From: <u>Vankeerbergen, Bernadette</u>
To: <u>Smith, Randy; Reed, Katie</u>

Cc: Martin, Andrew; Nagar, Ila; Jenkins, Mary Ellen; Steele, Rachel

Subject: Informational item--Updates BA, BS, and Minor - Biology

Date: Wednesday, September 10, 2025 3:39:23 PM
Attachments: August 2025 CLSE Informational Item.pdf

image001.png

Dear Randy and Katie,

Please find attached an informational item to share at an upcoming CAA meeting.

Professor IIa Nagar, Chair of ASCC, shared the proposed changes as an informational item at the ASC Curriculum Committee meeting on Friday, August 29. The CLSE contact for this informational item is Adam Andrews, Assistant Director for Curriculum & Instruction.

Best regards, Bernadette



### Bernadette Vankeerbergen, Ph.D.

Assistant Dean, Curriculum

College of Arts and Sciences

114F University Hall, 230 North Oval Mall

Columbus, OH 43210 Phone: 614-688-5679 http://asccas.osu.edu



#### **College of Arts and Sciences**

Center for Life Sciences Education

260 Jennings Hall 1735 Neil Avenue Columbus, OH 43210

614-292-9861 Phone 614-292-4390 Fax

clse.osu.edu

25 August 2025

Vice Provost W. Randy Smith Council on Academic Affairs Office of Academic Affairs University Square South 15 E. 15<sup>th</sup> Avenue Columbus, OH 43210

Dear Dr. Smith,

The Center for Life Sciences Education is respectfully submitting a revision 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 Spring 2026 Semester.

#### **Updates to the Major and Minor**

These requested changes are printed in red on the attached advising sheets (BS =  $\frac{\text{Appendix A}}{\text{Appendix C}}$ ). BA =  $\frac{\text{Appendix B}}{\text{Appendix C}}$ .

• The Department of Evolution, Ecology, and Organismal Biology (EEOB) has been approved to offer a new decimalized version of its *Evolution* course, EEOB 3310.20. This is a three-credit hour hybrid lecture version of the course utilized by the CLSE as a requirement for the Integrated General Biology and Life Science Education Specializations, and as a select elective in the Pre-Health Professions Specialization and Biology Minor. We request that this new decimalized version of EEOB 3310 be allowed to count in the same way as other previously approved decimalized versions of the course.

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

Sincerely,

**Adam Andrews** 

Assistant Director for Curriculum & Instruction

Adam L. andrews

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



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

### Biology Major Checklist Bachelor of Science Integrated General Biology Specialization

	Integrated General Bio	ology Specialization
NAME		DATE
SEMES	STER OF GRADUATION	
Gene	ral Education Requirements (32-39 credit hou	rs)
000000	GE Launch Seminar (1) 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 1201
	ired Arts & Sciences Courses (1-13 Credit Hour Arts & Sciences Survey (1) World Language (0-12)	
Requ	ired Supporting Courses (48-61 credit hours)	
* C	logy (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution an be used to fulfill the GEN Foundation: Natural	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
<b>M</b> a	thematics/Statistics (Check 2 boxes)  Math 1151 or 1156 (5)** OR 1140 (4) AND 1141 (4) 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 uirement	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
Phy	/sics (Check 2 boxes)  Physics 1200 (alg) or 1250 (calc) (5)  OR 1248 (4) AND 1249 (3)  Physics 1201 (alg) or 1251 (calc) (5)  Substitution	

<sup>†</sup> Courses within the major with a laboratory component



## Biology Major Checklist Bachelor of Science Integrated General Biology Specialization

Core	Course (4-5 credit hours) – Required (Check	1 box)		
	Biology 3401 (4) – Integrated Biology	ſ	3	Biology 3501 (3) and 4901 (2)
Integ	rated Biology Specialization (27-36 credit ho	ours)		
0	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) or 3310.20 (3 – Evolution EEOB 3410† (4) - Ecology			( )
Electi	ives			
-			_	
Embe	edded Literacies (no additional credit hours)			
	Advanced Writing Biology 3401 or 3 Advanced Data Analytics Biology 3401 or 3 Technology Literacy Biology 3401 or 3	3501 3501		
TOTA	I BioCoi HOLIBC	TOTALC	E I\ /	AECTED LINUTC

- 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 preapproved by a Biology advisor.
- Electives must be at the 2000 level or above, except for Biology and Biochemistry 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.



