THE OHIO STATE UNIVERSITY

College of Arts and Sciences

Center for Life Sciences Education

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18 April 2024

Vice Provost W. Randy Smith
Council on Academic Affairs
Office of Academic Affairs
203 Bricker Hall
190 North Oval Mall
Columbus, OH 43210

Dear Dr. Smith,

The Center for Life Sciences Education is respectfully submitting revisions to the Biology Major and Minor as detailed below. These changes have been unanimously approved by the CLSE Curriculum Committee and we request they be formally approved for implementation effective for the Autumn 2024 Semester.

Updates to the Major

These requested changes are highlighted in yellow on the attached advising sheets (BS = Appendix A, BA = Appendix B).

- For both the BS and BA of the *Forensic Biology* and *Life Science Education* Specializations, we propose amending the final 'pick 2' option of Majors electives to include MolGen 4581S *OR* 4591S.
- We propose an additional second math supporting course option for all BS Specializations, Stat 1450. This algebra-based stats course will provide the necessary minimum background for students in the Major. Students wishing to pursue more advanced study will still have the option to take Stat 2450 or 2480 to fulfill this requirement. This additional option makes no changes to the over credit hour range.
- We propose an additional supporting course option for all BA Specializations. In the Mathematics category of the Supporting Courses, we wish to now accept the combination of Math 1148 and Stat 1450 as an option for students to meet the requirement. This additional option makes no changes to the over credit hour range.

- Currently, any course at the 2000-level or above in Biochemistry is automatically approved to be taken as an elective for the Biology Major. We propose to change that to reflect automatically allowing any course at the *3000-level or above* instead. Biochemistry 2210 has too significant of an overlap with the required organic chemistry courses to be an acceptable elective, and with no plans by Chemistry & Biochemistry to offer any other 2000-level courses, this is the easiest mechanism to exclude 2210. Exceptions to allow additional courses in the future are cleaner than disallowing specific courses.

Updates to the Minor

The requested changes are highlighted in yellow on the attached advising sheet, Appendix C.

- We propose an additional supporting course option for the Biology Minor, mirroring that in the Major BA Program. In the Mathematics category of the Supporting Courses, we wish to now accept the combination of Math 1148 and Stat 1450 as an option for students to meet the requirement. This additional option makes no changes to the over credit hour range.
- We propose an additional supporting course option for the Biology Minor, mirroring that in the Major BS and BA Programs. In the Chemistry category of the Supporting Courses, we wish to now accept the combination of Chem 1206 AND 1208 as an option for students to meet the requirement. The combination of these two courses are equivalent to Chem 1210 which is a current option to fulfill this requirement. This additional option would add two additional credit hours to supporting course maximum range.

I welcome any questions or concerns about these proposed changes and appreciate your consideration of the request.

Sincerely,

Adam L. Andrews

Adam Andrews
Assistant Director for Curriculum & Instruction

Attachments
Appendix A: Advising sheets for the four BS Specializations of the Biology Major
Appendix B: Advising sheets for the four BA Specializations of the Biology Major
Appendix C: Advising sheet for the Biology Minor

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Appendix A: Advising sheets for the four BS Specializations of the Biology Major

Biology Major Checklist
Bachelor of Science
Forensics Biology Specialization

NAME_____ DATE_____
SEMESTER OF GRADUATION _____

General Education Requirements (32-39 credit hours)

❒ GE Launch Seminar (1)	GENED 1201
❒ Foundations: Writing and Information Literacy (3)	_____
❒ Foundations: Mathematics & Quantitative Reasoning / Data Analysis (3-5)	_____
❒ Foundations: Literacy, Visual & performing Arts (3)	_____
❒ Foundations: Historical & Cultural Studies (3)	_____
❒ Foundations: Natural Sciences (4-5)	_____
❒ Foundations: Social & Behavioral Sciences (3)	_____
❒ Foundations: Race, Ethnicity and Gender Diversity (3)	_____
❒ Theme: Citizenship for a Diverse & Just World (4-6)	_____
❒ Theme: Student Choice (4-6)	_____
❒ GE Reflection (1)	GENED 4001

Required Arts & Sciences Courses (1-13 Credit Hours)

❒ Arts & Sciences Survey (1)	_____
❒ World Language (0-12)	_____

Required Supporting Courses (48-58 credit hours)

Biology (Check 2 boxes)
- ❒ Biology 1113.01 (4) or 1113.02 (5)*
- ❒ Biology 1114.01 (4) or 1114.02 (5)*
- ❒ _____Substitution

* Can be used to fulfill the GEN Foundation: Natural Sciences requirement

Mathematics/Statistics (Check 2 boxes)
- ❒ Math 1151 or 1156 (5)**
- ❒ Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (3)
- ❒ _____Substitution

** Can be used to fulfill the GEN Foundation; MQR/DA requirement

Physics (Check 2 boxes)
- ❒ Physics 1200 (alg) or 1250 (calc) (5)
- ❒ Physics 1201 (alg) or 1251 (calc) (5)
- ❒ _____Substitution

Chemistry (Check 2 boxes)
- ❒ Chemistry 1206 (3) and 1208 (4) or 1210 or 1610 or 1910H (5)
- ❒ Chemistry 1220 or 1620 or 1920H (5)
- ❒ _____Substitution

Organic Chemistry (Check boxes for 2 lectures + 2 labs)
- ❒ Chemistry 2510 or 2610 or 2910H (4) – Lecture 1
- ❒ Chemistry 2520 or 2620 or 2920H (4) – Lecture 2
- ❒ Chemistry 2540 or 2940H (2) – Lab 1
- ❒ Chemistry 2550 or 2950H (2) – Lab 2
- ❒ _____Substitution

