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: Thursday, February 20, 2025 4:15:48 PM

Attachments: February 2025 CLSE Informational Items Cover Letter.pdf

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Dear Randy and Katie,

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

Professor Ila Nagar, Chair of ASCC, shared the proposed changes as an informational item at the ASC Curriculum Committee meeting on Friday, February 14. 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





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

7 February 2025

Vice Provost W. Randy Smith Council on Academic Affairs Office of Academic Affairs University Square South 15 E. 15th Avenue 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 Summer 2025 Semester.

Updates to the Major and Minor

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

- Biology 1111 and 1112 are recently approved courses that, when combined, address the same course learning outcomes as Biology 1113. We propose to allow the combination of 1111 and 1112 to satisfy the same requirement as Biology 1113 in all areas of the Major and Minor.
- The Department of Evolution, Ecology, and Organismal Biology (EEOB) has replaced their
 Human Anatomy course, EEOB 2510, with a new course, EEOB 2511, and will cease
 offering the previous version as of Spring 2025. We request to update our advising
 sheets to allow 2511 wherever 2510 was previously approved.
- For both the BA and BS in the *Life Science Education* Specialization, we propose to add an additional checkbox options in the area of Ecology for the Pick 2 Additional Major Coursework. These courses are to include EEOB 3270, 3410, 3420, and 4240.



- For all Specializations of the Biology BA, we propose to add Math 1120 AND 1121 as an option to fulfill the Mathematics Supporting Course requirement. This combination is considered the *de facto* equivalent of Math 1075 through 1150 and therefore mirrors other previously approved options.
- For all Specializations of the Biology BA and BS, we propose allowing the 'stretch' version
 of the existing supporting course, Physics 1250, as the two-semester version of Physics
 1248 + 1249. The course learning outcomes for the two-semester version mirror those of
 the single semester offering and are therefore appropriate equivalents to allow on the
 Major.
- For all Specializations of the Biology BS, we propose allowing the 'stretch' version of the
 existing supporting course, Math 1151, as the two semester version of the combination
 Math 1140 + 1141. The course learning outcomes for the two-semester version mirrors
 those of the single semester offering and are therefore appropriate equivalents to allow
 on the Major.
- We wish to correct an error in a recently approved proposal affecting the Biology Minor.
 In the proposal, a discrepancy exists between the proposal and the advising sheet relative to the required Core Course options. Students completing the Minor will not be required to complete the Capstone course, Biology 4901. The advising sheet mistakenly included this course despite the proposal explicitly indicating the course would be required only of the Biology Major.

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 four BS Specializations of the Biology Major

Biology Major Checklist Bachelor of Science rensics Biology Specialization

	Forensics Biology	/ Specialization
NAME		DATE
SEMES	TER OF GRADUATION	
Gene	ral Education Requirements (32-39 credit hou	irs)
00 00000	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 GENED 4001
Requ	ired Arts & Sciences Courses (1-13 Credit Hou	rs)
	Arts & Sciences Survey (1) World Language (0-12)	
Requ	ired Supporting Courses (48- <mark>65</mark> 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 ences 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 Organic Chemistry (Check boxes for 2 lectures + 2 labs)
** (req	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 sics (Check 2 boxes) Physics 1200 (alg) or 1250 (calc) (5)	☐ 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 Anthropreregs)
	OR 1248 (4) AND 1249 (3) Physics 1201 (alg) or 1251 (calc) (5) Substitution	

[†] Courses within the major with a laboratory component



Biology Major Checklist Bachelor of Science Forensics Biology Specialization

Core	Course (4-5 credit hours) – R	equired (Check 1 box)
_	Biology 3401 (4) – Integrated Biolo	Display 3501 (3) and 4901 (2)
Forei	nsic Biology (14-22 credit hou	rs)
Require	ed (Check 2 boxes) Biochem 4511 (4), or 5613 AND 56 MolGen 4500 (3) or 4606 (4)	Additional Coursework (Check at least 3 boxes)*** Anthro 5607 (3) – Human Osteology
Elect	ives	
-		
Embe	edded Literacies (no addition	al credit hours)
	Advanced Writing Advanced Data Analytics Technology Literacy	Biology 3401 or 3501 Biology 3401 or 3501 Biology 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. 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 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 Integrated General Biology Specialization

