

BIOLOGY (BS)



This program was approved for students entering the university in the Summer 2025-Spring 2026 catalog year. For more information about catalog year, go to Catalog Year Information (<https://catalog.louisville.edu/undergraduate/university-wide-unit-specific-policies/catalog-year/>).

Bachelor of Science in Biology

Unit: College of Arts and Sciences (AS) (<http://www.louisville.edu/a-s/>)
 Departmental Website: Biology (<http://www.louisville.edu/a-s/biology/>)
 Academic Plan Codes: See Track Requirements tab.

Program Information

There are two undergraduate degree programs offered in the Biology Department, a Bachelor of Arts (BA) in Biology and a Bachelor of Science (BS) in Biology.

Bachelor of Science degrees are designed so that students get a particularly strong background in their area of interest in biology—biomedical, cell/molecular/developmental, or evolution/ecology—but still have some flexibility to take courses of interest. Compared to the BA degree, the BS degree requires more science, both in biology and in another field (physics or geosciences), a specific calculus course, and one less course in a foreign language. Each of the tracks in the BS degree also requires courses specific to the field of interest. BS degrees are valuable for students wanting to find employment in a biological field without further formal education, for students planning to attend graduate or professional school, and for students who hope to become teachers.

Completion of this degree requires work to be submitted for the department's Learning Outcomes Measurement. For details, email the department.

Degree Summary

Code	Title	Hours
General Education Requirements (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹		31
(10 hours of General Education requirements may be satisfied through coursework required by the degree program)		
College/School Requirements		13-15
Program/Major Requirements ¹		22
Supporting Courses ¹		25

Track Requirements	38-40
Minimum Total Hours	121

¹ Some courses required in this degree program may satisfy multiple requirements. To complete the degree in the **minimum number of hours** listed, some hours from the General Education Requirements must be satisfied by courses defined by the unit and/or program. Using other courses to satisfy General Education requirements will require additional hours to complete the degree requirements. See the Degree Requirements and Track tabs for specific coursework.

Specific coursework information can be found on the Degree Requirements tab.

Accelerated BS/MS in Biology

This program is available to only University of Louisville undergraduate students. Students who are considering pursuing a non-thesis master's degree (MS) in Biology can speed up the process by applying some of their undergraduate credit hours toward a master's degree. Students accepted into the Soaring Scholar BS/MS program take graduate courses (up to 9 credit hours) as an undergraduate that apply toward both the bachelor's degree and the eventual master's degree. An additional 24 credit hours of graduate coursework will constitute the minimum number of credit hours for obtaining the non-thesis masters. A minimum of 17 credit hours in the MS program must be in courses at the 600 level. With approval from the Director of Graduate Studies, successful applicants will identify up to 9 credit hours at the 500-600 level to count toward both the undergraduate and graduate degrees. These credits will count as elective credits toward the undergraduate degree.

Undergraduate students interested in participating in an accelerated dual bachelor's/master's degree offered through the university's Soaring Scholar Program (<https://graduate.louisville.edu/academics/programs/soaring/>) must first meet with their Academic Advisor and be accepted into the program. Once accepted, students will receive an official admission letter outlining program policies and details. They will then work with their department and academic advisor to register for classes each semester, ensuring they meet the milestones and academic progress requirements of the Soaring Scholar program. A Soaring Scholar student is considered an undergraduate student until their bachelor's degree is conferred. In their final undergraduate semester, they are expected to apply for admission to their respective master's program.

Early Start Program (with the College of Education and Human Development)

The Master of Arts in Teaching program in conjunction with the undergraduate programs in Chemistry, Biology, and Mathematics offers a comprehensive and professionally-focused program leading to an additional degree of MAT Middle or Secondary Education. This early start program enables superior students to receive two degrees within five years. A total of 148 credits are required for the dual degrees: 121 credits of coursework devoted toward the baccalaureate degree and 36 credits toward the MAT, with nine hours double-counted. This program will be available for students who are entering their junior year. They may take graduate level courses in the College of Education and Human Development (CEHD) in their 4th year of study.

The current qualifications for the joint degree program have been agreed upon by discipline faculty from the Colleges of Arts and

Sciences and Education and Human Development. The criteria vary by discipline. Students enrolling in the accelerated program will be non-thesis students and must adhere to all policies pertaining to Graduate Students. All interested students must submit an application to the College of Education and Human Development (CEHD) MAT program and meet the admission criteria.

Departmental Admission Requirements

Admission to the Bachelor of Science in Biology requires the following:

- Completion of BIOL 240, BIOL 241, BIOL 242, and BIOL 243 with a grade of C or better.
- Completion of MATH 111 with a grade of C or better OR placement into a mathematics course above the level of MATH 111 on the basis of either the University of Louisville mathematics placement examination or ACT/SAT score.
- A minimum overall grade point average (GPA) of 2.0.

The Change Major Request form can be found under the Academic Progress tile on ULink.

