

Biology Major Common BioSci and Elective Courses

- The Biology major requires 32 credit hours total, and **25 of these 32 hours must be from the Biological Sciences (“BioSci”) departments—these include Biochemistry, Biology, EEOB, Microbiology, and Molecular Genetics**. The courses listed in this handout in those departments can all count toward the 25 BioSci hours needed for the major.
 - *Follow the specialization sheet (PHP, FRB, LSE, IGB) to ensure you are taking the correct courses for your chosen specialization!*
- Listed terms are subject to change; please check Buckeye Link for official offerings.
- A maximum of 3 credit hours can be granted toward major for independent study (3193), internship experience (Biology 4191), OR research credit (4998). **Please complete attached survey to see if your experience can earn you credit.** https://osu.az1.qualtrics.com/jfe/form/SV_6V8FPhpdSK2Qdoh
- No more than half of the major hours can be transfer credit (=16 hours or less of transfer credit).
- We DO NOT count EM credit for the Biology major courses (however, on the major supporting courses we do).

Make Sure to Check for Prerequisites!

Biology		
Biology 2200 (1)	Genome Biology	Requires instructor perm
Biology 3401 (4)	Integrated Biology	Required core course (AU, SP)
Biology 4191 (1-3)	Internship	Requires approval process (AU, SP, SU)
Biology 4798* (3)	Biological Roots in England	(SP, study abroad)
Biology 4998 (1-3)	Research Credit	Requires approval process- (AU, SP, SU)
		see above link
Biology 5001 (1)	Scientific Teaching	Available only as approved CLSE TA credit

*Course is an application-based course with a faculty lead study abroad trip. Must apply for program.

Biochemistry		
Biochemistry 2998H (1-3)	Early Research Experience	(AU) Seminar
Biochemistry 4511*(4)	Introduction to Biological Chemistry	(AU, SP, SU)
Biochemistry 4998 (1-3)	Research Credit (Requires approval process)	(AU, SP, SU)
Biochemistry 5613*(3)	Biochemistry & Molecular Biology I	(AU, SP)
Biochemistry 5614*(3)	Biochemistry & Molecular Biology II	(AU, SP)
Biochemistry 5615 (3)	Biochemistry & Molecular Biology III	(SP)
Biochemistry 5621 (4)	Biochemistry & Molecular Biology	(AU, SP) LAB
Biochemistry 5701 (4)	DNA Transactions & Gene Regulation	(AU)
Biochemistry 5721 (3)	Physical Biochemistry I	(AU)
Biochemistry 5722 (3)	Physical Biochemistry II	(SP)

***Biochemistry Disclaimers:**

- Either Biochem 4511 **or** Biochem 5613 and 5614 can count on the major.
- Biochem 4591S is also cross listed with Mol Gen 4591S and Micro 4591S—*any one* is fine to count toward the major and toward the 25 biological sciences credit hours, but not more than one.

EEOB (Evolution, Ecology, & Organismal Biology)