NAME	DATE
SEMESTER OF GRADUATION	
General Education Requirements (32-39 credit hou	urs)
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 GENED 4001
Required Arts & Sciences Courses (1-13 Credit Hou	ırs)
☐ Arts & Sciences Survey (1) ☐ World Language (0-12)	
Required Supporting Courses (48-61 credit hours)	
Biology (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 * 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 (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
□ 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) OR 1248 (4) AND 1249 (3) □ Physics 1201 (alg) or 1251 (calc) (5) □Substitution	□Substitution

 $[\]dagger$ 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				Biology 3501 (3) and 4901 (2)		
Integ	rated Biology Specialization (28	3-36 credit h	ours)				
0	MolGen 4500 (3) or 4606 (4) Micro 4000† or 4000.01† or 4000.02 (5) Biochem 4511 (4), or 5613 AND 5614 EEOB 3510 or MolGen 4700 or MolGi MolGen 5608 (3) – <i>Cell Biology</i> EEOB 3310 or 3310.01 or 3310.02† (4) EEOB 3410† (4) - <i>Ecology</i>	(6) en 5607 or	Two Adv	vanc	ed (4000+) electives (6-10)	()
Electi	ives						
-				_			
Embe	edded Literacies (no additional	credit hours)				
	Advanced Data Analytics B	iology 3401 or iology 3401 or iology 3401 or	3501 3501		DECTED 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 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		
SEMEST	ER OF GRADUATION			
Genera	Il Education Requirements (32-39 credit hou	irs)		
	GE Launch Seminar (1)	GENED 1201		
□ F	oundations: Writing and Information Literacy (3)			
☐ F	oundations: Mathematics & Quantitative Reasoning			
	/ Data Analysis (3-5)			
□ F	oundations: Literacy, Visual & performing Arts (3)			
	oundations: Historical & Cultural Studies (3)			
	oundations: Natural Sciences (4-5)			
	oundations: Social & Behavioral Sciences (3)			
	oundations: Race, Ethnicity and Gender Diversity (3)			
	Theme: Citizenship for a Diverse & Just World (4-6)			
	heme: Student Choice (4-6) SE Reflection (1)	GENED 4001		
	de Reflection (1)	GENED 4001		
Requir	ed Arts & Sciences Courses (1-13 Credit Hou	rs)		
nequii	ed Arts & Sciences Courses (1 13 Create from	13)		
ПА	arts & Sciences Survey (1)			
	Vorld Language (0-12)			
	,			
Requir	ed Supporting Courses (48- <mark>61</mark> credit hours)			
·				
Biolo	gy (Check 2 boxes)	Chemistry (Check 2 boxes)		
	Biology 1113.01 (4) or 1113.02 (5)*	Chemistry 1206 (3) and 1208 (4)		
	or Biology 1111 (3) and 1112 (4)*	or 1210 or 1610 or 1910H (5)		
	Biology 1114.01 (4) or 1114.02 (5)*	Chemistry 1220 or 1620 or 1920H (5)		
	Substitution	□Substitution		
	be used to fulfill the GEN Foundation: Natural			
Scien	ces requirement	Organic Chemistry (Check boxes for 2 lectures + 2 labs)		
	/6 /6	Chemistry 2510 or 2610 or 2910H (4) – Lecture 1		
	ematics/Statistics (Check 2 boxes)	 Chemistry 2520 or 2620 or 2920H (4) – Lecture 2 Chemistry 2540 or 2940H (2) – Lab 1 		
L	Math 1151 or 1156 (5)** OR 1140 (4) AND 1141 (4)	☐ Chemistry 2550 or 2950H (2) – Lab 2		
_	Math 1152 (5) or Stat 1450 (3) or Stat 2480 (3)	Substitution		
	or Stat 2450 (3)			
	Substitution			
** Ca	n be used to fulfill the GEN Foundation; MQR/DA			
	rement			
	cs (Check 2 boxes)			
	Physics 1200 (alg) or 1250 (calc) (5)			
	OR 1248 (4) AND 1249 (3)			
	Physics 1201 (alg) or 1251 (calc) (5)			
	Substitution			