## Biology Major Checklist Bachelor of Science Life Science Education Specialization

NAME	DATE
SEMESTER OF GRADUATION	<del></del>
General Education Requirements (32-39 credit hou	ırs)
	•
GE Launch Seminar (1)	GENED 1201
☐ Foundations: Writing and Information Literacy (3)	
☐ Foundations: Mathematics & Quantitative Reasoning	
/ Data Analysis (3-5)	
<ul><li>Foundations: Literacy, Visual &amp; performing Arts (3)</li><li>Foundations: Historical &amp; Cultural Studies (3)</li></ul>	<del></del>
Foundations: Historical & Cultural Studies (3)  Foundations: Natural Sciences (4-5)	<del></del>
☐ Foundations: Social & Behavioral Sciences (3)	
Foundations: Race, Ethnicity and Gender Diversity (3)	<del></del>
☐ 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 Hou	rs)
<b>5</b>	
☐ Arts & Sciences Survey (1)	
☐ World Language (0-12)	<del></del>
Required Supporting Courses (48-61 credit hours)	
Required Supporting Courses (48-61 credit hours)	
	Chemistry (Check 2 boxes)
Required Supporting Courses (48-61 credit hours)  Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)*	Chemistry (Check 2 boxes)  Chemistry 1206 (3) and 1208 (4)
Biology (Check 2 boxes)	
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (5)* Biology 1114.01 (4) or 1114.02 (5)*	<ul> <li>Chemistry 1206 (3) and 1208 (4)</li> <li>or 1210 or 1610 or 1910H (5)</li> <li>Chemistry 1220 or 1620 or 1920H (5)</li> </ul>
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (5)* Biology 1114.01 (4) or 1114.02 (5)*  Substitution	<ul><li>Chemistry 1206 (3) and 1208 (4)</li><li>or 1210 or 1610 or 1910H (5)</li></ul>
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (5)* Biology 1114.01 (4) or 1114.02 (5)* Substitution  * Can be used to fulfill the GEN Foundation: Natural	☐ Chemistry 1206 (3) and 1208 (4) or 1210 or 1610 or 1910H (5) ☐ Chemistry 1220 or 1620 or 1920H (5) ☐Substitution
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (5)* Biology 1114.01 (4) or 1114.02 (5)*  Substitution	☐ 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)
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (5)* Biology 1114.01 (4) or 1114.02 (5)*  Substitution  * Can be used to fulfill the GEN Foundation: Natural Sciences requirement	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)**	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)** OR 1140 (4) AND 1141 (4)	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)**	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)** OR 1140 (4) AND 1141 (4) Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3)	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)** OR 1140 (4) AND 1141 (4) Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (3)	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)** OR 1140 (4) AND 1141 (4) Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (3) Substitution	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)** OR 1140 (4) AND 1141 (4) 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	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)** OR 1140 (4) AND 1141 (4) Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (3) The substitution  ** Can be used to fulfill the GEN Foundation; MQR/DA requirement  Physics (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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)* OR 1140 (4) AND 1141 (4) Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (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)	☐ 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
Biology (Check 2 boxes)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (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)** OR 1140 (4) AND 1141 (4) Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (3) The substitution  ** Can be used to fulfill the GEN Foundation; MQR/DA requirement  Physics (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



## Biology Major Checklist Bachelor of Science Life Science Education Specialization

□ Biology 3401 (4) − Integrated Biology □ Biology 3501 (3) and 4901 (2)  Life Science Education Specialization (20-28 credit hours)  Required (Check 5 boxes)	
Required (Check 5 boxes)	
□ Biochem 4511 (4), or 5613 AND 5614 (6) □ EEOB 2220† (2) − Biodiversity of □ EEOB 4220† (3) − Ecologous Evolution: Mammals □ EEOB 3310 or 3310.01 or 3310.02† (4) or 3310.20 (3) − Human Anatomy Evolution □ EEOB 2520 (3) − Human Anatomy Evolution □ EEOB 2520 (3) − Human EEOB 4240 (3) − Ecologous Evolution: Invertebrate EEOB 4240 (3) − Ecologous Evolution □ EEOB 4240 (3) − Ecologous Evolution □ EEOB 4240 (3) − Ecologous Evolution of Plants & Physiology Evolution of Plants & Physiology □ EEOB 3300† (3) − General Plant Biology □ EEOB 3270 (3) − Infectious □ Infectious □ EEOB 5930† (3) − Infectious □ EEOB 5930† (3) − Infectious □ EEOB 3270 (3) − Infectious □ EEOB 5930† (3) − Entomology 4000 (3) − Entomology 4000 (3) − Entomology Lecture ■ MolGen 4581S or 4591	
☐ EEOB 3420 (4) − Behavioral Workshop with Columb  Ecology Schools	es ology and s logy and ates ogy & People th Ecology - ) – General 191S or gerprinting
Electives	
Embedded Literacies (no additional credit hours)	
Advanced Writing Biology 3401 or 3501 Advanced Data Analytics Biology 3401 or 3501 Technology Literacy Biology 3401 or 3501  TOTAL BioSci HOURS TOTAL SEMESTER UNITS	