Anthropology (1 course)
- ❒ Anthro 2200 (4) (*optional, necessary for Anthro prereqs)*

† Courses within the major with a laboratory component

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Biology Major Checklist
Bachelor of Science
Forensics Biology Specialization

Core Course (4 credit hours) – Required (Check 1 box)

- ❒ Biology 3401 (4) – *Integrated Biology*

Forensic Biology (14-22 credit hours)

Required (Check 2 boxes)

- ❒ Biochem 4511 (4), or 5613 AND 5614 (6)
- ❒ MolGen 4500 (3) or 4606 (4)

Additional Coursework (Check at least 3 boxes)***

- ❒ Anthro 5607 (3) – *Human Osteology*
- ❒ Anthro 5608 (3) – *Skeletal Biology*
- ❒ Anthro 5609 (3) – *Dental Anthropology*
- ❒ Anthro 5610 (3) – *Bioarchaeology*
- ❒ Anthro 5644 (3) – *Forensic Anthropology*
- ❒ BioChem 5615 (3) – *Biochemistry and Molecular Biology III*
- ❒ MolGen 5601† (3-4) – *Eukaryotic Molecular Genetics Lab*
- ❒ MolGen 5607 (3) – *Cell Biology*
- ❒ MolGen 5701 (3) – *DNA Transactions and Gene Regulation*
- ❒ Micro 4000† or 4000.01† or 4000.02† (4) or 4100 (5)
- ❒ MolGen 4581S or 4591S or equiv. (1) – *DNA Fingerprinting Workshop in Columbus Public Schools*

Electives

_____ _____

_____ _____

Embedded Literacies (no additional credit hours)

❒ Advanced Writing	Biology 3401
❒ Advanced Data Analytics	Biology 3401
❒ Technology Literacy	Biology 3401

TOTAL BioSci HOURS		TOTAL SEMESTER UNITS	

Notes:

- Core, specialization, and elective courses must total 32 semester units, and must include three laboratory courses.
- At least 25 of the 32 semester units must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics, and courses outside these departments must be pre-approved by a Biology advisor. At most 7 credit hours from Anthropology may be counted toward the Biology major.
- Electives must be at the 2000 level or above, except for Biochemistry and Biology which must be at the 3000 level or above.
- Up to 3 credit hours of research, individual study, or internship may be counted toward the major and, with approval of a major advisor, may be counted as a laboratory course.
- Transfer credit allowed - no more than one half of the credit hours required on the major.
- Honors versions of courses substitute freely.

† Courses within the major with a laboratory component

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Biology Major Checklist
Bachelor of Science
Integrated General Biology Specialization

NAME_____ DATE_____
SEMESTER OF GRADUATION _____

General Education Requirements (32-39 credit hours)

- ❒ GE Launch Seminar (1) — GENED 1201
- ❒ Foundations: Writing and Information Literacy (3) — _____
- ❒ Foundations: Mathematics & Quantitative Reasoning / Data Analysis (3-5) — _____
- ❒ Foundations: Literacy, Visual & performing Arts (3) — _____
- ❒ Foundations: Historical & Cultural Studies (3) — _____
- ❒ Foundations: Natural Sciences (4-5) — _____
- ❒ Foundations: Social & Behavioral Sciences (3) — _____
- ❒ Foundations: Race, Ethnicity and Gender Diversity (3) — _____
- ❒ Theme: Citizenship for a Diverse & Just World (4-6) — _____
- ❒ Theme: Student Choice (4-6) — _____
- ❒ GE Reflection (1) — GENED 4001

Required Arts & Sciences Courses (1-13 Credit Hours)

- ❒ Arts & Sciences Survey (1) — _____
- ❒ World Language (0-12) — _____

Required Supporting Courses (48-54 credit hours)

Biology (Check 2 boxes)
- ❒ Biology 1113.01 (4) or 1113.02 (5)*
- ❒ Biology 1114.01 (4) or 1114.02 (5)*
- ❒ _____Substitution

* Can be used to fulfill the GEN Foundation: Natural Sciences requirement

Mathematics/Statistics (Check 2 boxes)
- ❒ Math 1151 or 1156 (5)**
- ❒ Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (3)
- ❒ _____Substitution

** Can be used to fulfill the GEN Foundation; MQR/DA requirement

Physics (Check 2 boxes)
- ❒ Physics 1200 (alg) or 1250 (calc) (5)
- ❒ Physics 1201 (alg) or 1251 (calc) (5)
- ❒ _____Substitution

Chemistry (Check 2 boxes)
- ❒ Chemistry 1206 (3) and 1208 (4) or 1210 or 1610 or 1910H (5)
- ❒ Chemistry 1220 or 1620 or 1920H (5)
- ❒ _____Substitution

Organic Chemistry (Check boxes for 2 lectures + 2 labs)
- ❒ Chemistry 2510 or 2610 or 2910H (4) – Lecture 1
- ❒ Chemistry 2520 or 2620 or 2920H (4) – Lecture 2
- ❒ Chemistry 2540 or 2940H (2) – Lab 1
- ❒ Chemistry 2550 or 2950H (2) – Lab 2
- ❒ _____Substitution

† Courses within the major with a laboratory component

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Biology Major Checklist
Bachelor of Science
Integrated General Biology Specialization

Core Course (4 credit hours) – Required (Check 1 box)