Biology Major Checklist Bachelor of Science Life Science Education Specialization

Core Course (4-5 credit hours)	- Required	(Check 1 box)
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	Biology 3401 (4) – Integrated Biolo	ogy	☐ Biology	3501 (3	3) and 4901 (2)
Life S	cience Education Specializati	ion (2	21-28 credit hours)		
	ed (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) 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		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 4581S or 4591S or equiv. (1) — DNA Fingerprinting Workshop with Columbus Publi Schools
Elect	ives				
-					
Embe	edded Literacies (no addition	al cre	edit hours)		
	Advanced Writing Advanced Data Analytics Technology Literacy	Biol	ogy 3401 or 3501 ogy 3401 or 3501 ogy 3401 or 3501	HIMITS	

- 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.

 $[\]dagger$ Courses within the major with a laboratory component



Biology Major Checklist Bachelor of Science Pre-Health Professions Specialization

NAME	DATE
SEMESTER OF GRADUATION	
General Education Requirements (32-39 credit ho	ours)
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
Required Arts & Sciences Courses (1-13 Credit Ho	
Arts & Sciences Survey (1) World Language (0-12)	
Required Supporting Courses (48-61 credit hours)
Biology (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 * Can 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
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	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
Physics (Check 2 boxes) Physics 1200 (alg) or 1250 (calc) (5) OR 1248 (4) AND 1249 (3) Physics 1201 (alg) or 1251 (calc) (5) Substitution	

 $[\]dagger$ Courses within the major with a laboratory component



Biology Major Checklist Bachelor of Science Pre-Health Professions Specialization

Core C	Course (4-5 credit hours) – R	equired (Check 1 box)	
	Biology 3401 (4) – Integrated Biolo	ogy		Biology 3501 (3) and 4901 (2)
Pre-He	ealth Professions Specializat	ion (15-25 credit hou	rs)	
Requirec	1 MolGen 4500 (3) or 4606 (4)		Bic EE(Mc EE(An or EE(Phy EE(Coursework (Check at least 4 boxes) schem 4511 (4), or 5613 AND 5614 (6) OB 3310 or 3310.01 or 3310.02† (4) – Evolution cro 4000† or 4000.01† or 4000.02† (4) or 4100 (5) OB 3510 or MolGen 4700 or MolGen 5607 or olGen 5608 (3) – Cell Biology OB 3520† (3) – Microscopic Anatomy / Histology atomy 2300.01† (4) or 3300.01† (5) EEOB 2510† (3) or 2511† (4) – Human Anatomy OB 4510† (3) - Comparative Vertebrate Anatomy ysio 3200 (5) or EEOB 2520 (3) – Human ysiology or EEOB 4520 (3) Comparative Physiology OB 3270 (3) or 3320 (3) or 3410 (4) or 3420 (4) or 40 (3) – Ecology
Electiv	ves .			
Embe	dded Literacies (no addition	al credit hours)	-	
	Advanced Writing Advanced Data Analytics Technology Literacy L BioSci HOURS	Biology 3401 or 3501 Biology 3401 or 3501 Biology 3401 or 3501	CEA	MESTER UNITS
TOTAL	L DIUSCI HUUKS	TOTAL	- SEI/	MESTER OINITS

- 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.