- 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 Biology or Biochemistry 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.

<sup>†</sup> Courses within the major with a laboratory component



## Biology Major Checklist Bachelor of Science Pre-Health Professions Specialization

NAME		DATE
SEMESTE	R OF GRADUATION	
Genera	l Education Requirements (32-39 credit hou	irs)
Fo	E Launch Seminar (1) Doundations: Writing and Information Literacy (3) Doundations: Mathematics & Quantitative Reasoning / Data Analysis (3-5) Doundations: Literacy, Visual & performing Arts (3) Doundations: Historical & Cultural Studies (3) Doundations: Natural Sciences (4-5) Doundations: Social & Behavioral Sciences (3) Doundations: Race, Ethnicity and Gender Diversity (3) Doundations: Race, Ethnicity and Gender Diversity (3) Doundations: Race, Ethnicity and Gender Diversity (3) Doundations: Student Choice (4-6) E Reflection (1)	GENED 1201  GENED 4001
Require	ed Arts & Sciences Courses (1-13 Credit Hou	rs)
w	rts & Sciences Survey (1) /orld Language (0-12)  ed Supporting Courses (48-61 credit hours)	
Require	a supporting courses (45-51 create nours)	
* Can Science Mathe	be used to fulfill the GEN Foundation: Natural tes requirement  ematics/Statistics (Check 2 boxes)  Math 1151 or 1156 (5)** OR 1140 (4) AND 1141 (4)  Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3) or Stat 2450 (3)	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
	s (Check 2 boxes)  Physics 1200 (alg) or 1250 (calc) (5)  OR 1248 (4) AND 1249 (3)  Physics 1201 (alg) or 1251 (calc) (5)  Substitution	

<sup>†</sup> Courses within the major with a laboratory component



## Biology Major Checklist Bachelor of Science Pre-Health Professions Specialization

Core Course (4-5 credit hours) – Requ	uired (Check 1 box)
☐ Biology 3401 (4) — Integrated Biology	☐ Biology 3501 (3) and 4901 (2)
<b>Pre-Health Professions Specialization</b>	n (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) or 3310.20 (3)  - 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) or 2511† (4) - 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	
<b>Embedded Literacies (no additional c</b>	credit hours)
☐ Advanced Data Analytics Bi	ology 3401 or 3501 ology 3401 or 3501 ology 3401 or 3501
TOTAL BIOSCI HOURS	TOTAL SEMESTED LINITS

- 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 Biology or Biochemistry 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.

<sup>†</sup> Courses within the major with a laboratory component



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

### Biology Major Checklist Bachelor of Arts Integrated General Biology Specialization

NAMESEMESTER OF GRADUATION			DATE		
SEIVIES	TER OF GRADUATION				
Gener	al Education Requirements (32-39 credit hou	ırs)			
00 0000000	GE Launch Seminar (1) 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)	- - - - - - -	ENED 1201		
	red Arts & Sciences Courses (1-13 Credit Hou Arts & Sciences Survey (1) World Language (0-12)	rs) 			
Requi	red Supporting Courses (32-49 credit hours)				
* Ca	ogy (2 courses)  Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1114 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution n be used to fulfill the GEN Foundation: Natural nces requirement	Organic	try (2 courses)  Chemistry 1206 (3) and 1208 (4)  Or 1210 or 1610 or 1910H (5)  Chemistry 1220 or 1620 or 1920H (5) Substitution		
** C	hematics/Statistics  ■ Math 1148 (4)** – College Algebra AND Math 1149 (3) – Trigonometry, OR Math 1148 (4) AND Stat 1450 (3), OR Math 1120 (5) AND 1121 (5) OR Math 1150 (5) **– Pre-Calculus ■Substitution Can be used to fulfill the GEN Foundation: MQR/DA suirement		Chemistry 2310 (4), OR 2510 AND 2520 (8) OR 2510 AND 2540 (6)Substitution Waived		
•	sics (1 Course)  ☐ Physics 1200 (alg) or 1250 (calc) (5)  OR 1248 (4) AND 1249 (3)  ☐Substitution				



