Transfer Credit Ohio
THE OHIO DEPARTMENT OF HIGHER EDUCATION
Guaranteed Transfer Pathways

The Ohio State University

# Biology
## Bachelor of Science or Bachelor of Arts

*Effective beginning Academic Year 2024-25 (Last revised July 29, 2024)*

The following table outlines how transfer credits will be applied to the Bachelor of Science or Bachelor of Arts degree in Biology at The Ohio State University for students who completed an Associate of Science degree via the Ohio Guaranteed Biology Transfer Pathway. The OGTP designation guarantees the transfer and applicability of credits, but does not guarantee admission to a program. Some bachelor-degree granting programs may be competitive, and students should check with individual institutions for their program admission requirements.

| COURSE EQUIVALENCIES FROM THE ASSOCIATE DEGREE | Course Number | Credit Hours |
|---|---|---|
| GENERAL EDUCATION REQUIREMENTS/OHIO TRANSFER 36 | | |
| Any Ohio Transfer 36 approved First Writing (TME001) course | ENGLISH 1110.xx | 3 |
| Calculus I (TMM005) or Life Science Calculus I (TMM024)[1] | MATH 1151 | 5 |
| Any Ohio Transfer 36 approved Arts and Humanities course | Ohio Transfer 36 Elective* | 3 |
| Any Ohio Transfer 36 approved Arts and Humanities course | Ohio Transfer 36 Elective* | 3 |
| Any Ohio Transfer 36 approved Social and Behavioral Sciences course [Introduction to Psychology (OSS015) recommended for pre-medicine] | PSYCH 1100 or Ohio Transfer 36 Elective* | 3 |
| Any Ohio Transfer 36 approved Social and Behavioral Sciences course [Introduction to Sociology (OSS021) recommended for pre-medicine] | SOCIOL 1101 or Ohio Transfer 36 Elective* | 3 |
| General Chemistry I with lab (OSC008) | CHEM 1210 | 5 |
| General Chemistry II with lab (OSC009) | CHEM 1220 | 5 |
| Any Ohio Transfer 36 approved Second Writing (TME002) course | ENGLISH 2367.xx | 3 |
| Up to 7 additional hours of Ohio Transfer 36 approved courses[2] | Ohio Transfer 36 Electives* | 0-7 |
| PRE-MAJOR/BEGINNING MAJOR | | |
| Biology I (OSC003) | BIOLOGY 1113 | 4 |
| Biology II (OSC004) | BIOLOGY 1114 | 4 |
| Genetics (OSC028) or Calculus-based Physics I with lab (OSC016) or Algebra-based Physics I with lab (OSC014) | MOLGEN 4500.01 or PHYSICS 1250 or PHYSICS 1200 | 3-5 |
| OTHER REQUIREMENTS | | |
| Full-Year Sequence of Organic Chemistry with lab (OSC010) [Not required but highly recommended for pre-medicine] | CHEM 2510, 2520, 2540, and 2550 | 12 |
| Electives[3] | Varies* | 0-7 |
| TOTAL HOURS FROM ASSOCIATE DEGREE: | | 60-65 |

Advising Notes:
(*) Indicates that coursework will be evaluated for applicable equivalency upon transfer at the university. If a Transfer Assurance Guide (TAG) course is taken, the approved course equivalency will be awarded.
[1] Calculus I is required for students pursuing the Bachelor of Science. College Algebra (TMM001) AND Trigonometry (TMM003) OR Pre-Calculus (TMM002) is required for students pursuing the Bachelor of Arts.
[2] OSU recommends Ohio Transfer 36 courses that will fulfill OSU's Race, Ethnicity, and Gender Diversity requirement. If not taken as part of the associate degree, students will need to complete this requirement at OSU.
[3] The OSU College of Arts and Sciences requires three semesters of world language and recommends filling elective spots with world language if possible.

## SPECIAL NOTES

Students with plans of pursuing a pre-professional or graduate studies track in the future should work closely with their academic advisor and receiving institution starting in the first year of their program in order to adequately prepare themselves for those types of tracks. Some pre-professional degrees include pre-medicine, pre-veterinary, pre-law, and pre-dentistry.

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The following additional coursework will be required to complete the Bachelor of Science or the Bachelor of Arts degree in Biology at The Ohio State University after a student has completed an Associate of Science Ohio Guaranteed Biology Transfer Pathway degree. Some bachelor-degree granting programs may be competitive and admission into the program is not guaranteed. Students should check with individual institutions for their program admission requirements.