- ❒ Biology 3401 (4) – *Integrated Biology*

Integrated Biology Specialization (28-36 credit hours)

Required (Check 6 boxes)

- ❒ MolGen 4500 (3) or 4606 (4)
- ❒ Micro 4000† or 4000.01† or 4000.02† (4) or 4100† (5)
- ❒ Biochem 4511 (4), or 5613 AND 5614 (6)
- ❒ EEOB 3510 or MolGen 4700 or MolGen 5607 or MolGen 5608 (3) – *Cell Biology*
- ❒ EEOB 3310 or 3310.01 or 3310.02† (4) – *Evolution*
- ❒ EEOB 3410† (4) - *Ecology*

Two Advanced (4000+) electives (6-10)

- ❒ _____( )
- ❒ _____( )

Electives

_____ _____

_____ _____

Embedded Literacies (no additional credit hours)

❒ Advanced Writing	Biology 3401
❒ Advanced Data Analytics	Biology 3401
❒ Technology Literacy	Biology 3401

TOTAL BioSci HOURS		TOTAL SEMESTER UNITS	

Notes:

- Core, specialization, and elective courses must total 32 semester units, and must include three laboratory courses.
- At least 25 of the 32 semester units must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics, and courses outside these departments must be pre-approved by a Biology advisor.
- Electives must be at the 2000 level or above, except for Biochemistry and Biology which must be at the 3000 level or above.
- Up to 3 credit hours of research, individual study, or internship may be counted toward the major and, with approval of a major advisor, may be counted as a laboratory course.
- Transfer credit allowed - no more than one half of the credit hours required on the major.
- Honors versions of courses substitute freely.

† Courses within the major with a laboratory component

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Biology Major Checklist
Bachelor of Science
Life Science Education Specialization

NAME_____ DATE_____
SEMESTER OF GRADUATION _____

General Education Requirements (32-39 credit hours)

- ❒ GE Launch Seminar (1) — GENED 1201
- ❒ Foundations: Writing and Information Literacy (3) — _____
- ❒ Foundations: Mathematics & Quantitative Reasoning / Data Analysis (3-5) — _____
- ❒ Foundations: Literacy, Visual & performing Arts (3) — _____
- ❒ Foundations: Historical & Cultural Studies (3) — _____
- ❒ Foundations: Natural Sciences (4-5) — _____
- ❒ Foundations: Social & Behavioral Sciences (3) — _____
- ❒ Foundations: Race, Ethnicity and Gender Diversity (3) — _____
- ❒ Theme: Citizenship for a Diverse & Just World (4-6) — _____
- ❒ Theme: Student Choice (4-6) — _____
- ❒ GE Reflection (1) — GENED 4001

Required Arts & Sciences Courses (1-13 Credit Hours)

- ❒ Arts & Sciences Survey (1) — _____
- ❒ World Language (0-12) — _____

Required Supporting Courses (48-54 credit hours)

Biology (Check 2 boxes)
- ❒ Biology 1113.01 (4) or 1113.02 (5)*
- ❒ Biology 1114.01 (4) or 1114.02 (5)*
- ❒ _____Substitution

* Can be used to fulfill the GEN Foundation: Natural Sciences requirement

Mathematics/Statistics (Check 2 boxes)
- ❒ Math 1151 or 1156 (5)**
- ❒ Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (3)
- ❒ _____Substitution

** Can be used to fulfill the GEN Foundation; MQR/DA requirement

Physics (Check 2 boxes)
- ❒ Physics 1200 (alg) or 1250 (calc) (5)
- ❒ Physics 1201 (alg) or 1251 (calc) (5)
- ❒ _____Substitution

Chemistry (Check 2 boxes)
- ❒ Chemistry 1206 (3) and 1208 (4) or 1210 or 1610 or 1910H (5)
- ❒ Chemistry 1220 or 1620 or 1920H (5)
- ❒ _____Substitution

Organic Chemistry (Check boxes for 2 lectures + 2 labs)
- ❒ Chemistry 2510 or 2610 or 2910H (4) – Lecture 1
- ❒ Chemistry 2520 or 2620 or 2920H (4) – Lecture 2
- ❒ Chemistry 2540 or 2940H (2) – Lab 1
- ❒ Chemistry 2550 or 2950H (2) – Lab 2
- ❒ _____Substitution

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Biology Major Checklist
Bachelor of Science
Life Science Education Specialization

Core Course (4 credit hours) – Required (Check 1 box)

- ❒ Biology 3401 (4) – *Integrated Biology*

Life Science Education Specialization (21-28 credit hours)

Required (Check 5 boxes)

- ❒ Biochem 4511 (4), or 5613 AND 5614 (6)
- ❒ MolGen 4500 (3) or 4606 (4)
- ❒ EEOB 3310 or 3310.01 or 3310.02† (4) – *Evolution*
- ❒ Micro 4000† or 4000.01† or 4000.02† (4) or 4100 (5)
- ❒ MolGen 3300† (3) – *General Plant Biology*

Additional Coursework (Check at least 2 boxes)

- ❒ EEOB 2220† (2) – *Biodiversity of Ohio: Birds*
- ❒ EEOB 2510† (3) – *Human Anatomy*
- ❒ EEOB 2520 (3) – *Human Physiology*
- ❒ EEOB 3320 (strongly recommended) † (3) – *Organismal Diversity*
- ❒ EEOB 4210 (2) – *Ecology and Evolution: Vertebrates*
- ❒ EEOB 4220† (3) – *Ecology and Evolution: Mammals*
- ❒ EEOB 4230 (2) – *Ecology and Evolution: Invertebrates*
- ❒ EEOB 5430† (3) – *Fish Ecology*
  OR EEOB 5930† (3) – *Ichthyology*
- ❒ Entomology 4000 (3) – *General Entomology Lecture*
- ❒ MolGen 4581S or 4591S or equiv. (1) – *DNA Fingerprinting Workshop with Columbus Public Schools*