 $[\]dagger$ Courses within the major with a laboratory component



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

Biology Major Checklist Bachelor of Arts Forensic Biology Specialization

			DATE	
SEMESTER OF GRADUATION				
Gene	ral Education Requirements (32-39 credit ho	ırs)		
	, , , , , , , , , , , , , , , , , , , ,			_
	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	
	()			
Requi	ired Arts & Sciences Courses (1-13 Credit Hou	ırs)		
	Arts & Sciences Survey (1)	_		
	World Language (0-12)	_		
Pogui	ired Supporting Courses (32-53 credit hours)			
Requi	red Supporting Courses (32-35 credit nours)			
Biol	ogy (Check 2 boxes)	Chemis	try (Check 2 boxes)	
Biol	logy (Check 2 boxes) □ Biology 1113.01 (4) or 1113.02 (5)		try (Check 2 boxes) Chemistry 1206 (3) AND 1208 (4)	
Biol	logy (Check 2 boxes) Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)*		try (Check 2 boxes) Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5)	
Biol	☐ Biology 1113.01 (4) or 1113.02 (5)		Chemistry 1206 (3) AND 1208 (4)	
Biol	☐ Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)*		Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5)	
* Ca	□ 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	0	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5)Substitution	
* Ca	□ Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)* □ Biology 1114.01 (4) or 1114.02 (5)* □Substitution	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5)Substitution Chemistry (Check 1 box)	
* Ca Scie	Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution and be used to fulfill the GEN Foundation: Natural ences requirement	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4)	
* Ca Scie	Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution on be used to fulfill the GEN Foundation: Natural ences requirement sthematics/Statistics (Check 1 box)	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8)	
* Ca Scie	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 ences requirement thematics/Statistics (Check 1 box) Math 1148 (4)** - College Algebra AND	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution C Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6)	
* Ca Scie	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 ences requirement thematics/Statistics (Check 1 box) Math 1148 (4)** - College Algebra AND Math 1149 (3) - Trigonometry,	Organio	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution C Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6) Substitution	
* Ca Scie	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 ences requirement thematics/Statistics (Check 1 box) Math 1148 (4)** – College Algebra AND Math 1149 (3) – Trigonometry, OR Math 1148 (4) and Stat 1450 (3),	Organio	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution C Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6)	
* Ca Scie	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 ences requirement thematics/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)	Organid	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6) Substitution Waived	
* Ca Scie	□ 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 ences requirement thematics/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	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6) Substitution Waived Pology (1 course)	
* Ca Scie Ma t	Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution sinces requirement thematics/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	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6) Substitution Waived Pology (1 course) Anthro 2200 (4)	
* Ca Scie M at	□ 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 ences requirement thematics/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	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6) Substitution Waived Pology (1 course)	
* Ca Scie M at	Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution sinces requirement thematics/Statistics (Check 1 box) Math 1148 (4)** – College Algebra AND Math 1149 (3) – Trigonometry, OR Math 1149 (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	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6) Substitution Waived Pology (1 course) Anthro 2200 (4)	
* Ca Scie Ma t ** (requ	Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution and be used to fulfill the GEN Foundation: Natural ences requirement thematics/Statistics (Check 1 box) Math 1148 (4)** - College Algebra AND Math 1149 (3) - Trigonometry, OR Math 1149 (4) and Stat 1450 (3), OR Math 1150 (5)** - Pre-Calculus Substitution Can be used to fulfill the GEN Foundation: MQR/DA direment sics (Check 1 box)	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6) Substitution Waived Pology (1 course) Anthro 2200 (4)	
* Ca Scie Ma t ** (requ	Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution sen be used to fulfill the GEN Foundation: Natural ences requirement thematics/Statistics (Check 1 box) Math 1148 (4)** - College Algebra AND Math 1148 (3) - Trigonometry, OR Math 1148 (4) and Stat 1450 (3), OR Math 1150 (5) AND 1121 (5) OR Math 1150 (5)** - Pre-Calculus Substitution Can be used to fulfill the GEN Foundation: MQR/DA uirement sics (Check 1 box) Physics 1200 (alg) or 1250 (calc) (5)	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6) Substitution Waived Pology (1 course) Anthro 2200 (4)	
* Ca Scie Ma t ** (requ	Biology 1113.01 (4) or 1113.02 (5) or Biology 1111 (3) and 1112 (4)* Biology 1114.01 (4) or 1114.02 (5)* Substitution and be used to fulfill the GEN Foundation: Natural ences requirement thematics/Statistics (Check 1 box) Math 1148 (4)** - College Algebra AND Math 1149 (3) - Trigonometry, OR Math 1149 (4) and Stat 1450 (3), OR Math 1150 (5)** - Pre-Calculus Substitution Can be used to fulfill the GEN Foundation: MQR/DA direment sics (Check 1 box)	Organic	Chemistry 1206 (3) AND 1208 (4) or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution Chemistry (Check 1 box) Chemistry 2310 (4) OR 2510 AND 2520 (8) OR 2510 AND 2540 (6) Substitution Waived Pology (1 course) Anthro 2200 (4)	