The Ohio State University's Biology major offers the following specializations: Pre-Health Professions, Life Sciences Education, Forensic Biology, and Integrated General Biology.

| REMAINING COURSEWORK TO COMPLETE BACHELOR'S DEGREE | | Course Number | Credit Hours |
|---|---|---|---|
| General Education: | Book ends: GE Launch Seminar and GE Reflection Seminar | GENED 1201<br>GENED 4001 | 2 |
| General Education: | GE Theme: Citizenship for a Diverse and Just World | Varies | 4-6 |
| General Education: | GE Theme: Elective | Varies | 4-6 |
| General Education: | Race, Ethnicity, and Gender Diversity | Varies | 3 |
| College Requirement: | Arts and Sciences Survey: Transfer | ARTSSCI 1100.04 | 1 |
| College Requirement: | World Language (completion through the 1103-level) | 1101, 1102, and 1103 | 12 |
| Major Requirement: | Integrated Biology[1] | BIOLOGY 3401 | 4 |
| Major Requirement: | Specialization Requirements (see following pages for courses) | Varies | 14-28 |
| Major Requirement: | Major Electives[2] | Varies | 0-14 |
| GE/Electives: | Additional General Education Courses and Electives[3] | Varies | 6-13 |
| Students should choose either the Bachelor of Science or the Bachelor of Arts and complete the additional courses below: | | | |
| Bachelor of Science: | Full-Year Sequence of Organic Chemistry with Labs (if not taken during the associate degree) | CHEM 2510, 2520, 2540, and 2550 | 0-12 |
| | Introduction to the Practice of Statistics or<br>Statistics for the Life Sciences or<br>Introduction to Statistical Analysis I or<br>Calculus II or<br>Mathematical Modeling for the Biological Sciences | STAT 1450 or<br>STAT 2480 or<br>STAT 2450 or<br>MATH 1152 or<br>MATH 1157 | 3-5 |
| | Electricity & Magnetism, Optics, Modern Physics or<br>Electricity & Magnetism, Waves, Optics, Modern Physics | PHYSICS 1201 or<br>PHYSICS 1251 | 5 |
| Bachelor of Arts: | Introductory Organic Chemistry or Full-Year Sequence of Organic Chemistry (if not taken during the associate degree) | CHEM 2310 or<br>CHEM 2510 and 2520 | 0-8 |
| REMAINING COURSEWORK TO COMPLETE BACHELOR'S DEGREE TOTAL:[4] | | | 64-69 |

Advising Notes:
[1] Fulfills the three required embedded literacy requirements (Data Analysis, Advanced Writing, and Technology).
[2] Electives must be at the 2000-level or above in Molecular Genetics, Microbiology, and EEOB, or at the 3000-level or above in Biology and Biochemistry. Core, specialization, and elective courses must total 32 credit hours, and must include three laboratory courses. At least 25 of the 32 credit hours must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics.
[3] The OSU College of Arts and Sciences requires a minimum of 39 credit hours of upper-division coursework.
[4] The OSU College of Arts and Sciences requires a total of 121 credit hours for degree completion. The total number of hours to complete a bachelor's degree represents a range of hours that may be needed depending on the individual course selections made during the associate degree program.

| COMPLETE BACHELOR'S DEGREE | Total Credit Hours |
|---|---|
| BACHELOR'S DEGREE TOTAL: | 121 |

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| SPECIAL NOTES |
|---|
| For more information, please contact:<br>Center for Life Sciences Education<br>(614) 292-1704 \| biology@osu.edu<br>www.clse.osu.edu |

| PRE-HEALTH PROFESSIONS SPECIALIZATION | | Course Number | Credit Hours |
|---|---|---|---|
| Major Requirement: | General Genetics or Molecular Genetics (if not completed in the associate degree program) | MOLGEN 4500 or MOLGEN 4606 | 0-4 |
| Additional Coursework (Choose at least 4 of the following): | | | |
| Major Elective: | Introduction to Biological Chemistry or Biochemistry and Molecular Biology I and II | BIOCHEM 4511 or BIOCHEM 5613 and BIOCHEM 5614 | 4-6 |
| Major Elective: | Evolution | EEOB 3310H or EEOB 3310.xx | 4 |
| Major Elective: | Basic and Practical Microbiology or General Microbiology | MICRBIO 4000.xx or MICRBIO 4100 | 4-5 |
| Major Elective: | Cellular and Developmental Biology or Cell Biology | EEOB 3510 or MOLGEN 4700 or MOLGEN 5607 or MOLGEN 5608 | 3 |
| Major Elective: | Microscopic Anatomy | EEOB 3520 | 3 |
| Major Elective: | Human Anatomy or Advanced Human Anatomy for Undergraduates | EEOB 2510 or ANATOMY 2300.01 or ANATOMY 3300 | 3 |
| Major Elective: | Comparative Vertebrate Anatomy | EEOB 4510 | 3 |
| Major Elective: | Human Physiology or Comparative Physiology | EEOB 2520 or PHYSIO 3200 or EEOB 4520 | 3-5 |
| Major Elective: | Ecology | EEOB 3270 or EEOB 3320 or EEOB 3410 or EEOB 3420 or EEOB 4240 | 3-4 |
| TOTAL HOURS FROM SPECIALIZATION: | | | 15-24 |