Electives

_____ _____

_____ _____

Embedded Literacies (no additional credit hours)

❒ Advanced Writing	Biology 3401
❒ Advanced Data Analytics	Biology 3401
❒ Technology Literacy	Biology 3401

TOTAL BioSci HOURS		TOTAL SEMESTER UNITS	

Notes:

- Core, specialization, and elective courses must total 32 semester units, and must include three laboratory courses.
- At least 25 of the 32 semester units must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics, and courses outside these departments must be pre-approved by a Biology advisor.
- Electives must be at the 2000 level or above, except for Biochemistry and Biology which must be at the 3000 level or above.
- Up to 3 credit hours of research, individual study, or internship may be counted toward the major and, with approval of a major advisor, may be counted as a laboratory course.
- Transfer credit allowed - no more than one half of the credit hours required on the major.
- Honors versions of courses substitute freely.

† Courses within the major with a laboratory component

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Biology Major Checklist
Bachelor of Science
Pre-Health Professions Specialization

NAME_____ DATE_____
SEMESTER OF GRADUATION _____

General Education Requirements (32-39 credit hours)

- ❒ GE Launch Seminar (1) — GENED 1201
- ❒ Foundations: Writing and Information Literacy (3) — _____
- ❒ Foundations: Mathematics & Quantitative Reasoning / Data Analysis (3-5) — _____
- ❒ Foundations: Literacy, Visual & performing Arts (3) — _____
- ❒ Foundations: Historical & Cultural Studies (3) — _____
- ❒ Foundations: Natural Sciences (4-5) — _____
- ❒ Foundations: Social & Behavioral Sciences (3) — _____
- ❒ Foundations: Race, Ethnicity and Gender Diversity (3) — _____
- ❒ Theme: Citizenship for a Diverse & Just World (4-6) — _____
- ❒ Theme: Student Choice (4-6) — _____
- ❒ GE Reflection (1) — GENED 4001

Required Arts & Sciences Courses (1-13 Credit Hours)

- ❒ Arts & Sciences Survey (1) — _____
- ❒ World Language (0-12) — _____

Required Supporting Courses (48-54 credit hours)

Biology (Check 2 boxes)
- ❒ Biology 1113.01 (4) or 1113.02 (5)*
- ❒ Biology 1114.01 (4) or 1114.02 (5)*
- ❒ _____Substitution

* Can be used to fulfill the GEN Foundation: Natural Sciences requirement

Mathematics/Statistics (Check 2 boxes)
- ❒ Math 1151 or 1156 (5)**
- ❒ Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (3)
- ❒ _____Substitution

** Can be used to fulfill the GEN Foundation; MQR/DA requirement

Physics (Check 2 boxes)
- ❒ Physics 1200 (alg) or 1250 (calc) (5)
- ❒ Physics 1201 (alg) or 1251 (calc) (5)
- ❒ _____Substitution

Chemistry (Check 2 boxes)
- ❒ Chemistry 1206 (3) and 1208 (4) or 1210 or 1610 or 1910H (5)
- ❒ Chemistry 1220 or 1620 or 1920H (5)
- ❒ _____Substitution

Organic Chemistry (Check boxes for 2 lectures + 2 labs)
- ❒ Chemistry 2510 or 2610 or 2910H (4) – Lecture 1
- ❒ Chemistry 2520 or 2620 or 2920H (4) – Lecture 2
- ❒ Chemistry 2540 or 2940H (2) – Lab 1
- ❒ Chemistry 2550 or 2950H (2) – Lab 2
- ❒ _____Substitution

† Courses within the major with a laboratory component

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Biology Major Checklist
Bachelor of Science
Pre-Health Professions Specialization

Core Course (4 credit hours) – Required (Check 1 box)

- ❒ Biology 3401 (4) – *Integrated Biology*

Pre-Health Professions Specialization (15-25 credit hours)

Required

- ❒ MolGen 4500 (3) or 4606 (4)

Additional Coursework (Check at least 4 boxes)

- ❒ Biochem 4511 (4), or 5613 AND 5614 (6)
- ❒ EEOB 3310 or 3310.01 or 3310.02† (4) – *Evolution*
- ❒ Micro 4000† or 4000.01† or 4000.02† (4) or 4100 (5)
- ❒ EEOB 3510 or MolGen 4700 or MolGen 5607 or MolGen 5608 (3) – *Cell Biology*
- ❒ EEOB 3520† (3) – *Microscopic Anatomy / Histology*
- ❒ Anatomy 2300.01† (4) or 3300.01† (5) or EEOB 2510† (3) – *Human Anatomy*
- ❒ EEOB 4510† (3) – *Comparative Vertebrate Anatomy*
- ❒ Physio 3200 (5) or EEOB 2520 (3) – *Human Physiology* or EEOB 4520 (3) *Comparative Physiology*
- ❒ EEOB 3270 (3) or 3320 (3) or 3410 (4) or 3420 (4) or 4240 (3) – *Ecology*

Electives

_____ _____

_____ _____

Embedded Literacies (no additional credit hours)

❒ Advanced Writing	Biology 3401
❒ Advanced Data Analytics	Biology 3401
❒ Technology Literacy	Biology 3401

TOTAL BioSci HOURS		TOTAL SEMESTER UNITS	

Notes:

- Core, specialization, and elective courses must total 32 semester units, and must include three laboratory courses.
- At least 25 of the 32 semester units must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics, and courses outside these departments must be pre-approved by a Biology advisor.
- Electives must be at the 2000 level or above, except for Biochemistry and Biology which must be at the 3000 level or above.
- Up to 3 credit hours of research, individual study, or internship may be counted toward the major and, with approval of a major advisor, may be counted as a laboratory course.
- Transfer credit allowed - no more than one half of the credit hours required on the major.
- Honors versions of courses substitute freely.

