – See List</td>
<td></td>
<td>3</td>
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<tr>
<td>Major Physiology Elective 4</td>
<td></td>
<td>3</td>
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<tr>
<td>Upper Division GE: UD-C or UD-D</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td></td>
<td>16</td>
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<tr>
<td><strong>Fourth Semester</strong></td>
<td></td>
<td></td>
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<td>Major Physiology Core – See List</td>
<td></td>
<td>3</td>
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<tr>
<td>Major Physiology Electives 4</td>
<td></td>
<td>7-8</td>
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<tr>
<td>Upper Division GE: UD-C or UD-D</td>
<td>or University Elective</td>
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<tr>
<td><strong>Units</strong></td>
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<td>13</td>
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<tr>
<td><strong>Total Units</strong></td>
<td></td>
<td>60</td>
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</tbody>
</table>

1 BIOL 458 may be substituted for MATH 124/MATH 227.
2 Some GE Area UD–C: Upper Division Arts and/or Humanities courses also satisfy US History. Check the Class Schedule.
3. BIOL 355 satisfies GE Area UD–B: Upper Division Physical and/or Life Sciences.
4. Select Physiology electives in consultation with an advisor; electives must meet specific criteria.

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: 12–21 Units
- ENG 214 or equivalent A4 course (0-3 units) if not taken before transfer
- American Institutions (0-6 units): See next bullet.
- Lower division GE (6 units) – Area C (3 units in any subarea) and Area D (3 units; D2 satisfies US History if needed; D3 satisfies US/CA Government requirement if needed)
- Upper division GE (6 units to do): 1) Major course satisfies UD-B. 2) Take UD-C and UD-D courses. See notes.
- Students entering this major with the AS-T in Biology are not required to fulfill SF State Studies or Complementary Studies requirements.

Biology – Physiology Major: 34–40 Units
BIOL 230/BIOL 240, MATH 226, all PHYS, CHEM 115/CHEM 215/CHEM 216 met in transfer.
- Lower Division requirements (3–7 units): CHEM 130; MATH 124 or MATH 227 if not met in transfer (BIOL 458 may substitute for MATH 124 or MATH 227)
- Upper Division requirements (31–33 units); includes
  - Upper division requirements (9 units): BIOL 350, BIOL 355; CHEM 340 or CHEM 349
  - Physiology Core and Lab Requirements/GWAR (12–13 units)
  - Physiology Electives (10–11 units) – upon advisement. See note 1.

University Electives: Zero Units or More
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.

Major Physiology Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 525</td>
<td>Plant Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 616</td>
<td>Cardiorespiratory Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 617</td>
<td>Environmental Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 618</td>
<td>Biology of Aging</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 620</td>
<td>Endocrinology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 621</td>
<td>Reproductive Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 622</td>
<td>Hormones and Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 640</td>
<td>Cellular Neurosciences</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 642</td>
<td>Neural Systems Physiology</td>
<td>3</td>
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</tbody>
</table>