Biology Major Checklist Bachelor of Arts Forensic Biology Specialization

Core	Course (4-5 credit hours) – Re	equired (Check 1	box)
	Biology 3401 (4) – Integrated Biolo	ogy	☐ Biology 3501 (3) and 4901 (2)
Fore	nsic Biology Specialization (14	I-22 credit hours)	
	ed (Check 2 boxes) Biochem 4511 (4), or 5613 AND 56 MolGen 4500 (3) or 4606 (4)	514 (6)	(,, === (,
Elect	ives		
-			
Embe	edded Literacies (no additiona	al credit hours)	
_ _	Advanced Writing Advanced Data Analytics Technology Literacy	Biology 3401 or 350 Biology 3401 or 350 Biology 3401 or 350	01
TOTA	AL BioSci HOURS	TO	OTAL 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. 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 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 Integrated General Biology Specialization

NAME			DATE		
SEIVIES	STER OF GRADUATION				
Gene	ral Education Requirements (32-39 credit hou	urs)			
	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 ENED 4001		
Requ	ired Arts & Sciences Courses (1-13 Credit Hou	ırs)			
	Arts & Sciences Survey (1) World Language (0-12)	_			
Requ	ired Supporting Courses (32-49 credit hours)				
	logy (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		try (2 courses) Chemistry 1206 (3) and 1208 (4) Or 1210 or 1610 or 1910H (5) Chemistry 1220 or 1620 or 1920H (5) Substitution		
Scie	an be used to fulfill the GEN Foundation: Natural ences requirement thematics/Statistics	_	Chemistry Chemistry 2310 (4), OR 2510 AND 2520 (8)		
	☐ 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	0	OR 2510 AND 2540 (6)Substitution Waived		
	 Substitution Can be used to fulfill the GEN Foundation: MQR/DA uirement 				
Phy	/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 (Check 1 box)							
	Biology 3401 (4) – Integrated Biology			Biology 3501 (3) and 4901 (2)		
Integ	Integrated Biology Specialization (28-36 credit hours)						
-	ed (Check 6 boxes)		Two Advan	ced (4000+) electives (6-10)			
	MolGen 4500 (3) or 4606 (4) Micro 4000† or 4000.01† or 4000.02† (5)	(4) or 4100†			()		
0	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) – <i>Evolution</i>				()		
Electives							
-			-				
-							
Embedded Literacies (no additional credit hours)							
	•	<u> </u>					
	_	logy 3401 or 3					
	•	logy 3401 or 3 logy 3401 or 3					
J	recimology Literacy Bio	11088 2401 01 3	201				
TOTA	AL BioSci HOURS	Ī	TOTAL SEI	MESTER 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 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 hou	rs)			
·	·			
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			
GE Reflection (1)	GENED 4001			
Required Arts & Sciences Courses (1-13 Credit Hou	rs)			
nequired / it is a soletides doubtes (1 13 dream from				
☐ Arts & Sciences Survey (1)				
☐ World Language (0-12)				
Required Supporting Courses (32-49 credit hours)				
Biology (Check 2 boxes)	Chamistry (Charle 3 haves)			
☐ 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 1114.01 (4) or 1114.02 (5)*	☐ 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)			
Mathematics/Statistics (Check 1 box)	☐ Chemistry 2310 (4) 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				
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 hours) – F	Required (Check 1 box)	
☐ Biology 3401 (4) — Integrated Biol	ology Biology	3501 (3) and 4901 (2)
Life Sciences Education Specializa	ation (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) 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	□ 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 4581S or 4591S or equiv. (1) − DNA Fingerprinting Workshop with Columbus Public Schools
Electives		
Embedded Literacies (no addition	nal credit hours)	
☐ Advanced Writing ☐ Advanced Data Analytics ☐ Technology Literacy	Biology 3401 or 3501 Biology 3401 or 3501 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 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.
- $\bullet \qquad \text{Transfer credit allowed no more than one half of the credit hours required on the major.}$
- Honors versions of courses substitute freely.