EEOB 2210 (2)	Biodiversity of Ohio-Plants	(AU, SU) LAB
EEOB 2220 (2)	Biodiversity of Ohio-Birds	(SP) LAB
EEOB 2250 (3)	Dynamics of Dinosaurs	(AU)
EEOB 2270 (2)	Parasites and Evolution	(SP)
EEOB 2410 (3)	Ecology and Evolution of Species Introductions	(SP)
EEOB 2511 (4)	Human Anatomy	(SP, SU) LAB
EEOB 2520 (3)	Human Physiology	(SP, SU)
EEOB 2911 (4)	The Climate Crisis: Mechanisms, Impacts, and Mitigation	(AU)
EEOB 3270 (3)	Infectious Disease Ecology, Evolution & Transmission	(SU)
EEOB 3310.01 (4)	Evolution-in-person course	(SU)
EEOB 3310.02 (4)	Evolution-hybrid delivery	(AU, SP,) LAB
EEOB 3320 (3)	Organismal Diversity	(AU, SP,) LAB
EEOB 3410 (4)	Ecology	(AU, SP, SU) LAB
EEOB 3420 (4)	Behavioral Ecology	(AU) LAB
EEOB 3510 (3)	Cellular and Developmental Biology (Prereq 3310.XX)	(AU)
EEOB 3520 (3)	Microscopic Anatomy (histology)	(AU) LAB
EEOB 4210 (2)	Study of Ecology & Evolution-Vertebrates	(SP)
EEOB 4220 (3)	Study of Ecology & Evolution-Mammals	(AU) LAB
EEOB 4230 (2)	Study of Ecology & Evolution-Invertebrates	(SP)
EEOB 4240 (3)	Study of Ecology & Evolution-Plants & People	(AU)
EEOB 4410 (3)	Conservation Biology	(SP)
EEOB 4420H (3)	Tropical Field Studies*I	(SU) Study Abroad LAB
EEOB 4430 (2)	Ecological Methods	(SU)
EEOB 4510 (3)	Comparative Vertebrate Anatomy	(AU, SP, SU) LAB
EEOB 4520 (4)	Comparative Physiology	(SP)
EEOB 4550 (3)	Neurobiology of Behavior	(AU)
EEOB 4560 (2)	Comparative Endocrinology	(SP)
EEOB 4998 (1-3)	Research Credit (<i>Requires approval process</i>)	(AU, SP, SU) LAB
EEOB 5310 (3)	Advanced Principles of Evolution	(SP)
EEOB 5320 (3)	Society and Evolution	(SP)
EEOB 5330 (3)	Population Genetics & Phytogeography	(AU, SP)
EEOB 5350 (3)	Evolutionary Ecology	(SP)
EEOB 5340 (4)	Evolution & Taxonomy of Vascular Plants	
EEOB 5410 (1.5)	Aquatic Ecosystems- Ocean Ecology	(SP)
EEOB 5420 (4)	Aquatic Ecosystems-Ecology of Inland Waters	(SP, SU) LAB
EEOB 5430 (2)	Aquatic Ecosystems-Fish Ecology	LAB
EEOB 5440 (3)	Plankton Ecology	(SU)
EEOB 5450 (3)	Population Ecology	(AU)
EEOB 5460 (3)	Physiological Ecology	(AU)
EEOB 5470 (3)	Community & Ecosystem Ecology	
EEOB 5480 (3)	Advanced Plant Ecology	
EEOB 5490 (3)	Insect Behavior: Mechanisms and Function	(SP)
EEOB 5505 (3)	Wicked Science	
EEOB 5510 (3)	Interdisciplinary Team Science	(AU)
EEOB 5610 (3)	Translating Evolution	(SP)
EEOB 5890 (2)	General Acarology	
EEOB 5910 (2)	Evolution and Ecology of Reptiles and Amphibians	(SU)

***EEOB Disclaimers:**

- Only one credit hour of EEOB 3193 (TA credit) can be counted toward the Biology major
- EEOB 4420H is a study abroad course and will require additional application materials and costs
- EEOB 3798 (taken with Biology 4798) does not count on the major

EEOB Stone Lab courses.....

STONE LAB 5-WEEK COURSES | 4 CREDIT HOURS* (SU)

EEOB 3310	Evolution
EEOB 3410	Ecology
EEOB 3420	Behavioral Ecology
EEOB 5420	Aquatic Ecosystems-Ecology of Inland Waters
EEOB 5930	Ichthyology
EEOB 5940	Field Zoology

STONE LAB 1-WEEK COURSES | 2 CREDIT HOURS* (SU)

EEOB 4950	Field Ecology
EEOB 5210	Spider Biology
EEOB 5910	Field Herpetology
EEOB 5920	Field Biology of Aquatic & Wetland Plants

STONE LAB WORKSHOPS | 0.5 CREDIT HOURS* (SU)

EEOB 5950	Algae Identification Workshop
EEOB 5960	Plankton Identification Workshop
EEOB 5970	Larval fish identification Workshop

***Stone Lab Information:**

- Stone Lab has additional costs associated-please refer to stonelab.osu.edu for details and financial aid information.
- All Stone Lab courses are taught at the Lake Erie campus and require an application process; please refer to stonelab.osu.edu for details about applications and costs.
- Courses taken at Stone Lab for 2-4 credit hours (i.e., the 1- & 5-week courses) will count as lab credit.
- Stone Lab course offerings are subject to change each summer.

Microbiology.....

