Bachelor of Science in Biology: Concentration in Physiology Roadmap – Quantitative Reasoning Category I/II and Stretch English

120 Total Units Required
Minimum Number of Units in the Major: 59

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

Course | Title | Units
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**First Semester**
BIOL 230 | Introductory Biology I (Major Lower-Division Core) | 5
CHEM 115 | General Chemistry I: Essential Concepts of Chemistry (Major Lower-Division Core) | 5
ENG 104 | Writing the First Year: Finding Your Voice Stretch I | 3
MATH 226 | Calculus I (Major Lower-Division Core, B4) | 4

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**Second Semester**
BIOL 240 | Introductory Biology II (Major Lower-Division Core) | 5
BIOL 231 | Advising for Success as a Biology Major (Major Lower-Division Core) | 1
CHEM 215 | General Chemistry II: Quantitative Applications of Chemistry Concepts (Major Lower-Division Core) | 3
ENG 105 | Writing the First Year: Finding Your Voice Stretch II (A2) | 3

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**Third Semester**
Select One (Major Lower-Division Core) | | 3

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**Fourth Semester**
Select One (Major Lower-Division Core) | | 3
CHEM 335 | Organic Chemistry II | 4
Select One Set of Courses (Major Lower-Division Core) | | 6
PHYS 121 & PHYS 122 | General Physics II and General Physics II Laboratory | 4
PHYS 230 & PHYS 232 | General Physics with Calculus II and General Physics with Calculus II Laboratory | 4
GE Area A | | 3
GE Area C | | 3
GE Area D | | 3

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**Fifth Semester**
BIOL 355 | Genetics (Major Upper-Division Core) | 3
Select One (Major Upper-Division Core) | | 3
BIOL 612 | Human Physiology | 3
BIOL 630 | Animal Physiology | 3
GE Area C | | 3
GE Area D | | 3
GE Area F | | 3

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**Sixth Semester**
Select One (Major Upper-Division Core) | | 3
CHEM 340 | Biochemistry I | 3
CHEM 349 | General Biochemistry | 3
GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course) | | 3
U.S. and California Government | | 3
SF State Studies or University Elective - Take Two | | 6

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**Seventh Semester**
BIOL 337 | Evolution (Major Upper-Division Core) | 3
Bachelor of Science in Biology: Concentration in Physiology Roadmap –
Quantitative Reasoning Category I/II and Stretch English

Select One (Major Upper-Division Core):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 613GW</td>
<td>Human Physiology Laboratory - GWAR</td>
<td>3-4</td>
</tr>
<tr>
<td>BIOL 631GW</td>
<td>Animal Physiology Laboratory - GWAR</td>
<td></td>
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Major Upper-Division Electives (10 Units Total) 7

GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course) 3

Eighth Semester

Major Upper-Division Electives (10 Units Total) 7

SF State Studies or University Elective – Take Three 10

Guided Electives (10 units)
Select 10 units from the classes below; at least 6 units must be chosen from among the Group A courses.

Group A
- BIOL 328 Human Anatomy (4 units)
- BIOL 350 Cell Biology (3 units)
- BIOL 361 Cardiorespiratory Physiology (3 units)
- BIOL 367 Environmental Physiology (3 units)
- BIOL 368 Biology of Aging (3 units)
- BIOL 369 Endocrinology (3 units)
- BIOL 461 Reproductive Physiology (3 units)
- BIOL 462 Hormones and Behavior (3 units)
- BIOL 463 Pharmacology (3 units)
- BIOL 464 Cellular Neurosciences (3 units)
- BIOL 465 Neural Systems Physiology (3 units)

Group B
- BIOL 435 Immunology (3 units)
- BIOL 453 General Parasitology (3 units)
- BIOL 454 Parasitology Laboratory (1 unit)
- BIOL 525 Plant Physiology (3 units)
- BIOL 526 Plant Molecular Physiology Laboratory (2 units)
- BIOL 561 Molecular Pathophysiology (3 units)
- BIOL 444 LEADERs Service Learning Course: Learners Engaged in Advocating for Diversity in Science (4 units)
- or BIOL 652 Science Education Partners in Biology (4 units)
- or BIOL 654 Peer Assistants for Learning Science (PALS) (4 units)
- BIOL 699 Independent Study in Biology (1-3 units)

Guided Electives ±

Given catalog rights, fall 2022 transfer students do not need to complete an Area F course.

1 ENG 114 can only be taken if you complete Directed Self-Placement (DSP) and select ENG 114; if you choose ENG 104/ENG 105 through DSP you will satisfy A2 upon successful completion of ENG 105 in the second semester; multilingual students may be advised into alternative English courses.
2 To determine the best B4 course option, students should complete the online advising activity at mathadvising.sfsu.edu (https://mathadvising.sfsu.edu/). Questions? Contact Gator Smart Start. (https://gatorsmartstart.sfsu.edu/)
3 GE Area B2 (Life Science) is satisfied upon completion of BIOL 240.
4 To avoid taking additional units, it is recommended that you meet the SF State Studies (AERM, GP, ES, SJ) requirements within your GE or major.
5 CHEM 233 is a prerequisite for CHEM 335. If students plan to take CHEM 335, they must take CHEM 233.
6 PHYS 111/PHYS 112 are prerequisites for PHYS 121/PHYS 122. PHYS 220/PHYS 222 are prerequisites for PHYS 230/PHYS 232.

Total Units 120-121