Accelerated BS/MS in Biology

Students applying to the accelerated Soaring Scholar program must:

1. Have completed the equivalent of all the "core" majors courses in Biology with grades of B or higher;
2. Have a grade point average of 3.35 or higher; and
3. Apply for admission before the end of their junior year or completion of 90 credit hours toward their degree.

General Education Requirements

Code	Title	Hours
	General Education Requirements (https://catalog.louisville.edu/undergraduate/general-education-requirements/) *	31

The following courses are required by the program and can satisfy the respective General Education Requirement:

BIOL 240	Unity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
or BIOL 242	Diversity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
BIOL 241	Experimental Biology I: Molecules and Cells - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
or BIOL 243	Experimental Biology II: Organismal Biology - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
MATH 205	Calculus I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
CHEM 201	General Chemistry I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)

*All degrees require the completion of the University-wide General Education Program (link provided above). To complete the degree in the **minimum number of hours** listed on the Overview tab, some hours from the General Education Requirements must be satisfied by courses defined by the unit and/or program. If additional hours taken within the program also satisfy General Education requirements, students may need

to take additional electives to satisfy the minimum hours required for the degree.

College/School Requirements

Code	Title	Hours
Arts & Sciences Requirements		
GEN 100	Student Success Center First Year Experience	1
or GEN 101	Arts & Sciences First Year Experience	
	Foreign Language ¹	6-8
	Electives in Humanities or Social Sciences at the 300-level or above ²	6
	WR - two approved courses at the 300 level or above ³	
Minimum Total Hours		13-15

Program/Major Requirements

Code	Title	Hours
Department of Biology ⁴		
BIOL 240	Unity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ⁵	3
BIOL 241	Experimental Biology I: Molecules and Cells - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
BIOL 242	Diversity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ⁵	3
BIOL 243	Experimental Biology II: Organismal Biology - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
BIOL 329	Cellular and Molecular Biology	3
BIOL 330	Genetics and Molecular Biology	3
BIOL 331	Genetics and Molecular Biology: Laboratory	2
BIOL 372	Evolutionary Ecology of Disease	3
or BIOL 440	Global Change Ecology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 409	Evolutionary Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
Minimum Total Hours		22

Code	Title	Hours
Supporting Courses		
MATH 205	Calculus I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ⁵	4
BIOL 350	Biostatistics	3
CHEM 201	General Chemistry I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ⁵	3
CHEM 202	General Chemistry II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ⁵	3
CHEM 207 & CHEM 208	Introduction to Chemical Analysis I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Introduction to Chemical Analysis II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	2

CHEM 209	Introduction to Chemical Analysis III	1
CHEM 341 & CHEM 343	Organic Chemistry I Organic Chemistry Laboratory I	5
PHYS 221 & PHYS 223	Fundamentals of Physics I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Fundamentals of Physics Lab I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
Minimum Total Hours		25

Code	Title	Hours
Track Requirements (see Track Requirements tab)		38-40

At least 50 of the total minimum hours required must be at the 300 level or above.

Code	Title	Hours
Culminating Undergraduate Experience (Graduation requirement)		

Requirement fulfilled by completing one of the following:

BIOL 405	Undergraduate Research - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ⁶
BIOL 406	Undergraduate Research (WR) - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ⁶
BIOL 409	Evolutionary Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
BIOL 415	Biology of the Cell - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
BIOL 430	Undergraduate Teaching Assistant - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
BIOL 440	Global Change Ecology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
BIOL 443	Developmental Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
BIOL 485	Microbial Physiology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
BIOL 490	Biology Internship - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)

BIOL 511	Behavioral Endocrinology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
BIOL 541	Medicinal Plant Biochemistry - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)
BIOL 548	Experimental Design and Analysis - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)

¹ Completion of the second semester of a single foreign language; hours will vary depending on language taken

² In addition to courses counted toward General Education

³ May be incorporated into other degree requirements

⁴ Note: BIOL 102, BIOL 104, BIOL 257, BIOL 258, BIOL 260, BIOL 261, BIOL 263, BIOL 264, and BIOL 265 do not count toward electives in the major. BIOL 321, BIOL 322, and BIOL 323 may count toward free electives in the major.

⁵ Fulfills General Education requirement.

⁶ A maximum of 6 hours of undergraduate research or independent study may count toward the major.

BS in Biology Tracks

Track in Molecular, Cellular, and Developmental Biology

Academic Plan Code(s): BIOLBS_MCD

Code	Title	Hours
Supporting Courses		
CHEM 342 & CHEM 344	Organic Chemistry II Organic Chemistry Laboratory II	5
PHYS 222 & PHYS 224	Fundamentals of Physics II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Fundamentals of Physics Laboratory II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4

Molecular, Cellular, and Developmental Track Core Courses

BIOL 457	Microbiology	3
BIOL 443	Developmental Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
BIOL 465	Principles of Physiology	3
BIOL 540	Metabolic Biochemistry	3

Molecular, Cellular, and Developmental Track Laboratory Experience 1-4

Select one of the following:

