

Biology Degree Requirements B.S. 2022-2023

Biology Major Requirements

Students must earn a minimum 2.00 GPA in the biology core and advanced biology areas of the major.

Biology Core

Course Number	Course Name	Credits
Biol 110 & 111*	Introduction to Biology & Opportunities in Biology	1.5
Biol 211 & Biol 211L	Principles of Biology I & Lab	4
Biol 212 & Biol 212L	Principles of Biology II & Lab	4
Biol 312	Ecology (with lab)	4
Biol 313 & Biol 313L	Principles of Genetics & Lab	4
Biol 314	Principles of Molecular Cell Biology	3
Biol 315	Biological Evolution	3

* Students transferring to ISU take Biol 112 (Transfer Student Orientation, 1 credit) instead of Biol 110 & 111.

Advanced Biology

Select **21 credits total** from the advanced biology course list. This must include:

- **2 advanced biology labs**, denoted by a **black dot** on the advanced course list.
- **At least 9 credits from the Biol classes** listed below. The remaining advanced credits can be from Biol or other departments on the advanced list.

Advanced Biology Course List | Biol Courses

Course #	Course Title	Credits	Course #	Course Title	Credits
Biol 319	Analysis of Environmental Systems	3	Biol 428	Cell Biology	3
Biol 322	Intro to Bioinformatics	3	Biol 436	Neurobiology	3
Biol 328	Molc. & Cell Bio of Human Disease	3	Biol 451 •	Plant Evolution & Phylogeny	4
Biol 335	Human & Animal Physiology	3	Biol 454 •	Plant Anatomy	4
Biol 335L •	Human & Animal Physiology Lab	1	Biol 455 •	Bryophyte & Lichen Diversity	3
Biol 336	Ecological & Evol. Animal Physiology	3	Biol 456 •	Principles of Mycology	3
Biol 344	Human Reproduction	3	Biol 457	Herpetology	2
Biol 349 •	Genome Perspective in Biology	3	Biol 457L •	Herpetology Lab	1
Biol 350 •	Comprehensive Human Anatomy	4	Biol 458	Ornithology	2
Biol 351 •	Comprehensive Chordate Anatomy	5	Biol 458L •	Ornithology Lab	1
Biol 352 •	Vertebrate Histology	4	Biol 459	Mammalogy	2
Biol 353	Introductory Parasitology	3	Biol 459L •	Mammalogy Lab	1
Biol 354	Animal Behavior	3	Biol 462	Evolutionary Genetics	3
Biol 354L •	Animal Behavior Lab	1	Biol 465	Macroevolution	3
Biol 355	Plants and People	3	Biol 466X	Molecular & Genome Evolution	3
Biol 356 •	Dendrology	3	Biol 471	Intro Conservation Biology	3
Biol 357	Biology of Plants	3	Biol 472	Community Ecology	3
Biol 358 •	Bee Biology, Mgmt., & Beekeeping	3	Biol 474	Plant Ecology	3
Biol 364	Invertebrate Biology	3-4	Biol 476	Functional Ecology	3
Biol 365 •	Vertebrate Biology	4	Biol 480 ^a •	Studies in Marine Biology	1-8
Biol 366 •	Plant Systematics	4	Biol 481 ^a •	Summer Field Studies	1-8
Biol 370 •	GIS for Ecology & Env. Science	1-6	Biol 482 •	Tropical Biology	1-4
Biol 371 •	Ecological Methods	3	Biol 483	Environmental Biogeochemistry	3
Biol 375X	Marine Ecol. & Ecosystems Dynamics	3	Biol 484	Ecosystem Ecology	3
Biol 393 •	North American Field Trips	1-4	Biol 486	Aquatic Ecology	3
Biol 394 •	International Field Trips	1-4	Biol 486L •	Aquatic Ecology Lab	1
Biol 395X	Professional Development in Biol. Sci.	2	Biol 487	Microbial Ecology	3
Biol 401	Fundamentals of Bioinformatics	4	Biol 488 •	Identification of Aquatic Organisms	1
Biol 402	Intro to Pathology	3	Biol 490 ^a	Independent Study	1
Biol 403X	Intro to Pathology II	3	Biol 491 ^a •	Undergraduate Teaching Experience	1-2
Biol 414	Life History & Reproductive Strategy	3	Biol 492	Preparing for Grad School in Biology	1
Biol 421	Biological Principles of Aging	3	Biol 494 ^a •	Biology Internship	1-3
Biol 423	Developmental Biology	3	Biol 495	Undergrad Seminar (various topics)	1-3
Biol 423L •	Developmental Biology Lab	1	Biol 499 ^a •	Undergraduate Research	1-3

^a Students can apply a maximum of 7 credits of the following toward advanced biology requirements: Biol 480, 481, 490 (2 cr. max), 491 (2 cr. max), 494 (6 cr. max) and 499 (6 cr. max).