† Courses within the major with a laboratory component

THE OHIO STATE UNIVERSITY

Appendix B: Advising sheets for the four BA Specializations of the Biology Major

Biology Major Checklist
Bachelor of Arts
Forensic Biology Specialization

NAME_____ DATE_____
SEMESTER OF GRADUATION _____

General Education Requirements (32-39 credit hours)

- ❒ GE Launch Seminar (1) — GENED 1201
- ❒ Foundations: Writing and Information Literacy (3) — _____
- ❒ Foundations: Mathematics & Quantitative Reasoning / Data Analysis (3-5) — _____
- ❒ Foundations: Literacy, Visual & performing Arts (3) — _____
- ❒ Foundations: Historical & Cultural Studies (3) — _____
- ❒ Foundations: Natural Sciences (4-5) — _____
- ❒ Foundations: Social & Behavioral Sciences (3) — _____
- ❒ Foundations: Race, Ethnicity and Gender Diversity (3) — _____
- ❒ Theme: Citizenship for a Diverse & Just World (4-6) — _____
- ❒ Theme: Student Choice (4-6) — _____
- ❒ GE Reflection (1) — GENED 4001

Required Arts & Sciences Courses (1-13 Credit Hours)

- ❒ Arts & Sciences Survey (1) _____
- ❒ World Language (0-12) _____

Required Supporting Courses (32-46 credit hours)

Biology (Check 2 boxes)
- ❒ Biology 1113.01 (4) or 1113.02 (5)*
- ❒ Biology 1114.01 (4) or 1114.02 (5)*
- ❒ _____Substitution

* Can be used to fulfill the GEN Foundation: Natural Sciences requirement

Mathematics/Statistics (Check 1 box)
- ❒ Math 1148 (4)** – *College Algebra* AND Math 1149 (3) – *Trigonometry*, OR Math 1148 (4) and Stat 1450 (3), OR Math 1150 (5)** – *Pre-Calculus*
- ❒ _____Substitution

** Can be used to fulfill the GEN Foundation: MQR/DA requirement

Physics (Check 1 box)
- ❒ Physics 1200 (alg) or 1250 (calc) (5)
- ❒ _____Substitution

Chemistry (Check 2 boxes)
- ❒ Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5)
- ❒ Chemistry 1220 or 1620 or 1920H (5)
- ❒ _____Substitution

Organic Chemistry (Check 1 box)
- ❒ Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6)
- ❒ _____Substitution
- ❒ Waived

Anthropology (1 course)
- ❒ Anthro 2200 (4) (*optional, necessary for Anthro prereqs)*

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Biology Major Checklist
Bachelor of Arts
Forensic Biology Specialization

Core Course (4 credit hours) – Required (Check 1 box)

- ❒ Biology 3401 (4) – *Integrated Biology*

Forensic Biology Specialization (14-22 credit hours)

Required (Check 2 boxes)

- ❒ Biochem 4511 (4), or 5613 AND 5614 (6)
- ❒ MolGen 4500 (3) or 4606 (4)

Additional Coursework (Check at least 3 boxes)***

- ❒ Anthro 5607 (3) – *Human Osteology*
- ❒ Anthro 5608 (3) – *Skeletal Biology*
- ❒ Anthro 5609 (3) – *Dental Anthropology*
- ❒ Anthro 5610 (3) – *Bioarchaeology*
- ❒ Anthro 5644 (3) – *Forensic Anthropology*
- ❒ BioChem 5615 (3) – *Biochemistry and Molecular Biology III*
- ❒ MolGen 5601† (3-4) – *Eukaryotic Molecular Genetics Lab*
- ❒ MolGen 5607 (3) – *Cell Biology*
- ❒ MolGen 5701 (3) – *DNA Transactions and Gene Regulation*
- ❒ Micro 4000† or 4000.01† or 4000.02† (4) or 4100 (5)
- ❒ MolGen 4581S or 4591S or equiv. (1) – *DNA Fingerprinting Workshop in Columbus Public Schools*

Electives

_____ _____

_____ _____

Embedded Literacies (no additional credit hours)

❒ Advanced Writing	Biology 3401
❒ Advanced Data Analytics	Biology 3401
❒ Technology Literacy	Biology 3401

TOTAL BioSci HOURS		TOTAL SEMESTER UNITS	

Notes:

- Core, specialization, and elective courses must total 32 semester units, and must include three laboratory courses.
- At least 25 of the 32 semester units must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics, and courses outside these departments must be pre-approved by a Biology advisor. At most 7 credit hours from Anthropology may be counted toward the Biology major.
- Electives must be at the 2000 level or above, except for Biochemistry and Biology which must be at the 3000 level or above.
- Up to 3 credit hours of research, individual study, or internship may be counted toward the major and, with approval of a major advisor, may be counted as a laboratory course.
- Transfer credit allowed - no more than one half of the credit hours required on the major.
- Honors versions of courses substitute freely.

