

Approved Advanced Biology Courses

Biology Program at Iowa State University

Course offerings vary by semester; check the catalog and classes.iastate.edu

Course #	Biology Course Name	Credits	Course #	Biology Course Name	Credits
BIOL 322	Intro Bioinformatics and Comp. Bio	3	BIOL 451 •	Plant Evolution & Phylogeny	4
BIOL 328	Mole. & Cell. Bio of Human Disease	3	BIOL 454 •	Plant Anatomy	4
BIOL 335	Human & Animal Physiology	3	BIOL 455 •	Bryophyte and Lichen Biodiversity	3
BIOL 335L •	Human & Animal Physiology Lab	1	BIOL 456 •	Principles of Mycology	3
BIOL 336	Ecological & Evolutionary Animal Phys	3	BIOL 457	Herpetology	2
BIOL 344	Human Reproduction	3	BIOL 457L •	Herpetology Lab	1
BIOL 349 •	Genome Perspective in Biology	3	BIOL 458	Ornithology	2
BIOL 350	Comprehensive Human Anatomy	3	BIOL 458L •	Ornithology Lab	1
BIOL 351 •	Comparative Chordate Anatomy	5	BIOL 459	Mammalogy	2
BIOL 352 •	Vertebrate Histology	4	BIOL 459L •	Mammalogy Lab	1
BIOL 353 •	Introductory Parasitology	3	BIOL 462	Evolutionary Genetics	3
BIOL 354	Animal Behavior	3	BIOL 464	Wetland Ecology	3
BIOL 354L •	Animal Behavior Lab	1	BIOL 465	Macroevolution	3
BIOL 355	Plants and People	3	BIOL 471	Introductory Conservation Biology	3
BIOL 356 •	Dendrology	4	BIOL 472	Community Ecology	3
BIOL 357	Biology of Plants	3	BIOL 474	Plant Ecology	3
BIOL 364	Invertebrate Biology	3-4	BIOL 476	Functional Ecology	3
BIOL 365 •	Vertebrate Biology	4	BIOL 480 •	Studies in Marine Biology	1-8
BIOL 366 •	Plant Systematics	4	BIOL 481 •	Summer Field Studies	1-8
BIOL 370 •	GIS for Ecology and Env't Science	1-6	BIOL 482 •	Tropical Biology	1-4
BIOL 371 •	Ecological Methods	3	BIOL 484	Ecosystem Ecology	3
BIOL 381	Environmental Systems I	3	BIOL 483X	Environmental Biogeochemistry	3
BIOL 382 •	Environmental Systems II	3	BIOL 486	Aquatic Ecology	3
BIOL 393 •	N. American Field Trips	1-4	BIOL 486L •	Aquatic Ecology Lab	1
BIOL 394 •	International Field Trips	1-4	BIOL 487	Microbial Ecology	3
BIOL 402	Introduction to Pathology	3	BIOL 488 •	Identification of Aquatic Organisms	1
BIOL 414	Life History & Reproductive Strategy	3	BIOL 489 •	Population Ecology	3
BIOL 423	Developmental Biology	3	BIOL 490	Independent Study	1
BIOL 423L •	Developmental Biology Lab	1	BIOL 491 •	Undergraduate Teaching Experience	1-2
BIOL 428	Topics in Cell Biology	3	BIOL 492	Preparing for Grad School in Biology	1
BIOL 430	Principles of Plant Physiology	3	BIOL 494 •	Biology Internship	1-3
BIOL 434	Endocrinology	3	BIOL 495	Undergraduate Seminar (various topics)	1-3
BIOL 436	Neurobiology	3	BIOL 498	Cooperative Education	R
BIOL 444	Bioinformatic Analysis	4	BIOL 499 •	Undergraduate Research	1-3

Students may apply a maximum of 7 credits of the following: BIOL 480, 481, 490 (2 cr max), 491 (2 cr max), 494, and 499 towards advanced biology. Lab courses are denoted by •. Courses below are graduate level courses open to undergraduates by prerequisite or permission and typically offered alternate semesters.

Course #	Graduate Course Name	Credits	Course #	Graduate Course Name	Credits
EEOB 507	Advanced Animal Behavior	3	EEOB 585	Advanced Community Ecology	3
EEOB 514	Life History and Reproductive Strategies	3	EEOB 586	Aquatic Ecology	3
EEOB 531	Conservation Biology	3	EEOB 586L	Aquatic Ecology Lab	1
EEOB 534	Endocrinology	3	EEOB 587	Microbial Ecology	3
EEOB 535	Restoration Ecology	3	EEOB 589	Population Ecology	3
EEOB 551	Plant Evolution and Phylogeny	4	EEOB 590	Special Topics	1-3
EEOB 553	Agrostology	3	EEOB 596	Ecology and Society	3
EEOB 555	Bryophyte and Lichen Biodiversity	3	GDCB 505	Entrepreneurship in Science & Tech	3
EEOB 558	Ornithology	2	GDCB 510	Transmission Genetics	3
EEOB 559	Mammalogy	2	GDCB 511	Molecular Genetics	3
EEOB 561	Evolutionary and Ecological Genomics	3	GDCB 513	Plant Metabolism	2
EEOB 562	Evolutionary Genetics	3	GDCB 528	Advances in Molecular Cell Biology	3
EEOB 563	Molecular Phylogenetics	3	GDCB 533	Advances in Developmental Biology	3
EEOB 564	Wetland Ecology	3	GDCB 536	Statistical Genetics	4
EEOB 565	Macroevolution	3	GDCB 542	Intro to Molecular Biology Techniques	1
EEOB 566	Molecular Evolution	3	GDCB 544	Fundamentals of Bioinformatics	4
EEOB 567	Empirical Population Genetics	3	GDCB 545	Plant Molecular, Cell and Dev't Biology	3
EEOB 568	Advanced Systematics	3	GDCB 556	Cell, Molec. & Dev't Neuroscience	3
EEOB 569	Biogeography	3	GDCB 557	Advanced Neuroscience Techniques	3
EEOB 573	Techniques for Biology Teaching	1-2	GDCB 568	Bioinformatics II (Statistical)	3
EEOB 576	Functional Ecology	3	GDCB 569	Bioinformatics III (Structural)	3
EEOB 577	Concepts in Theoretical Ecol. & Evol.	1	GDCB 570	Bioinformatics IV (Systems Biology)	3
EEOB 581	Environmental Systems I	3-4	GDCB 585	Fund. of Predictive Plant Phenomics	4
EEOB 582	Environmental Systems II	3	GDCB 590	Special Topics	var
EEOB 584	Advanced Ecosystem Ecology	3			