## Biology Major Checklist Bachelor of Arts Integrated General Biology Specialization

Core	Course (4-5 credit hours) – Required (Che	ck 1 box)				
	Biology 3401 (4) – Integrated Biology			Biology 3501 (3) and 4901 (2)		
Integrated Biology Specialization (27-36 credit hours)						
•	ed (Check 6 boxes) MolGen 4500 (3) or 4606 (4)	Two Ad	vanc	ted (4000+) electives (6-10)		
	Micro 4000+ or 4000.01+ or 4000.02+ (4) or 4100	)† <u> </u>		( )		
_	(5)  Biochem 4511 (4), or 5613 AND 5614 (6)  EEOB 3510 or MolGen 4700 or MolGen 5607 or			( )		
	MolGen 5608 (3) – <i>Cell Biology</i> EEOB 3310 or 3310.01 or 3310.02† (4) or 3310.20 – <i>Evolution</i>	0 (3)				
	EEOB 3410† (4) - <i>Ecology</i>					
Elect	ives					
-			_			
-	<del>-</del>		-			
Embe	edded Literacies (no additional credit hou	rs)				
	Advanced Writing Biology 3401					
	Advanced Data Analytics Biology 3401 Technology Literacy Biology 3401					
	5,,					

- 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 preapproved by a Biology advisor.
- Electives must be at the 2000 level or above, except for Biology and Biochemistry 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.



## Biology Major Checklist Bachelor of Arts Life Science Education Specialization

NAME	DATE
SEMESTER OF GRADUATION	
General Education Requirements (32-39 credit ho	ours)
☐ 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)	<del></del>
☐ Foundations: Natural Sciences (4-5)	
Foundations: Social & Behavioral Sciences (3)	
Foundations: Race, Ethnicity and Gender Diversity (3	
<ul><li>Theme: Citizenship for a Diverse &amp; Just World (4-6)</li><li>Theme: Student Choice (4-6)</li></ul>	
GE Reflection (1)	GENED 4001
B GENERALION (1)	GENED 4001
Required Arts & Sciences Courses (1-13 Credit Ho	urs)
	•
Arts & Sciences Survey (1)	<u> </u>
World Language (0-12)	
Required Supporting Courses (32-49 credit hours)	
Biology (Charle 2 house)	Chamistan (Charle 3 haves)
Biology (Check 2 boxes)  ☐ Biology 1113.01 (4) or 1113.02 (5)*	Chemistry (Check 2 boxes)  Chemistry 1206 (3) and 1208 (4)
or Biology 1111 (3) and 1112 (4)*	or 1210 or 1610 or 1910H (5)
☐ Biology 1111 (3) and 1112 (4)	☐ Chemistry 1220 or 1620 or 1920H (5)
Substitution	□Substitution
* Can be used to fulfill the GEN Foundation: Natural	
Sciences requirement	Organic Chemistry (Check 1 box)
	☐ Chemistry 2310 (4)
Mathematics/Statistics (Check 1 box)	OR 2510 AND 2520 (8)
☐ Math 1148 (4)** – College Algebra AND	OR 2510 AND 2540 (6)
Math 1149 (3) – Trigonometry,	☐Substitution
OR Math 1148 (4) and Stat 1450 (3),	■ Waived
OR Math 1120 (5) AND 1121 (5)	
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)	
OR 1248 (4) AND 1249 (3)	
□Substitution	