† Courses within the major with a laboratory component

THE OHIO STATE UNIVERSITY

Biology Major Checklist
Bachelor of Arts
Integrated General Biology Specialization

NAME_____ DATE_____
SEMESTER OF GRADUATION _____

General Education Requirements (32-39 credit hours)

❒ GE Launch Seminar (1)	GENED 1201
❒ Foundations: Writing and Information Literacy (3)	_____
❒ Foundations: Mathematics & Quantitative Reasoning / Data Analysis (3-5)	_____
❒ Foundations: Literacy, Visual & performing Arts (3)	_____
❒ Foundations: Historical & Cultural Studies (3)	_____
❒ Foundations: Natural Sciences (4-5)	_____
❒ Foundations: Social & Behavioral Sciences (3)	_____
❒ Foundations: Race, Ethnicity and Gender Diversity (3)	_____
❒ Theme: Citizenship for a Diverse & Just World (4-6)	_____
❒ Theme: Student Choice (4-6)	_____
❒ World Language (0-12)	_____
❒ GE Reflection (1)	GENED 4001

Required Arts & Sciences Courses (1-13 Credit Hours)

❒ Arts & Sciences Survey (1)	_____
❒ World Language (0-12)	_____

Required Supporting Courses (32-42 credit hours)

Biology (2 courses)
- ❒ Biology 1113.01 (4) or 1113.02 (5)*
- ❒ Biology 1114.01 (4) or 1114.02 (5)*
- ❒ _____Substitution

* Can be used to fulfill the GEN Foundation: Natural Sciences requirement

Mathematics/Statistics
- ❒ Math 1148 (4)** – *College Algebra* AND Math 1149 (3) – *Trigonometry*, OR Math 1148 (4) AND Stat 1450 (3), OR Math 1150 (5) **– *Pre-Calculus*
- ❒ _____Substitution

** Can be used to fulfill the GEN Foundation: MQR/DA requirement

Physics (1 Course)
- ❒ Physics 1200 (alg) or 1250 (calc) (5)
- ❒ _____Substitution

Chemistry (2 courses)
- ❒ Chemistry 1206 (3) and 1208 (4) Or 1210 or 1610 or 1910H (5)
- ❒ Chemistry 1220 or 1620 or 1920H (5)
- ❒ _____Substitution

Organic Chemistry
- ❒ Chemistry 2310 (4), OR 2510 AND 2520 (8) OR 2510 AND 2540 (6)
- ❒ _____Substitution
- ❒ Waived

THE OHIO STATE UNIVERSITY

Biology Major Checklist
Bachelor of Arts
Integrated General Biology Specialization

Core Course (4 credit hours) – Required (Check 1 box)

- ❒ Biology 3401 (4) – *Integrated Biology*

Integrated Biology Specialization (28-36 credit hours)

Required (Check 6 boxes)

- ❒ MolGen 4500 (3) or 4606 (4)
- ❒ Micro 4000† or 4000.01† or 4000.02† (4) or 4100† (5)
- ❒ Biochem 4511 (4), or 5613 AND 5614 (6)
- ❒ EEOB 3510 or MolGen 4700 or MolGen 5607 or MolGen 5608 (3) – *Cell Biology*
- ❒ EEOB 3310 or 3310.01 or 3310.02† (4) – *Evolution*
- ❒ EEOB 3410† (4) - *Ecology*

Two Advanced (4000+) electives (6-10)

- ❒ _____( )
- ❒ _____( )

Electives

_____ _____

_____ _____

Embedded Literacies (no additional credit hours)

❒ Advanced Writing	Biology 3401
❒ Advanced Data Analytics	Biology 3401
❒ Technology Literacy	Biology 3401

TOTAL BioSci HOURS		TOTAL SEMESTER UNITS	

Notes:

- Core, specialization, and elective courses must total 32 semester units, and must include three laboratory courses.
- At least 25 of the 32 semester units must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics, and courses outside these departments must be pre-approved by a Biology advisor.
- Electives must be at the 2000 level or above, except for Biochemistry and Biology which must be at the 3000 level or above.
- Up to 3 credit hours of research, individual study, or internship may be counted toward the major and, with approval of a major advisor, may be counted as a laboratory course.
- Transfer credit allowed - no more than one half of the credit hours required on the major.
- Honors versions of courses substitute freely.

† Courses within the major with a laboratory component

THE OHIO STATE UNIVERSITY

Biology Major Checklist
Bachelor of Arts
Life Science Education Specialization

NAME_____ DATE_____
SEMESTER OF GRADUATION _____

General Education Requirements (32-39 credit hours)

- ❒ GE Launch Seminar (1) — GENED 1201
- ❒ Foundations: Writing and Information Literacy (3) — _____
- ❒ Foundations: Mathematics & Quantitative Reasoning / Data Analysis (3-5) — _____
- ❒ Foundations: Literacy, Visual & performing Arts (3) — _____
- ❒ Foundations: Historical & Cultural Studies (3) — _____
- ❒ Foundations: Natural Sciences (4-5) — _____
- ❒ Foundations: Social & Behavioral Sciences (3) — _____
- ❒ Foundations: Race, Ethnicity and Gender Diversity (3) — _____
- ❒ Theme: Citizenship for a Diverse & Just World (4-6) — _____
- ❒ Theme: Student Choice (4-6) — _____
- ❒ GE Reflection (1) — GENED 4001