This page lists approved advanced biology courses offered by other departments at Iowa State. These courses may have pre-requisites not included in this list that do not count as advanced biology courses.

Agronomy Courses		Credits	Genetics Courses		Credits
AGRON 317	Principles of Weed Science	3	GEN 340	Human Genetics	3
AGRON 338	Seed Science and Technology	3	GEN 409	Molecular Genetics	3
AGRON 354	Soils and Plant Growth	3	GEN 410	Analytical Genetics	3
AGRON 354L	Soils and Plant Growth Lab	1			
AGRON 421	Introduction to Plant Breeding	3	Horticulture Courses		Credits
AGRON 485	Soil & Environmental Microbiology	3	HORT 321	Horticulture Physiology	3
			HORT 322	Plant Propagation	3
Animal Science Courses		Credits	Kinesiology Courses		Credits
AN S 319	Animal Nutrition	3	KIN 355	Biomechanics	3
AN S 331	Domestic Animal Reproduction	3	KIN 363	Basic Electrocardiography	2
AN S 332	Lab Methods in Animal Reproduction	1			
AN S 333	Embryo Transfer & Related Technology	3	Microbiology Courses		Credits
AN S 334	Embryo Transfer Laboratory	1	MICRO 302	Biology of Microorganisms	3
AN S 337	Lactation	3	MICRO 302L	Microbiology Lab	1
AN S 345	Growth & Dev't of Domestic Animals	3	MICRO 310	Medical Microbiology	3
AN S 352	Genetic Improvem't of Domestic Animals	3	MICRO 310L	Medical Microbiology Lab	1
AN S 419	Advanced Animal Nutrition	2	MICRO 320	Molecular and Cellular Bacteriology	4
			MICRO 402	Microbial Genetics	3
			MICRO 408	Virology	3
			MICRO 475	Immunology	3
Anthropology Courses		Credits	Natural Resource Ecology & Management Courses		Credits
ANTHR 307	Biological Anthropology	3	A ECL 321	Fish Biology	3
ANTHR 319	Skeletal Biology	3	A ECL 366	Natural History of Iowa Vertebrates	3
ANTHR 424	Forensic Anthropology	3	A ECL 415	Ecol. of Freshwater Inverts/Plants/Algae	3
ANTHR 438	Primate Evolutionary Ecology & Behavior	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	Natural Resource Photogrammetry & GIS	3
			NREM 357	Midwestern Prairie Plants	1
			NREM 358	Forest Herbaceous Layer	1
			NREM 390	Fire Ecology and Management	3
			NREM 407	Watershed Management	4
			NREM 446	Integrating GPS & GIS for Nat. Res.	3
			NREM 452	Ecosystem Management	3
Biochemistry Courses		Credits	Plant Pathology Courses		Credits
BBMB 405	Biochemistry II	3	PL P 408	Principles of Plant Pathology	3
BBMB 411	Techniques in Biochemical Research	4	PL P 416	Forest Insects & Diseases	3
BBMB 420	Mammalian Biochemistry	3	PL P 416L	Forest Insects & Diseases Laboratory	1
BBMB 430	Prokaryotic Diversity and Ecology	3	PL P 477	Bacterial-Plant Interactions	3
BBMB 440	Microbial Phys, Diversity, & Genetics Lab	4	PL P 494	Seed Pathology	2
Biomedical Studies Courses		Credits	Psychology Courses		Credits
B M S 329	Anat & Phys of Domestic Animals	3	PSYCH 310	Brain and Behavior	3
B M S 335	Molec & Cell Basis of Disease	1	PSYCH 315	Drugs and Behavior	3
B M S 401	Intro Aquatic Animal Medicine	1			
Community & Regional Planning Courses		Credits			
C R P 451	Introduction to GIS	3			
Entomology Courses		Credits			
ENT 370	Insect Biology	3			
ENT 374	Insects and our Health	3			
ENT 374L	Insects and our Health Laboratory	1			
ENT 410	Insect-Virus Interactions	3			
ENT 425	Aquatic Insects	3			
ENT 471	Insect Ecology	3			
Food Science & Human Nutrition Courses		Credits			
FS HN 360	Adv. Human Nutrition & Metabolism	3			
FS HN 361	Nutrition & Health Assessment	2			
FS HN 364	Nutrit. & Prevention of Chronic Disease	3			
FS HN 367	Medical Terminology	1			

Iowa Lakeside Laboratory – courses taken over the summer at Iowa Lakeside Lab often count towards advanced biology requirements. Please check for available courses on the Lakeside Lab web page (<http://www.continuetolearn.uiowa.edu/lakesidelab/>) and consult your advisor for those that apply to the degree program.