### Biology Major Checklist Bachelor of Arts Life Science Education Specialization

Core	Course (4-5 credit h	ours) – Requir	red (Check 1 box)		
	Biology 3401 (4) – <i>Integ</i>	grated Biology	☐ Biology	3501 (3	) and 4901 (2)
Life S	Sciences Education S	pecialization (	20-28 credit hours)		
	ed (Check 5 boxes)  Biochem 4511 (4), or 56 5614 (6)  MolGen 4500 (3) or 466  EEOB 3310 or 3310.01 3310.02† (4) or 3310.20 Evolution  Micro 4000† or 4000.0 4000.02† (4) or 4100 (5 MolGen 3300† (3) – Ge  Plant Biology	06 (4) or	Additional Coursework (Check at least 2 boxes) EEOB 2220† (2) – Biodiversity of Ohio: Birds EEOB 2510† (3) or 2511† (4) – Human Anatomy EEOB 2520 (3) – Human Physiology EEOB 3320 (strongly recommended) † (3) – Organismal Diversity EEOB 3270 (3) - Infectious Disease Ecology, Evolution, and Transmission EEOB 3410 (4) - Ecology EEOB 3420 (4) – Behavioral Ecology	0	EEOB 4210 (2) – Ecology and Evolution: Vertebrates EEOB 4220† (3) – Ecology and Evolution: Mammals EEOB 4230 (2) – Ecology and Evolution: Invertebrates EEOB 4240 (3) - Ecology & Evolution of Plants & People EEOB 5430† (3) – Fish Ecology OR EEOB 5930† (3) – Ichthyology Entomology 4000 (3) – General Entomology Lecture MolGen 45815 or 45915 or equiv. (1) – DNA Fingerprinting Workshop with Columbus Public Schools
Elect	ives				
Emb	edded Literacies (no	additional cre	dit hours)		
	Advanced Data Analytic Technology Literacy	cs Biolo	ogy 3401 or 3501 ogy 3401 or 3501 ogy 3401 or 3501		
TOTA	AL BioSci HOURS		TOTAL SEMESTER	UNITS	

- · 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 Biology and Biochemistry 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.



## Biology Major Checklist Bachelor of Arts Pre-Health Professions Specialization

NAME	DATE
SEMESTER OF GRADUATION	
SEMESTER OF GROBOTHION	
Comment Education Demoins and 122 20 and the	1
General Education Requirements (32-39 credit hou	urs)
<b>7</b> (5) (4)	CENED 1201
GE Launch Seminar (1)	GENED 1201
Foundations: Writing and Information Literacy (3)	
Foundations: Mathematics & Quantitative Reasoning	
/ Data Analysis (3-5)	<del></del>
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)	<del></del>
Theme: Citizenship for a Diverse & Just World (4-6)	
Theme: Student Choice (4-6)	<del></del>
□ World Language (0-12)	GENED 4001
GE Reflection (1)	GENED 4001
D : 14 : 00: 0 /4 400 P: 11	1
Required Arts & Sciences Courses (1-13 Credit Hou	irs)
_	
Arts & Sciences Survey (1)	
☐ World Language (0-12)	
Required Supporting Courses (32-49 credit hours)	
Biology (Check 2 boxes)	Chemistry (Check 2 boxes)
☐ Biology 1113.01 (4) or 1113.02 (5)*	Chemistry 1206 (3) and 1208 (4)
☐ Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)*	<ul><li>Chemistry 1206 (3) and 1208 (4)</li><li>or 1210 or 1610 or 1910H (5)</li></ul>
☐ Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* ☐ Biology 1114.01 (4) or 1114.02 (5)*	<ul> <li>Chemistry 1206 (3) and 1208 (4)</li> <li>or 1210 or 1610 or 1910H (5)</li> <li>Chemistry 1220 or 1620 or 1920H (5)</li> </ul>
☐ Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* ☐ Biology 1114.01 (4) or 1114.02 (5)* ☐Substitution	<ul><li>Chemistry 1206 (3) and 1208 (4)</li><li>or 1210 or 1610 or 1910H (5)</li></ul>
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution * Can be used to fulfill the GEN Foundation: Natural	□ Chemistry 1206 (3) and 1208 (4) or 1210 or 1610 or 1910H (5) □ Chemistry 1220 or 1620 or 1920H (5) □Substitution
☐ Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* ☐ Biology 1114.01 (4) or 1114.02 (5)* ☐Substitution	☐ 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)
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution * Can be used to fulfill the GEN Foundation: Natural Sciences requirement	☐ 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),
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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)	☐ 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)
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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	☐ 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)
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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,	☐ 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
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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),	☐ 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)
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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 1120 (5) AND 1121 (5)	☐ 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
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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 1120 (5) AND 1121 (5) OR Math 1150 (5) **- Pre-Calculus	☐ 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
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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 1120 (5) AND 1121 (5) OR Math 1150 (5) **- Pre-Calculus Substitution	☐ 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
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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 1120 (5) AND 1121 (5) OR Math 1150 (5) **- Pre-Calculus	☐ 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
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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 1120 (5) AND 1121 (5) OR Math 1150 (5) **- Pre-Calculus Substitution	☐ 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
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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 1120 (5) AND 1121 (5) OR Math 1150 (5) **- Pre-Calculus Substitution  ** Can be used to fulfill the GEN Foundation: MQR/DA requirement	☐ 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
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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 1149 (3) - Trigonometry, OR Math 1120 (5) AND 1121 (5) OR Math 1150 (5) **- Pre-Calculus Substitution ** Can be used to fulfill the GEN Foundation: MQR/DA requirement  Physics (Check 1 box)	☐ 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
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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 1120 (5) AND 1121 (5) 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)	☐ 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
Biology 1113.01 (4) or 1113.02 (5)*	☐ 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
Biology 1113.01 (4) or 1113.02 (5)* or Biology 1111 (3) and 1112 (4)* 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 1120 (5) AND 1121 (5) 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)	☐ 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