Required Arts & Sciences Courses (1-13 Credit Hours)

- ❒ Arts & Sciences Survey (1) — _____
- ❒ World Language (0-12) — _____

Required Supporting Courses (32-42 credit hours)

Biology (Check 2 boxes)
- ❒ Biology 1113.01 (4) or 1113.02 (5)*
- ❒ Biology 1114.01 (4) or 1114.02 (5)*
- ❒ _____Substitution

* Can be used to fulfill the GEN Foundation: Natural Sciences requirement

Mathematics/Statistics (Check 1 box)
- ❒ Math 1148 (4)** – *College Algebra* AND Math 1149 (3) – *Trigonometry*, OR Math 1148 (4) and Stat 1450 (3), OR Math 1150 (5)** – *Pre-Calculus*
- ❒ _____Substitution

** Can be used to fulfill the GEN Foundation: MQR/DA requirement

Physics (Check 1 box)
- ❒ Physics 1200 (alg) or 1250 (calc) (5)
- ❒ _____Substitution

Chemistry (Check 2 boxes)
- ❒ Chemistry 1206 (3) and 1208 (4) or 1210 or 1610 or 1910H (5)
- ❒ Chemistry 1220 or 1620 or 1920H (5)
- ❒ _____Substitution

Organic Chemistry (Check 1 box)
- ❒ Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6)
- ❒ _____Substitution
- ❒ Waived

THE OHIO STATE UNIVERSITY

Biology Major Checklist
Bachelor of Arts
Life Sciences Education Specialization

Core Course (4 credit hours) – Required (Check 1 box)

- ❒ Biology 3401 (4) – *Integrated Biology*

Life Sciences Education Specialization (21-28 credit hours)

Required (Check 5 boxes)

- ❒ Biochem 4511 (4), or 5613 AND 5614 (6)
- ❒ MolGen 4500 (3) or 4606 (4)
- ❒ EEOB 3310 or 3310.01 or 3310.02† (4) – *Evolution*
- ❒ Micro 4000† or 4000.01† or 4000.02† (4) or 4100 (5)
- ❒ MolGen 3300† (3) – *General Plant Biology*

Additional Coursework (Check at least 2 boxes)

- ❒ EEOB 2220† (2) – *Biodiversity of Ohio: Birds*
- ❒ EEOB 2510† (3) – *Human Anatomy*
- ❒ EEOB 2520 (3) – *Human Physiology*
- ❒ EEOB 3320 (strongly recommended) † (3) – *Organismal Diversity*
- ❒ EEOB 4210 (2) – *Ecology and Evolution: Vertebrates*
- ❒ EEOB 4220† (3) – *Ecology and Evolution: Mammals*
- ❒ EEOB 4230 (2) – *Ecology and Evolution: Invertebrates*
- ❒ EEOB 5430† (3) – *Fish Ecology*
  OR EEOB 5930† (3) – *Ichthyology*
- ❒ Entomology 4000 (3) – *General Entomology Lecture*
- ❒ MolGen 4581S or 4591S or equiv. (1) – *DNA Fingerprinting Workshop with Columbus Public Schools*

Electives

_____ _____

_____ _____

Embedded Literacies (no additional credit hours)

❒ Advanced Writing	Biology 3401
❒ Advanced Data Analytics	Biology 3401
❒ Technology Literacy	Biology 3401

TOTAL BioSci HOURS		TOTAL SEMESTER UNITS	

Notes:

- Core, specialization, and elective courses must total 32 semester units, and must include three laboratory courses.
- At least 25 of the 32 semester units must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics, and courses outside these departments must be pre-approved by a Biology advisor.
- Electives must be at the 2000 level or above, except for Biochemistry and Biology which must be at the 3000 level or above.
- Up to 3 credit hours of research, individual study, or internship may be counted toward the major and, with approval of a major advisor, may be counted as a laboratory course.
- Transfer credit allowed - no more than one half of the credit hours required on the major.
- Honors versions of courses substitute freely.

† Courses within the major with a laboratory component

THE OHIO STATE UNIVERSITY

Biology Major Checklist
Bachelor of Arts
Pre-Health Professions Specialization

NAME_____ DATE_____
SEMESTER OF GRADUATION _____

General Education Requirements (32-39 credit hours)

❒ GE Launch Seminar (1)	GENED 1201
❒ Foundations: Writing and Information Literacy (3)	_____
❒ Foundations: Mathematics & Quantitative Reasoning / Data Analysis (3-5)	_____
❒ Foundations: Literacy, Visual & performing Arts (3)	_____
❒ Foundations: Historical & Cultural Studies (3)	_____
❒ Foundations: Natural Sciences (4-5)	_____
❒ Foundations: Social & Behavioral Sciences (3)	_____
❒ Foundations: Race, Ethnicity and Gender Diversity (3)	_____
❒ Theme: Citizenship for a Diverse & Just World (4-6)	_____
❒ Theme: Student Choice (4-6)	_____
❒ World Language (0-12)	_____
❒ GE Reflection (1)	GENED 4001

Required Arts & Sciences Courses (1-13 Credit Hours)

❒ Arts & Sciences Survey (1)	_____
❒ World Language (0-12)	_____

Required Supporting Courses (32-42 credit hours)

Biology (Check 2 boxes)
- ❒ Biology 1113.01 (4) or 1113.02 (5)*
- ❒ Biology 1114.01 (4) or 1114.02 (5)*
- ❒ _____Substitution