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| LIFE SCIENCES EDUCATION SPECIALIZATION | | Course Number | Credit Hours |
|---|---|---|---|
| Major Requirement: | General Genetics or Molecular Genetics (if not completed in the associate degree program) | MOLGEN 4500 or MOLGEN 4606 | 0-4 |
| Major Requirement: | Introduction to Biological Chemistry or Biochemistry and Molecular Biology I and II | BIOCHEM 4511 or BIOCHEM 5613 and BIOCHEM 5614 | 4-6 |
| Major Requirement: | Basic and Practical Microbiology or General Microbiology | MICRBIO 4000.xx or MICRBIO 4100 | 4-5 |
| Major Requirement: | Evolution | EEOB 3310 | 4 |
| Major Requirement: | General Plant Biology | MOLGEN 3300 | 3 |
| Additional Coursework (Choose at least 2 of the following): | | | |
| Major Elective: | Biodiversity of Ohio - Birds | EEOB 2220 | 2 |
| Major Elective: | Human Anatomy | EEOB 2510 | 3 |
| Major Elective: | Human Physiology | EEOB 2520 | 3 |
| Major Elective: | Organismal Diversity | EEOB 3320 | 3 |
| Major Elective: | Focused Study of Ecology and Evolution - Vertebrates | EEOB 4210 | 2 |
| Major Elective: | Focused Study of Ecology and Evolution - Mammals | EEOB 4220 | 2 |
| Major Elective: | Focused Study of Ecology and Evolution - Invertebrates | EEOB 4230 | 2 |
| Major Elective: | Fish Ecology or Ichthyology (Stone Lab) | EEOB 5430 or EEOB 5930 | 2 |
| Major Elective: | General Entomology | ENTMLGY 4000 | 3 |
| Major Elective: | DNA Fingerprinting Workshops in Columbus Public Schools | MOLGEN 4581S or MOLGEN 4591S or equiv. | 1 |
| TOTAL HOURS FROM SPECIALIZATION: | | | 21-28 |

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| FORENSIC BIOLOGY SPECIALIZATION | | Course Number | Credit Hours |
|---|---|---|---|
| Pre-Requisite for Higher-Level ANTHROP Courses: | Introduction to Physical Anthropology | ANTHROP 2200 | 0-4 |
| Major Requirement: | General Genetics or Molecular Genetics (if not completed in the associate degree program) | MOLGEN 4500 or MOLGEN 4606 | 0-4 |
| Major Requirement: | Introduction to Biological Chemistry or Biochemistry and Molecular Biology I and II | BIOCHEM 4511 or BIOCHEM 5613 and BIOCHEM 5614 | 4-6 |
| Additional Coursework (Choose at least 3 of the following): | | | |
| Major Elective: | Human Osteology | ANTHROP 5607 | 3 |
| Major Elective: | Skeletal Biology | ANTHROP 5608 | 3 |
| Major Elective: | Dental Anthropology | ANTHROP 5609 | 3 |
| Major Elective: | Bioarchaeology | ANTHROP 5610 | 3 |
| Major Elective: | Forensic Anthropology | ANTHROP 5644 | 3 |
| Major Elective: | Biochemistry and Molecular Biology III | BIOCHEM 5615 | 3 |
| Major Elective: | Eukaryotic Molecular Genetics Lab | MOLGEN 5601 | 4 |
| Major Elective: | Cell Biology | MOLGEN 5607 | 3 |
| Major Elective: | DNA Transactions and Gene Regulation | MOLGEN 5701 | 4 |
| Major Elective: | Basic and Practical Microbiology or General Microbiology | MICRBIO 4000.xx or MICRBIO 4100 | 4-5 |
| Major Elective: | DNA Fingerprinting Workshops in Columbus Public Schools | MOLGEN 4581S or MOLGEN 4591S or equiv. | 1 |
| TOTAL HOURS FROM SPECIALIZATION: | | | 14-27 |