Micro 2000 (1.5)	Introduction to Microbiology Research	(AU)
Micro 2100 (3)	Wild Yeast Discovery and Fermentation	(AU, SP, SU) LAB
Micro 2200 (1)	Genome Biology	(SP)
Micro 3704 (4)	HIV: From Microbiology to Microhistory*	(SP)
Micro 4000.01 (4)	Basic & Practical Microbiology-in person	(AU, SP, SU) LAB
Micro 4000.02 (4)	Basic & Practical Microbiology-hybrid delivery	(AU, SU) LAB
Micro 4100 (5)	General Microbiology*	(AU, SP) LAB
Micro 4110 (3)	Microbial Pathogenesis & Immunobiology*	(AU, SP)
Micro 4120 (3)	Microbial Physiology & Diversity	(AU, SP)
Micro 4130 (3)	Microbial Genetics	(AU, SP)
Micro 4140 (3)	Molecular Microbiology	(AU, SP) LAB
Micro 4591S (1)	DNA Fingerprinting Workshop-Columbus City Schools	(SP)
Micro 4998 (1-3)	Research Credit (Requires approval process)	(AU, SP, SU)
Micro 5122 (2)	Immunobiology	(AU)
Micro 5129 (3)	Cellular & Molecular Biology of Pathogenic Eukaryotes	(SP)
Micro 5147 (3)	Eukaryotic Pathogens	(AU)
Micro 5149 (3)	Introductory Virology	(SP)
Micro 5150 (3)	Microbial Ecology	TBD
Micro 5155 (3)	Environmental Microbiology	(AU)
Micro 5160 (3)	Geomicrobiology	TBD
Micro 5161 (3)	Bioinformatics & Molecular Microbiology	(SP)
Micro 5169 (3)	Microbial Evolution	TBD
Micro 5536 (3)	Food Microbiology Lecture	(AU)
Micro 5546 (3)	Food Microbiology Lab	(SP) LAB

***Microbiology Disclaimers:**

- Micro 2200 is also cross listed with Biology 2200. One course may count toward the Major, but not both.
- Micro 4000.01, 4000.02, **OR** Micro 4100 can count for the major, but NOT BOTH
- Micro 4510S is also cross listed with Biochemistry 4591S and Mol Gen 4591S – *any one* is fine to count toward the major and toward the 25 biological sciences credit hour, but not more than one.
- Micro3704 cross listed with History3704

Molecular Genetics.....

Mol Gen 2220H (1)	Intro to Molecular Life Sciences-Research	(AU, SP)
Mol Gen 2690 (3)	Genes and Society*	(SP)
Mol Gen 3300 (3)	General Plant Biology	(SP) LAB
Mol Gen 3436 (3)	Introductory Plant Physiology	(AU)
Mol Gen 4500.01 (3)	General Genetics – In person	(AU, SP, SU)
Mol Gen 4500.02 (3)	General Genetics – Online	(AU, SU)
Mol Gen 4500E (4)	Honors Embedded General Genetics	(AU, SP)
Mol Gen 4501 (1)	General Genetics Lab	(AU, SP, SU) LAB
Mol Gen 4502 (2)	Expanded General Genetics Laboratory	LAB
Mol Gen 4581S (1)	BioEYES: Hands-on STEM learning with zebrafish in Columbus Public Elementary Schools	(AU)
Mol Gen 4591S (1)	DNA Fingerprinting Workshops-Columbus Public Schools	(SP)
Mol Gen 4606 (4)	Molecular Genetics (Intended for Mol Gen Majors)	(AU, SP)
Mol Gen 4700 (3)	Molecular Cell and Developmental Biology	(SP)
Mol Gen 4703 (2)	Human Genetics	(AU)
Mol Gen 4998 (1-3)	Research Credit (Requires approval process)	(AU, SP, SU)
Mol Gen 5300 (3)	Cancer Genetics	(AU, SP)
Mol Gen 5601 (3)	Eukaryotic Molecular Genetics	(SP) LAB
Mol Gen 5607 (3)	Cell Biology	(AU, SP)
Mol Gen 5607E (4)	Cell Biology-Honors Embedded	(AU, SP)
Mol Gen 5608 (3)	Genes & Development	(SP)
Mol Gen 5608E (4)	Genes & Development Honors Embedded	(SP)
Mol Gen 5623 (2)	Genetics & Genomics	(SP)
Mol Gen 5630 (3)	Plant Physiology (prereq 4500 & 3300)	(AU)
Mol Gen 5645 (2)	Quantitative, Population, & Evolutionary Genetics	(AU)
Mol Gen 5650 (3)	Analysis & Interpretation of Biological Data	(AU)
Mol Gen 5700 (3)	Systems of Genetic Analysis	(AU)
Mol Gen 5701 (4)	DNA Transactions & Gene Regulation	(AU)
Mol Gen 5705 (2)	Advances in Cell Biology	(SP)
Mol Gen 5715 (2)	Developmental Genetics	(SP)
Mol Gen 5735 (3)	Plant Biochemistry	(SP)
Mol Gen 5800 (2)	Organelle Biology	(AU)