* Can be used to fulfill the GEN Foundation: Natural Sciences requirement

Mathematics/Statistics (Check 1 box)
- ❒ Math 1148 (4)** – *College Algebra* AND Math 1149 (3) – *Trigonometry*, OR Math 1148 (4) and Stat 1450 (3), OR Math 1150 (5) **– *Pre-Calculus*
- ❒ _____Substitution

** Can be used to fulfill the GEN Foundation: MQR/DA requirement

Physics (Check 1 box)
- ❒ Physics 1200 (alg) or 1250 (calc) (5)
- ❒ _____Substitution

Chemistry (Check 2 boxes)
- ❒ Chemistry 1206 (3) and 1208 (4) or 1210 or 1610 or 1910H (5)
- ❒ Chemistry 1220 or 1620 or 1920H (5)
- ❒ _____Substitution

Organic Chemistry (Check 1 box)
- ❒ Chemistry 2310 (4), OR 2510 AND 2520 (8) OR 2510 AND 2540 (6)
- ❒ _____Substitution
- ❒ Waived

† Courses within the major with a laboratory component

THE OHIO STATE UNIVERSITY

Biology Major Checklist
Bachelor of Arts
Pre-Health Professions Specialization

Core Course (4 credit hours) – Required (Check 1 box)

- ❒ Biology 3401 (4) – *Integrated Biology*

Pre-Health Professions Specialization (15-25 credit hours)

Required

- ❒ MolGen 4500 (3) or 4606 (4)

Additional Coursework (Check at least 4 boxes)

- ❒ Biochem 4511 (4), or 5613 AND 5614 (6)
- ❒ EEOB 3310 or 3310.01 or 3310.02† (4) – *Evolution*
- ❒ Micro 4000† or 4000.01† or 4000.02† (4) or 4100 (5)
- ❒ EEOB 3510 or MolGen 4700 or MolGen 5607 or MolGen 5608 (3) – *Cell Biology*
- ❒ EEOB 3520† (3) – *Microscopic Anatomy / Histology*
- ❒ Anatomy 2300.01† (4) or 3300.01† (5) or EEOB 2510† (3) – *Human Anatomy*
- ❒ EEOB 4510† (3) – *Comparative Vertebrate Anatomy*
- ❒ Physio 3200 (5) or EEOB 2520 (3) – *Human Physiology* or EEOB 4520 (3) *Comparative Physiology*
- ❒ EEOB 3270 (3) or 3320 (3) or 3410 (4) or 3420 (4) or 4240 (3) – *Ecology*

Electives

_____ _____

_____ _____

Embedded Literacies (no additional credit hours)

❒ Advanced Writing	Biology 3401
❒ Advanced Data Analytics	Biology 3401
❒ Technology Literacy	Biology 3401

TOTAL BioSci HOURS		TOTAL SEMESTER UNITS	

Notes:

- Core, specialization, and elective courses must total 32 semester units, and must include three laboratory courses.
- At least 25 of the 32 semester units must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics, and courses outside these departments must be pre-approved by a Biology advisor.
- Electives must be at the 2000 level or above, except for Biochemistry and Biology which must be at the 3000 level or above.
- Up to 3 credit hours of research, individual study, or internship may be counted toward the major and, with approval of a major advisor, may be counted as a laboratory course.
- Transfer credit allowed - no more than one half of the credit hours required on the major.
- Honors versions of courses substitute freely.

† Courses within the major with a laboratory component

THE OHIO STATE UNIVERSITY

Appendix C: Advising sheet for the Biology Minor

Biology Minor Checklist

NAME_____ DATE_____
SEMESTER OF GRADUATION _____

Required Supporting Courses (23-29 credit hours)

Biology (Check 2 boxes)

- ❒ Biology 1113.01 (4) OR 1113.02 (5)*
- ❒ Biology 1114.01 (4) OR 1114.02 (5)*
- ❒ _____Substitution

* Can be used to fulfill the GEN Foundation: Natural Sciences requirement

Mathematics/Statistics (Check 1 box)

- ❒ Math 1148 (4)** AND Math 1149 (3), OR Math 1148 (4)** AND STAT 1450 (3), OR Math 1150 (5)**
- ❒ _____Substitution

** Can be used to fulfill the GEN Foundation: MQRM requirement

Chemistry (Check 2 boxes)

- ❒ Chemistry 1206 (3) AND 1208 (4), OR 1210, OR 1610, OR 1910H (5)
- ❒ Chemistry 1220, OR 1620, OR 1920H (5)
- ❒ _____Substitution

Core Course (4 credit hours)

- ❒ Biology 3401 (4) – *Integrated Biology*

Biology Minor (6-8)

Additional Required Courses (Check 2 boxes)

- ❒ Biochem 4511 (4)
- ❒ EEOB 2510† (3) – *Human Anatomy*
- ❒ EEOB 2520 (3) – *Human Physiology*
- ❒ EEOB 3310 or 3310.01 or 3310.02† (4) – *Evolution*
- ❒ EEOB 3410 (4) – *Ecology*
- ❒ Micro 4000† or 4000.01† or 4000.02† (4)
- ❒ MolGen 4500 (3)

Electives

_____ _____

TOTAL BioSci HOURS		TOTAL SEMESTER UNITS	

Notes:

- Core, required, and elective courses must total at least 15 semester units.
- 15 semester units must be courses in Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics, and courses outside these departments must be pre-approved by a Biology advisor.
- Electives must be at the 2000 level or above, except for Biology which must be at the 3000 level or above.
- Transfer credit is allowed - no more than six of the credit hours required on the major.
- Honors versions of courses substitute freely.