

Department of Biology Graduation Checklist
<https://biology.sfsu.edu/advising/undergraduate>

LD= _____
 UD= _____

Student: _____
 Last First
 Advisor: _____

E-mail _____
 Phone _____

BACHELOR OF SCIENCE IN BIOLOGY: CONCENTRATION IN BOTANY

Course is 3 units unless otherwise noted.

Lower Division Requirements (24 units)

| Class | Prerequisites (must be completed with a C- or better, unless otherwise stated; however, Chemistry prerequisite courses must be completed with a C or better) | Class Name | Units | Fa 21 | Sp 22 | Su 22 | ✓ | on DPR? |
|--------------|--|---|-------|-------|-------|-------|---|---------|
| BIOL 230 | | Introductory Biology I | 5 | yes | yes | no | | |
| BIOL 231 | | Advising for Success as a Biology Major | 1 | yes | yes | yes | | |
| BIOL 240 | BIOL 230 | Introductory Biology II [Meets GE Areas B2 (Life Science) & B3 (Lab Science)] | 5 | yes | yes | no | | |
| CHEM 115 | see http://bulletin.sfsu.edu/courses/chem/ | General Chemistry I: Essential Concepts of Chemistry | 5 | yes | yes | no | | |
| MATH 226 | see http://bulletin.sfsu.edu/courses/math/ | Calculus I | 4 | yes | yes | yes | | |
| PHYS 111/112 | see http://bulletin.sfsu.edu/courses/phys/ | General Physics I/Laboratory (3/1) | 4 | yes | yes | yes | | |

Total lower division requirements (units): 24

Upper Division Requirements (17-20 units)

| Class | Prerequisites | Class Name | Units | Fa 21 | Sp 22 | Su 22 | ✓ | on DPR? |
|--|--|--|-------|-------|-------|-------|---|---------|
| BIOL 337 | BIOL 230 + BIOL 240 + BIOL 355 | Evolution | 3 | yes | yes | no | | |
| BIOL 355 | BIOL 230 + BIOL 240 + CHEM 115 | Genetics [meets GE UD-B requirement] | 3 | yes | yes | yes | | |
| BIOL 458 | one college-level Biology course | Biometry (4) | 4 | yes | yes | no | | |
| BIOL 482 | BIOL 230 + BIOL 240 | Ecology (4) | | yes | yes | no | | |
| <i>One of the following courses upon advisement (3-6 units):</i> | | | | | | | | |
| BIOL 475GW | BIOL 230 + BIOL 240 + GE Area 2 | Herpetology - GVAR | | no | yes | no | | |
| BIOL 478GW | BIOL 230 + BIOL 240 + GE Area 2 | Ornithology - GVAR (4) | | no | yes | no | | |
| BIOL 529GW | BIOL 230 + BIOL 240 + GE Area 2 | Plant Ecology - GVAR (4) | | yes | no | no | | |
| BIOL 570GW | BIOL 230 + BIOL 240 + GE Area 2 | Biology of Fishes - GVAR (4) | | no | no | no | | |
| BIOL 670GW | GE Area A2 + BIOL 240 + BIOL 458 with grades of C or better; concurrent enrollment in BIOL 671 and BIOL 699 or BIOL 897. | Ecology and Evolution of Marine Systems I - GVAR (6) | | no | no | no | | |

Ecology and Evolution Elective courses (select 9 units upon advisement)

Courses used to satisfy the electives above may not be double-counted here.