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NOTE: Course offerings vary by semester. Check the [University Catalog](#) and [Schedule of Classes](#) to view availability.

Advanced Biology Course List | Other Departments

Agronomy Courses

Agron 316	Crop Structure-Func. Relationships	3
Agron 317	Principles of Weed Science	3
Agron 338 •	Seed Science & Technology	3
Agron 354	Soils & Plant Growth	3
Agron 421	Intro to Plant Breeding	3

Animal Science Courses

An S 313	Exercise Physiology of Animals	2
An S 319	Animal Nutrition	3
An S 331	Domestic Animal Reproduction	3
An S 332 •	Lab Methods in Animal Reproduction	1
An S 333	Embryo Transfer & Related Technol.	3
An S 334 •	Embryo Transfer Lab	1
An S 337	Lactation	3
An S 345	Growth & Dev. of Domestic Animals	3
An S 352 •	Genetic Improv. of Domestic Animals	3
An S 419	Advanced Animal Nutrition	2

Anthropology Courses

Anthr 307 •	Biological Anthropology	3
Anthr 317	Primate Behavior, Ecology & Evolution	3
Anthr 319 •	Skeletal Biology	3
Anthr 424 •	Forensic Anthropology	3

Biochemistry Courses

BBMB 405	Biochemistry II	3
BBMB 411 •	Techniques in Biochem Research	4
BBMB 420	Mammalian Biochemistry	3
BBMB 430	Prokaryotic Diversity & Ecology	3

Bioinformatics & Computational Biology Courses

BCBio 406	Bioinformatics of OMICS	3
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Biomedical Sciences Courses

B M S 329	Anat. & Phys. of Domestic Animals	3
B M S 401 •	Intro to Aquatic Animal Medicine	1
B M S 438	Principles of Physiology	4
B M S 448 •	Principles of Human Gross Anatomy	4

Entomology Courses

ENT 370 •	Insect Biology	3
ENT 374	Insects & Our Health	3
ENT 374L •	Insects & Our Health Lab	1
ENT 425 •	Aquatic Insects	3
ENT 471 •	Insect Ecology	3

Food Science & Human Nutrition Courses

FS HN 360	Adv. Human Nutrition & Metabolism	3
FS HN 362	Nutrition in Growth & Development	3
FS HN 364	Nutrition & Prev. of Chronic Disease	3
FS HN 367	Medical Terminology	1

Genetics Courses

Gen 340	Human Genetics	3
Gen 409	Molecular Genetics	3
Gen 410	Analytical Genetics	3

Geology Courses

Geol 406	Geology Field Course	1-2
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Health Studies Courses

H S 350	Human Diseases	3
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Horticulture Courses

Hort 321	Horticulture Physiology	3
Hort 322 •	Plant Propagation	3

Kinesiology Courses

Kin 355	Biomechanics	3
Kin 363	Basic Electrocardiography	2

Microbiology Courses

Micro 302	Biology of Microorganisms	3
Micro 302L •	Microbiology Lab	1
Micro 310	Medical Microbiology	3
Micro 310L	Medical Microbiology Lab	1
Micro 320	Molecular & Cellular Bacteriology	4
Micro 360	Global Health	3
Micro 402	Microbial Genetics & Genomics	3
Micro 408	Virology	3
Micro 420	Food Microbiology	3
Micro 475	Immunology	3
Micro 475L •	Immunology Lab	1

Natural Resource Ecology & Management Courses

A Ecl 321 •	Fish Biology	3
A Ecl 366 •	Natural History of Iowa Vertebrates	3
A Ecl 415 •	Ecol. Freshwater Invert/Plant/Algae	3
A Ecl 418 •	Stream Ecology	3
A Ecl 442	Aquaculture	3
A Ecl 454	Principles of Wildlife Disease	3
For 302 •	Silviculture	3
NREM 301 •	Natural Resource Ecology & Soils	4
NREM 345 •	Nat. Resource Photogrammetry & GIS	3
NREM 358 •	Forest Herbaceous Layer	1
NREM 390	Fire Ecology & Management	3
NREM 407 •	Watershed Management	4
NREM 446 •	Integrating GPS & GIS for Nat. Res.	3
NREM 452 •	Ecosystem Management	3

Plant Pathology Courses

PL P 408	Principles of Plant Pathology	3
PL P 416	Forest Insects & Diseases	3
PL P 416L •	Forest Insects & Diseases Lab	1
PL P 477	Bacterial-Plant Interactions	3
PL P 494	Seed Pathology	2
PL P 494L •	Seed Pathology Lab	1

Psychology Courses

Psych 310	Brain & Behavior	3
Psych 315	Drugs & Behavior	3

Toxicology Courses

Tox 401	Principles of Toxicology	3
Tox 450	Pesticides in the Environment	3

NOTE: Courses on this list may have prerequisites not included in this list that do not count toward the advanced biology requirement.