*Molecular Genetics Disclaimers:

- Can count *either* Mol Gen 4500 or 4500E, **or** 4606 for the major, not both
- Can count Mol Gen 4501 (1) **OR** 4502 (2) on the major, not both
- Mol Gen 4591S is also cross listed with Biochemistry 4591S and Micro 4591S—*any one* is fine to count toward the major and toward the 25 biological sciences credit hours, but not more than one.
- Mol Gen 2690 is cross listed with Philosophy 2690

Other courses that count for Biology Major, but NOT toward 25 Bio Sci credit hours.

We count ONLY a maximum of 7 credit hours from this list toward the biology major

Anatomy

Anatomy 2300.01 (4) Human Anatomy

OR

Anatomy 3300 (5) Advanced Human Anatomy for Undergraduates

Anatomy 5300 (2) Learning Human Anatomy Through Dissection
(5300 Requires an application process)

**Only ONE of the following can count toward the major: EEOB 2510, Anatomy 2300.01 (or Anatomy 2300.04), or Anatomy 3300*

Animal Science

Animal Science 3130 (3) Principles of Animal Nutrition

Animal Science 3140 (3) Principles of Anatomy Systems Physiology

Animal Science 3160 (3) Reproductive Physiology

Anthropology

Anthropology 3301 (3) Modern Human Physical Variation

Anthropology 3304 (3) Living Primates

Anthropology 3409 (3) Primate Evolution

Anthropology 3504 (2-3) Introduction to Anatomy

Anthropology 3504 will count only as an ELECTIVE on the Biology major and not as an equivalent to the Anatomy and EEOB courses required for the PHP specialization, and will not count as an elective if student has also earned credit for Anatomy 2300.01, 3300, or EEOB 2520.

Anthropology 5607 (3) Human Osteology

Anthropology 5608 (3) Skeletal Biology

Anthropology 5609 (3) Dental Anthropology

Anthropology 5610 (3) Bioarcheology

Anthropology 5611 (3) Comparative Morphology of Mammals

Anthropology 5644 (3) Forensic Anthropology

Cancer Biology and Genetics

CBG 5000 (3) Evolution of Emerging Viruses (*prereq: 2 years of Biological Sciences*)

Chemistry

Chemistry 5430 (3) Carbohydrate Chemistry

Entomology

Entomology 4000 (3) General Entomology

Entomology 4600 (1) Introduction to Insect Science (online, 6 wks)

Entomology 4607 (2) Veterinary Entomology (online, 6 wks.)

Environment and Natural Resources

ENR 3321 (3) Biology and Identification of Woody Forest Plants

ENR 3322 (3) Forest Ecosystems

ENR 5250.01 (3) Wetland Ecology and Restoration

ENR 5280 (4) Stream Ecology

Geography

Geography 3980 (3) Biogeography: An Introduction to Life on Earth

Neuroscience

Neuroscience 3000 (3) Introduction to Neuroscience

Physiology /Cell Biology

Physiology Cell Biology 3200 (5) Human Physiology

**Cannot count both 3200 and EEOB 2520 for the major*

Psychology

Psychology 3313 (3) Behavioral Neuroscience

Psychology 3513 (3) Introduction to Cognitive Neuroscience

Psychology 4623 (3) Biological Clocks & Behavior

Psychology 4644 (3) Hormones & Behavior

Psychology 5614 (3) Cognitive Neuroscience