

BIOCHEMICAL SCIENCES MAJOR – BIOLOGY SPECIALIZATION (A.S.) INTERESTED IN BIOLOGY MAJOR – LIFE SCIENCES EDUCATION SPECIALIZATION (B.S.)

This model plan of study is presented as a suggested path to graduate in 4 years with an Associate of Science Degree with a major in Biochemical Sciences and specialization in Biology and a Bachelor of Science Degree with a major in Biology and specialization in Life Sciences Education. It is intended to be a useful guide; however, each student is unique and should review the Degree Requirements and work with their advisor to develop an individualized course plan that best fits their personal academic background and goals.

NOTE: This sheet **should not** be used in isolation. In order to graduate in a timely manner, students must consult their academic advisor on a regular basis.

Freshman Year (ATI)	Autumn Semester				Spring Semester			
Benchmarks	Department	Course #	Course Name	Hours	Department	Course #	Course Name	Hours
CHEM 1210 & 1220 should be completed by the end of this year.	BIOLOGY	1113.01	Energy Transfer and Development ^a	4-5	BIOLOGY	1114.01	Form, Function, Diversity & Ecology	4
ENGLISH 1110 should be completed by the end of this year.	BIOTECH	1201T	Exploring Biochemical Sci. & Biotechnology	.5	CHEM	1220	General Chemistry 2	5
Begin to consider study abroad programs.	CHEM	1210	General Chemistry 1	5	GENED	1201	GE Launch Seminar	1
	ENGLISH	1110.01	First-Year English Composition ^a	3	MATH	1151	Calculus 1 ^a	5
	GENSTDS	1201.01T	College Orientation	.5				
	_____	_____	Electives	2				
			Total:	15-16			Total:	15
Sophomore Year (ATI)	Autumn Semester				Spring Semester			
Benchmarks	Department	Course #	Course Name	Hours	Department	Course #	Course Name	Hours
MATH 1151 should be completed by the end of this year.	AEDECON	2001	Principles of Food and Resource Economics ^a	3	AGRCOMM	3130	Oral Expression in Agriculture	3
Apply to graduate from ATI at least one semester before the semester of your graduation.	CHEM	2510	Organic Chemistry 1	4	CHEM	2520	Organic Chemistry 2	4
Maintain at least a 2.0 cumulative GPA.	COMLDR	3537	Data Analysis in the Applied Sciences	3	MICRBIO	4000.01	Basic & Practical Microbiology	4
Graduate with Associate of Science Degree.	_____	_____	GE Hist & Cultural Studies	3	_____	_____	GE Lit, Vis and Perf Arts	3
	_____	_____	Electives	2	_____	_____	GE R.E. & G. Diversity	3
			Total:	15			Total:	17
Total credit hours for Associate of Science Degree:								62-63
Junior Year (Columbus)	Autumn Semester				Spring Semester			
Benchmarks	Department	Course #	Course Name	Hours	Department	Course #	Course Name	Hours
Apply to graduate from Columbus at least three semesters before the semester of your graduation.	BIOLOGY	3401	Integrated Biology	4	CHEM	2550	Organic Chem. Lab 2 ^a	2
	CHEM	2540	Organic Chem. Lab 1 ^a	2	EEOB	3310	Evolution	4
	MATH	1157	Mathematical Modeling for Bio Sci. ^a	5	PHYSICS	1201	E&M, Optics, Modern Physics ^a	5
	PHYSICS	1200	Mechanics, Kinematics Fluids, Waves ^{a,b}	5	_____	_____	Foreign Lang./Elective	4
			Total:	16	_____	_____	Additional Spec. Course	2
							Total:	17
Senior Year (Columbus)	Autumn Semester				Spring Semester			
Benchmarks	Department	Course #	Course Name	Hours	Department	Course #	Course Name	Hours
Maintain at least a 2.0 GPA in the major, minor, and cumulative.	BIOCHEM	4511	Intro to Biological Chemistry ^a	4	GENED	4001	GE Reflection	1
Graduate with Bachelor of Science Degree.	MOLGEN	4500	General Genetics ^a	3	MOLGEN	3300	General Plant Biology	3
	_____	_____	GE Citizenship #1 ^c	3-4	_____	_____	GE Citizenship #2 ^c	3
	_____	_____	GE Theme Choice #1	3	_____	_____	GE Theme Choice #2	3
	_____	_____	Foreign Lang./Elective	4	_____	_____	Foreign Lang./Elective	4
			Total:	17	_____	_____	Additional Spec. Course	3
							Total:	17
Total credit hours for Bachelor of Science Degree:								121

^a One possible course from approved ASC GE list or B.S. major requirement that has multiple options, as outlined in corresponding Degree Requirements document.

^b This course requirement may also be completed at ATI, and may be used as an elective in the A.S. major. See Degree Requirements for complete details.

^c Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours.

BIOCHEMICAL SCIENCES MAJOR – BIOLOGY SPECIALIZATION (A.S.) INTERESTED IN BIOLOGY MAJOR – LIFE SCIENCES EDUCATION SPECIALIZATION (B.S.)