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| INTEGRATED GENERAL BIOLOGY SPECIALIZATION | | Course Number | Credit Hours |
|---|---|---|---|
| Major Requirement: | General Genetics or Molecular Genetics (if not completed in the associate degree program) | MOLGEN 4500 or MOLGEN 4606 | 0-4 |
| Major Requirement: | Introduction to Biological Chemistry or Biochemistry and Molecular Biology I and II | BIOCHEM 4511 or BIOCHEM 5613 and BIOCHEM 5614 | 4-6 |
| Major Requirement: | Basic and Practical Microbiology or General Microbiology | MICROBIO 4000.xx or MICROBIO 4100 | 4-5 |
| Major Requirement: | Evolution | EEOB 3310H or EEOB 3310.xx | 4 |
| Major Requirement: | Cellular and Developmental Biology or Cell Biology | EEOB 3510 or MOLGEN 4700 or MOLGEN 5607 or MOLGEN 5608 | 3 |
| Major Requirement: | Ecology | EEOB 3410 | 4 |
| Additional Coursework (Complete both electives): | | | |
| Major Elective: | Any 4000+ level course in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics | Varies | 3-5 |
| Major Elective: | Any 4000+ level course in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics | Varies | 3-5 |
| TOTAL HOURS FROM SPECIALIZATION: | | | 25-36 |

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## BACHELOR OF SCIENCE SAMPLE DEGREE MAP

### THIRD YEAR

#### SEMESTER 5

| Course Name & Number | Credit Hours |
|---|---|
| BIOLOGY 3401 Integrated Biology | 4 |
| PHYSICS 1251 or PHYSICS 1201 Electricity & Magnetism, Optics, Modern Physics | 5 |
| Biology Major Course | 3-4 |
| World Language 1101 | 4 |
| ARTSSCI 1100.04 Arts and Sciences Survey: Transfer | 1 |
| GENED 1201 GE Launch Seminar | 1 |
| Total Semester 5 Credit Hours | 18-19 |

#### SEMESTER 6

| Course Name & Number | Credit Hours |
|---|---|
| Biology Major Course (with lab) | 3-4 |
| Biology Major Course | 3-4 |
| World Language 1102 | 4 |
| GE Theme: Elective | 4 |
| GE Race, Ethnicity, and Gender Diversity | 3 |
| | |
| Total Semester 6 Credit Hours | 16-18 |

### FOURTH YEAR

#### SEMESTER 7

| Course Name & Number | Credit Hours |
|---|---|
| Biology Major Course (with lab) | 3-4 |
| Biology Major Course | 3-4 |
| Biology Major Course | 3-4 |
| World Language 1103 | 4 |
| GE Theme: Citizenship for a Diverse and Just World course | 4 |
| Total Semester 7 Credit Hours | 17-20 |

#### SEMESTER 8

| Course Name & Number | Credit Hours |
|---|---|
| Biology Major Course (with lab) | 3-4 |
| Biology Major Course | 3-4 |
| Biology Major Course | 3-4 |
| STAT 2480 or STAT 2450 or MATH 1152 or MATH 1157 | 3-5 |
| GENED 4001 GE Reflection Seminar | 1 |
| Total Semester 8 Credit Hours | 13-18 |

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## BACHELOR OF ARTS SAMPLE DEGREE MAP

### THIRD YEAR

#### SEMESTER 5

| Course Name & Number | Credit Hours |
|---|---|
| BIOLOGY 3401 Integrated Biology | 4 |
| Biology Major Course | 3-4 |
| World Language 1101 | 4 |
| ARTSSCI 1100.04 Arts and Sciences Survey: Transfer | 1 |
| GE Theme: Citizenship for a Diverse and Just World course | 4 |
| GENED 1201 GE Launch Seminar | 1 |
| Total Semester 5 Credit Hours | 15-16 |

#### SEMESTER 6

| Course Name & Number | Credit Hours |
|---|---|
| Biology Major Course (with lab) | 3-4 |
| Biology Major Course | 3-4 |
| World Language 1102 | 4 |
| GE Theme: Elective | 4 |
| GE Race, Ethnicity, and Gender Diversity course | 3 |
| | |
| Total Semester 6 Credit Hours | 16-18 |

### FOURTH YEAR

#### SEMESTER 7

| Course Name & Number | Credit Hours |
|---|---|
| Biology Major Course (with lab) | 3-4 |
| Biology Major Course | 3-4 |
| Biology Major Course | 3-4 |
| World Language 1103 | 4 |
| Total Semester 7 Credit Hours | 13-16 |

#### SEMESTER 8

| Course Name & Number | Credit Hours |
|---|---|
| Biology Major Course (with lab) | 3-4 |
| Biology Major Course | 3-4 |
| Biology Major Course | 3-4 |
| GENED 4001 GE Reflection Seminar | 1 |
| Total Semester 8 Credit Hours | 12-15 |