| Class | Prerequisites | Class Name | Units | Fa 21 | Sp 22 | Su 22 | ✓ | on DPR? |
|-------------------------|---|--|-------|-------|-------|-------|---|---------|
| BIOL 380 | BIOL 355 (BIOL 337 is recommended) | Evolutionary Developmental Biology | | no | yes | no | | |
| BIOL 411 | BIOL 355 + BIOL 401 + BIOL 402GW + [CHEM 340 or CHEM 349] | Environmental Microbiology | | no | no | no | | |
| BIOL 453 | BIOL 230 + BIOL 240 + BIOL 355 | General Parasitology | | yes | no | no | | |
| BIOL 460 | BIOL 230 + BIOL 240 | General Entomology (4) | | no | no | no | | |
| BIOL 461 | BIOL 230 + BIOL 240 | Insect Taxonomy (4) | | no | no | no | | |
| BIOL 470 | BIOL 230 + BIOL 240 | Natural History of Vertebrates (4) | | no | yes | no | | |
| BIOL 475GW ¹ | BIOL 230 + BIOL 240 + GE Area 2 | Herpetology - GVAR | | no | yes | no | | |
| BIOL 478GW ¹ | BIOL 230 + BIOL 240 + GE Area 2 | Ornithology - GVAR (4) | | no | yes | no | | |
| BIOL 490 | BIOL 230 + BIOL 240 | Ecology of Infectious Diseases (4) | | no | no | no | | |
| BIOL 500 | BIOL 230 + BIOL 240 | Evolution and Diversity of Plants (4) | | no | no | no | | |
| BIOL 502 | BIOL 230 + BIOL 240, GPA 3.0 or higher | Biology of the Algae | | no | no | no | | |
| BIOL 504 | BIOL 230 + BIOL 240 | Biology of the Fungi (4) | | no | no | no | | |
| BIOL 505 | BIOL 230 + BIOL 240 | Comparative Anatomy of Vascular Plants (4) | | yes | no | no | | |
| BIOL 514 | BIOL 230 + BIOL 240, GPA 3.0 or higher | Plant Taxonomy (5) | | no | yes | no | | |
| BIOL 529GW ¹ | BIOL 230 + BIOL 240 + GE Area 2 | Plant Ecology - GVAR (4) | | yes | no | no | | |
| BIOL 530 | BIOL 230 + BIOL 240 | Conservation Biology | | yes | no | no | | |
| BIOL 532 | BIOL 230 + BIOL 240 | Restoration Ecology | | yes | no | no | | |
| BIOL 534 | BIOL 230 + BIOL 240 | Wetland Ecology (4) | | no | yes | no | | |
| BIOL 555 | BIOL 230 + BIOL 240 | Marine Invertebrate Zoology (4) | | no | no | no | | |
| BIOL 570GW ¹ | BIOL 230 + BIOL 240 + GE Area 2 | Biology of Fishes - GVAR (4) | | no | no | no | | |
| BIOL 577 | BIOL 230 | Ecological and Environmental Modeling (4) | | no | no | no | | |
| BIOL 580 | BIOL 230 + BIOL 240 + CHEM 215 + CHEM 216; ecology course recommended | Limnology | | no | no | no | | |
| BIOL 582 | BIOL 230 + BIOL 240 | Biological Oceanography (4) | | yes | yes | no | | |
| BIOL 585 | BIOL 230 + BIOL 240 | Marine Ecology | | yes | yes | no | | |
| BIOL 600 | BIOL 230 + BIOL 240 | Animal Behavior | | no | yes | no | | |
| BIOL 670GW ¹ | GE Area A2 + BIOL 240 + BIOL 458 with grades of C or better; concurrent enrollment in BIOL 671 + [BIOL 699 or BIOL 897] | Ecology and Evolution of Marine Systems I - GVAR (6) | | no | no | no | | |
| BIOL 671 | BIOL 240 + BIOL 458 with grades of C or better; concurrent enrollment in BIOL 670GW + [BIOL 699 or BIOL 897] | Ecology and Evolution of Marine Systems II (6) | | no | no | no | | |

Physiology and Additional Elective courses (Select 9 units upon advisement)

Courses used to satisfy the electives above may not be double-counted here.

| Class | Prerequisites | Class Name | Units | Fa 21 | Sp 22 | Su 22 | ✓ | on DPR? |
|------------|---|--|-------|-------|-------|-------|---|---------|
| BIOL 315 | BIOL 240 + BIOL 458 (with grades C or better); GPA 3.0 or better | Field Methods in Ecology and Evolution (1) | | no | no | yes | | |
| BIOL 322 | BIOL 100 | Human Sexuality: Integrative Science | | no | no | no | | |
| BIOL 327 | GE Areas A1*, A2*, A3*, and B4*; one college-level Biology course | AIDS: Biology of the Modern Epidemic | | yes | yes | no | | |
| BIOL 328 | BIOL 230 | Human Anatomy (4) | | yes | yes | no | | |
| BIOL 344GW | BIOL 230 + BIOL 240 + GE Area 2, GPA 3.0 or higher | Research Skills - GVAR | | no | no | no | | |
| BIOL 349 | GE Areas A1*, A2*, A3*, and B4* | Bioethics | | no | no | no | | |
| BIOL 350 | BIOL 230 + BIOL 240 + CHEM 115 | Cell Biology | | yes | yes | yes | | |
| BIOL 356 | BIOL 355 with a grade of B or better | Honors Genetics (2) | | yes | yes | no | | |
| BIOL 357 | BIOL 355 | Molecular Genetics | | yes | yes | no | | |
| BIOL 358 | BIOL 230 + Math 199 | Forensic Genetics: Math Matters (4) | | yes | no | no | | |