Biology Major Checklist Bachelor of Arts Pre-Health Professions Specialization

NAME	DATE		
SEMESTER OF GRADUATION			
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)			
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 Hou	urs)		
, , , , , , , , , , , , , , , , , , , ,	,		
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)		
or Biology 1111 (3) and 1112 (4)* ☐ Biology 1114.01 (4) or 1114.02 (5)*	or 1210 or 1610 or 1910H (5) 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) ☐ Math 1148 (4)** – College Algebra AND	OR 2510 AND 2520 (8) 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)			
UK 1248 (4) AND 1249 (3)			
☐ Substitution			

 $[\]dagger$ Courses within the major with a laboratory component



Biology Major Checklist Bachelor of Arts Pre-Health Professions Specialization

Core	Course (4-5 credit hours) – Re	equired (Check 1	1 box)		
_	Biology 3401 (4) – Integrated Biolo	ngy			Biology 3501 (3) and 4901 (2)
Pre-H	lealth Professions Specializat	ion (15-25 credi	t hours	s)	
Require	ed MolGen 4500 (3) or 4606 (4)			Biod EEO Mic EEO Mol EEO Ana or E EEO Phy EEO	Check at least 4 boxes) Chem 4511 (4), or 5613 AND 5614 (6) BB 3310 or 3310.01 or 3310.02† (4) – Evolution BB 3310 or 3310.01 or 4000.02† (4) or 4100 (5) BB 3510 or MolGen 4700 or MolGen 5607 or BGEN 5608 (3) – Cell Biology BB 3520† (3) – Microscopic Anatomy / Histology BB 3520† (3) or 2511† (4) or 3300.01† (5) EEOB 2510† (3) or 2511† (4) – Human Anatomy BB 4510† (3) – Comparative Vertebrate Anatomy Sio 3200 (5) or EEOB 2520 (3) – Human Siology or EEOB 4520 (3) Comparative Physiology BB 3270 (3) or 3320 (3) or 3410 (4) or 3420 (4) or 0 (3) – Ecology
Elect	ives				
_				_	
Embe	edded Literacies (no addition	al credit hours)			
	Advanced Writing Advanced Data Analytics Technology Literacy	Biology 3401 or 35 Biology 3401 or 35 Biology 3401 or 35	501		
TOTA	I B'-C-' HOURS	-	CTAL	CERA	LECTED 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 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.

[†] Courses within the major with a laboratory component



Appendix C: Advising sheet for the Biology Minor

Biology Minor Checklist DATE 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 (5)** ** 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 (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) – 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.