This advising sheet is for Ohio State ATI students that wish to earn both an Associate of Science (A.S.) Degree with a major in Biochemical Sciences and specialization in Biology and a Bachelor of Science (B.S.) Degree with a major in Biology and specialization in Life Sciences Education. The tables below outline the complete degree requirements to earn a B.S. with a major in Biology and specialization in Life Sciences Education. The underlined courses are those that also fulfill a requirement for the A.S. Biochemical Sciences major – Biology specialization. These courses can count toward both degree programs simultaneously.

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Table 1. Degree Requirements			
Subject	Course Options	Hours	✓
GE Launch Seminar	<u>GENED 1201</u>	1	
Writing and Information Literacy	<u>ENGLISH 1110.01</u>	3	
Mathematical & Quantitative Reasoning/Data Analysis	<u>MATH 1151</u>	5	
Literary, Visual and Performing Arts	<u>Student Choice</u>	3	
Historical & Cultural Studies	<u>Student Choice</u>	3	
Natural Science	<u>BIOLOGY 1113.01</u>	4	
Social & Behavioral Sciences	<u>AEDECON 2001</u> or ECON 2001	3	
Race, Ethnic and Gender Diversity	<u>Student Choice</u>	3	
Theme: Citizenship for a Diverse & Just World ^a	Student Choice	4-6	
Theme: Student Choice ^a	Student Choice	4-6	
GE Reflection	GENED 4001	1	
Survey Courses	<u>GENSTDS 1201.01T* and BIOTECH 1201T*</u> OR College Survey 1100	1	
Language Proficiency	See approved ASC GE list. ^b	0-12	
Supporting Required	See Table 2.	41	
Major	See Table 3.	32	
Electives	May include COMLDR 3537 and AGRCOMM 3130	2-14	
Minimum Total Credit Hours		121	

^a Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours.

^b Available at www.artsandsciences.osu.edu/students

^c Laboratory course

^d Must include a minimum of three laboratory courses within Core, Required, and/or Additional Courses

* courses are only offered at the Wooster (ATI) Campus

Note: A capital **OR** separates a pair of *equivalent* courses, a lowercase **or** separates a choice between *different* courses that fulfill the same requirement

Table 2. Additional Required Courses		
Course(s)	Hours	✓
<u>BIOLOGY 1114.01</u> Form, Function, Diversity & Ecology	4	
<u>CHEM 1210</u> General Chemistry 1	5	
<u>CHEM 1220</u> General Chemistry 2	5	
<u>CHEM 2510</u> or 2610 or 2910H Organic Chemistry Lecture 1	4	
<u>CHEM 2520</u> or 2620 or 2920H Organic Chemistry Lecture 2	4	
CHEM 2540 or 2940H Organic Chemistry Laboratory 1	2	
CHEM 2550 or 2950H Organic Chemistry Laboratory 2	2	
MATH 1152, 1157, STATS 2480 or 2450 Calculus II	5	
PHYSICS 1200 or 1250 Mechanics, Kinematics, Fluids, Waves	5	
PHYSICS 1201 or 1251 E&M, Optics, Modern Physics	5	
Total Supporting Required Credit Hours	41	

Table 3. Major Requirements		
Course(s)	Hours	✓
Biology Core Course		
BIOLOGY 3401 Integrated Biology	4	
Life Sciences Education Specialization Required Course		
BIOCHEM 4511 Introduction to Biological Chemistry or BIOCHEM 5613 and 5614 Biochem. & Molec. Biol. I and II	4 6	
MOLGEN 4500 General Genetics or MOLGEN 4606 Molecular Genetics	3 4	
EEOB 3310 or 3310.01 or 3310.02 Evolution	4	
<u>MICRBIO 4000.01</u> Basic & Practical Microbiology ^c or MICRBIO 4100 General Microbiology ^c	4 5	
MOLGEN 3300 General Plant Biology ^c	3	
Life Sciences Education Specialization Additional Courses		
Choose at least 2 from the following:		
EEOB 2220 Biodiversity of Ohio – Birds	2	
EEOB 3320 Organismal Diversity ^c (strongly recommended)	3	
EEOB 4210 Ecology & Evolution of Vertebrates	2	
EEOB 4220 Ecology & Evolution of Mammals	2	
EEOB 4230 Ecology & Evolution of Inter-vertebrates	2	
EEOB 5430 ^b Aquatic Ecosystems – Fish Ecology or EEOB 5930 Ichthyology ^b (Stone Lab)	1.5-4 3-4	
ENTMLGY 4000 General Entomology ^c	3	
MOLGEN 4591S DNA Fingerprinting Workshop in Columbus Public Schools or equiv.	1	
Minimum Total Major Credit Hours ^d	32	

Notes:

- Honors versions of courses substitute freely
- Electives must be at 2000 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
- At least 25 of 32 credits must be from Biochemistry, Biology, EEOB, Microbiology, or Molecular Genetics. Courses outside these departments must be pre-approved by a biology advisor

Additional Bachelor's Degree Requirements:

1. A 2.00 cumulative CPHR is required as well as a 2.00 CPHR in the major and minor coursework.
2. Students must complete a minimum of 30 credit hours at The Ohio State University with at least 12 in the department in Columbus offering the major.
3. Applications to graduate must be submitted at least three semesters in advance.