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on
 v DPR?

| BIOL | BIOL | | Fa 21 | Sp 22 | Su 22 | | |
|-------------------------|---|--|-------|-------|-------|--|--|
| BIOL 382 | Biol 350 + Biol 355, GPA 3.0 or higher | Developmental Biology | yes | yes | no | | |
| BIOL 391 | One college-level physics course | Microscopy and Photomicrography (2) | no | no | no | | |
| BIOL 401 | Biol 230 + Biol 240 + Chem 233 | General Microbiology | yes | yes | no | | |
| BIOL 420 | Biol 401 + Biol 402GW | General Virology | no | yes | no | | |
| BIOL 425 | Biol 230 + Biol 240 + [Biol 355 or Biol 401 or Biol 350] + Chem 130 | Emerging Diseases | no | yes | no | | |
| BIOL 430 | Biol 401 with a C or better | Medical Microbiology | yes | no | no | | |
| BIOL 435 | Biol 350 or Biol 401 | Immunology | no | yes | no | | |
| BIOL 436 | Biol 402GW, concurrent enrollment in Biol 435 | Immunology Laboratory (2) | no | no | no | | |
| BIOL 442 | Biol 401 + Biol 402GW + Chem 349 | Microbial Physiology | yes | no | no | | |
| BIOL 443 | Biol 442 (may be taken concurrently) | Microbial Physiology Laboratory (2) | no | no | no | | |
| BIOL 446 | Biol 401 + Biol 402GW + Biol 355 | Microbial Genomics (4) | yes | no | no | | |
| BIOL 454 | Biol 453 (may be taken concurrently) | Parasitology Laboratory (1) | yes | no | no | | |
| BIOL 475GW [†] | Biol 230 + Biol 240 + GE Area 2 | Herpetology - GVAR | no | yes | no | | |
| BIOL 478GW [†] | Biol 230 + Biol 240 + GE Area 2 | Ornithology - GVAR (4) | no | yes | no | | |
| BIOL 490 | Biol 230 + Biol 240 | Ecology of Infectious Diseases (4) | no | no | no | | |
| BIOL 492 | Biol 230 + Biol 240 | Comparative Anatomy of Vertebrates (4) | no | no | no | | |
| BIOL 500 | Biol 230 + Biol 240 | Evolution and Diversity of Plants (4) | no | no | no | | |
| BIOL 502 | Biol 230 + Biol 240, GPA 3.0 or higher | Biology of the Algae | no | no | no | | |
| BIOL 504 | Biol 230 + Biol 240 | Biology of the Fungi (4) | no | no | no | | |
| BIOL 505 | Biol 230 + Biol 240 | Comparative Anatomy of Vascular Plants (4) | yes | no | no | | |
| BIOL 508 | Biol 230 + Biol 240 | Plants and Human Affairs | no | no | no | | |
| BIOL 514 | Biol 230 + Biol 240, GPA 3.0 or higher | Plant Taxonomy (5) | no | yes | no | | |
| BIOL 525 | Biol 230 + Biol 240 + Chem 130 | Plant Physiology | yes | yes | no | | |
| BIOL 526 | Biol 230 + Biol 240 + Chem 130 | Plant Molecular Physiology Laboratory (2) | no | yes | no | | |
| BIOL 532 | Biol 230 + Biol 240 | Restoration Ecology | yes | no | no | | |
| BIOL 534 | Biol 230 + Biol 240 | Wetland Ecology (4) | no | yes | no | | |
| BIOL 550 | Biol 230 + Biol 240 + upper division ecology course | Plant and Animal Interactions (4) | no | no | no | | |
| BIOL 555 | Biol 230 + Biol 240 | Marine Invertebrate Zoology (4) | no | no | no | | |
| BIOL 556 | Biol 230 + Biol 240 | Natural History of Marine Invertebrates (4) | no | no | no | | |
| BIOL 570GW [†] | Biol 230 + Biol 240 + GE Area 2 | Biology of Fishes - GVAR (4) | no | no | no | | |
| BIOL 572 | Upper-division standing; GPA of 3.0 or higher | Colloquium in Ecology, Evolution, and Conservation (2) | no | no | no | | |
| BIOL 575 | Biol 570GW or an ecology course | Fisheries Biology | no | no | no | | |
| BIOL 577 | Biol 230 | Ecological and Environmental Modeling (4) | no | no | no | | |
| BIOL 580 | Biol 230 + Biol 240 + Chem 215 + Chem 216; ecology course recommended | Limnology | no | no | no | | |