<sup>†</sup> Courses within the major with a laboratory component



## Biology Major Checklist Bachelor of Arts Pre-Health Professions Specialization

Core	Course (4-5 credit hours) – Ro	equired (Check	( 1 box)		
	Biology 3401 (4) – Integrated Biolo	ogy			Biology 3501 (3) and 4901 (2)
Pre-F	Health Professions Specializat	ion (15-25 cred	dit hours	s)	
Require	ed MolGen 4500 (3) or 4606 (4)		00 00 00	Biod EEO - Ev Mic EEO Mol EEO Ana or E EEO Phys	oursework (Check at least 4 boxes)  them 4511 (4), or 5613 AND 5614 (6)  B 3310 or 3310.01 or 3310.02† (4) or 3310.20 (3)  rolution  ro 4000† or 4000.01† or 4000.02† (4) or 4100 (5)  B 3510 or MolGen 4700 or MolGen 5607 or  Gen 5608 (3) — Cell Biology  B 3520† (3) — Microscopic Anatomy / Histology  ttomy 2300.01† (4) or 3300.01† (5)  EOB 2510† (3) or 2511† (4) — Human Anatomy  B 4510† (3) — Comparative Vertebrate Anatomy  sio 3200 (5) or EEOB 2520 (3) — Human  siology or EEOB 4520 (3) Comparative Physiology  B 3270 (3) or 3320 (3) or 3410 (4) or 3420 (4) or
Elect	ives			424	0 (3) – Ecology
-				_	
Embe	edded Literacies (no addition	al credit hours	)		
0	Advanced Writing Advanced Data Analytics Technology Literacy	Biology 3401 or Biology 3401 or Biology 3401 or	3501		
TOTA	AL BioSci HOURS		TOTAL	SFM	IESTER LINITS

- 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 Biology and Biochemistry 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.

<sup>†</sup> Courses within the major with a laboratory component



## Appendix C: Advising sheet for the Biology Minor

#### **Biology Minor Checklist** DATE\_ NAME SEMESTER OF GRADUATION Required Supporting Courses (23-33 credit hours) Biology (Check 2 boxes) ☐ Biology 1113.01 (4) OR 1113.02 (5) Substitution or Biology 1111 (3) and 1112 (4) \* Can be used to fulfill the GEN Foundation: Natural ☐ Biology 1114.01 (4) OR 1114.02 (5)\* Sciences requirement Mathematics/Statistics (Check 1 box) ☐ Math 1148 (4)\*\* AND Math 1149 (3), OR Math Substitution 1148 (4)\*\* AND STAT 1450 (3), OR Math 1150 \*\* Can be used to fulfill the GEN Foundation: MQRM (5)\*\* 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 (3-4 credit hours) – Required (Check 1 box) ☐ Biology 3401 (4) — Integrated Biology ☐ Biology 3501 (3) – Biological Skills Biology Minor (6-8 credit hours) Additional Required Courses (Check 2 boxes) ☐ Biochem 4511 (4) ☐ EEOB 3410 (4) - Ecology ☐ EEOB 2510† (3) or 2511† (4) – Human Anatomy ☐ Micro 4000† or 4000.01† or 4000.02† (4) ☐ EEOB 2520 (3) – Human Physiology ■ MolGen 4500 (3) EEOB 3310 or 3310.01 or 3310.02† (4) or 3310.20 (3) - Evolution **Electives TOTAL BioSci HOURS TOTAL SEMESTER UNITS**

- 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.