| BIOL 584 | Chem 115 | Marine Microbial Ecology Laboratory (1) | no | no | no | | |
| BIOL 585 | Biol 230 + Biol 240 | Marine Ecology | yes | yes | no | | |
| BIOL 586 | Biol 585 (may be taken concurrently) | Marine Laboratory (2) | no | no | no | | |
| BIOL 600 | Biol 230 + Biol 240 | Animal Behavior | no | yes | no | | |
| BIOL 612 | Biol 230 + Biol 240 + Chem 130 + Phys 121 | Human Physiology | yes | yes | yes | | |
| BIOL 617 | Biol 612 or Biol 630 | Environmental Physiology | no | no | no | | |
| BIOL 620 | Biol 230 + Biol 240 | Endocrinology | yes | yes | no | | |
| BIOL 621 | Biol 230 + Biol 240 + Biol 330 + Chem 130; Biol 492 or a vertebrate anatomy course recommended | Reproductive Physiology | yes | no | yes | | |
| BIOL 622 | Biol 230 + Biol 240 | Hormones and Behavior | no | yes | no | | |
| BIOL 630 | Biol 230 + Biol 240 + [Chem 130 or Chem 233] | Animal Physiology | yes | yes | no | | |
| BIOL 638 | Biol 230, GPA 3.0 or higher | Bioinformatics & Genome Annotation (4) | no | yes | no | | |
| BIOL 640 | Biol 230 + Biol 240 + Chem 130 + Phys 121; Biol 350 and Biol 612 recommended | Cellular Neurosciences | yes | no | no | | |
| BIOL 642 | Biol 328 or Biol 612 | Neural Systems Physiology | no | yes | no | | |
| BIOL 644 | Biol 230 + Biol 240 + [Biol 350 or Biol 355 or Biol 357] | LEADerS Service Learning Course: Learners Engaged in Advocating for Diversity in Science (4) | no | no | no | | |
| OR BIOL 652 | [Biol 230 + Biol 240] OR one upper division biology course | Science Education Partners in Biology (4) | no | no | no | | |
| OR BIOL 654 | Biol 230 | Peer Assistants for Learning Science (4) | yes | yes | no | | |
| BIOL 670GW [†] | GE Area A2 + Biol 240 + Biol 458 with grades of C or better; concurrent enrollment in BIOL 671 + [BIOL 699 or BIOL 897] | Ecology and Evolution of Marine Systems I - GVAR (6) | no | no | no | | |
| BIOL 671 | BIOL 240 + BIOL 458 with grades of C or better; concurrent enrollment in BIOL 670GW + [BIOL 699 or BIOL 897] | Ecology and Evolution of Marine Systems II (6) | no | no | no | | |
| BIOL 699 | Restricted to senior Biology majors; consent of the department and instructor. | Independent Study in Biology (1-3 units) <i>requires faculty mentor's approval</i> | yes | yes | no | | |

[†]May be used as an Ecology and Evolution or Physiology /Additional elective if not taken as one of the upper-division required courses.

| Course Num. | Course Title | Units |
|-------------|--------------|-------|
| | | |
| | | |
| | | |

What course has student taken to meet GVAR?

GVAR course must be completed with a C- or better to meet graduation requirements

| | Required | Completed |
|--|----------|-----------|
| Total upper division unit requirements: | 35-38 | _____ |
| Total units for major (minimum 59 units) | 59-62 | _____ |

Recommendations for targeted post-graduate plans

Health profession:

Students must take Chem 215/216
 Students must take the full year of organic chemistry with lab: Chem 233/234 and Chem 335/336.
 Students must take Phys 121/122.

Graduate programs

Students must take Chem 215/216
 Students should take full year of organic chemistry with lab: Chem 233/234 and Chem 335/336.
 Students should take the full year of biochemistry: Chem 340 and Chem 341
 Students must take Phys 121/122.
 Student should consult with major advisor to optimize course plan for goals.