BIOL 458	Microbiology Laboratory
BIOL 404	Undergraduate Research
or BIOL 405	Undergraduate Research - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)

	or BIOL 406 Undergraduate Research (WR) - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 416	Biotechnology Methods - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 541	Medicinal Plant Biochemistry - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 548	Experimental Design and Analysis - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
Molecular, Cellular, and Developmental Track Electives		9-10
Select at least three courses from the following:		
BIOL 347	Comparative Vertebrate Anatomy	
BIOL 359	Microbial Genetics and Pathogenesis - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 415	Biology of the Cell - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 395	Pharmacology and Toxicology	
BIOL 435	Chemical Ecology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 480	Introduction to Immunology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 450	Cancer Biology	
BIOL 485	Microbial Physiology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 511	Behavioral Endocrinology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 512	Endocrinology	
BIOL 515	Environmental Physiology	
BIOL 542	Gene Structure and Function - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 552	Evolutionary Medicine	
BIOL 553	Chronic Disease Biology	
Biology Electives (300 level or higher)		5-7
Minimum Total Hours		38-40

Track in Ecology

Academic Plan Code(s): BIOLBS_ECO

Code	Title	Hours
Supporting Courses		
Select two of the following courses:		5-6
ENVS 301	Geology for Scientists and Engineers	
ENVS 363	Climate Science	
ENVS 365	Biogeography	
ENVS 367	Geomorphology	
GEOG 355	Introduction to Remote Sensing	
GEOG 558	Introduction to Geographic Information Systems	
URBS 505	GIS for Planning & Policy	
Select one of the following two sequences:		4-5
PHYS 222 & PHYS 224	Fundamentals of Physics II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Fundamentals of Physics Laboratory II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
CHEM 342 & CHEM 344	Organic Chemistry II Organic Chemistry Laboratory II	
Ecology Track Core Courses		
BIOL 363	Principles of Ecology	3
BIOL 401	Advanced Ecology	3
BIOL 563	Population and Community Ecology	3
Ecology Track Electives		
Select four courses from the list below		12
BIOL 300	Plant Biology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 304	Plant Taxonomy & Ecology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 435	Chemical Ecology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 308	Vertebrate Zoology	
BIOL 310	Animal Behavior	
BIOL 347	Comparative Vertebrate Anatomy	
BIOL 382	Entomology	
BIOL 510	Behavioral Ecology	
BIOL 514	Ornithology	
BIOL 515	Environmental Physiology	
BIOL 571	Selected Topics (Invertebrate Zoology)	
BIOL 372	Evolutionary Ecology of Disease	
BIOL 440	Global Change Ecology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 560	Ecology of Urban and Suburban Landscapes	
BIOL 562	Ecosystems Ecology	
BIOL 567	Conservation Biology	
Biology electives at the 300 level or above		8
Minimum Total Hours		38-40

Track in Biomedical Sciences

Academic Plan Code(s): BIOLBS_BMS

Code	Title	Hours			
Supporting Courses				catalog.louisville.edu/undergraduate/general-education-requirements/)	
CHEM 342 & CHEM 344	Organic Chemistry II Organic Chemistry Laboratory II	5	BIOL 450	Cancer Biology	
PHYS 222 & PHYS 224	Fundamentals of Physics II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Fundamentals of Physics Laboratory II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4	BIOL 460	Advanced Human Anatomy	
Biomedical Sciences Core Courses			BIOL 480	Introduction to Immunology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 443	Developmental Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3	BIOL 490	Biology Internship - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 457	Microbiology	3	BIOL 512	Endocrinology	
BIOL 465	Principles of Physiology	3	BIOL 552	Evolutionary Medicine	
BIOL 540	Metabolic Biochemistry	3	BIOL 553	Chronic Disease Biology	
Biomedical Sciences Lab			Additional Electives 7-9		
Select one of the following:			Select from the following:		
BIOL 347	Comparative Vertebrate Anatomy	1-4	ANTH 327	The Human Skeleton	
BIOL 401	Advanced Ecology		ANTH 328	Environmental Archaeology	
BIOL 404	Undergraduate Research		ANTH 351	Medical Anthropology	
or BIOL 405	Undergraduate Research - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)		COMM 430	Health Communication - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
or BIOL 406	Undergraduate Research (WR) - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)		ECON 355	Health Economics	
BIOL 416	Biotechnology Methods - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)		ENGL 314	Literature and Medicine	
BIOL 458	Microbiology Laboratory	9-10	NURS 205	United States Healthcare System History and Inequality - D1 (https://catalog.louisville.edu/undergraduate/general-education-requirements/), SBH (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 541	Medicinal Plant Biochemistry - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)		NURS 206	Rural Health - D1 (https://catalog.louisville.edu/undergraduate/general-education-requirements/), SB (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
Biomedical Sciences Track Electives			NURS 221	Principles of Basic Patient Care	
Select at least three courses from the following:			NURS 388	Global Health: Disparities and Social Determinants - SB (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 359	Microbial Genetics and Pathogenesis - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)		PHEH 331	Food Composition and Public Health	
BIOL 372	Evolutionary Ecology of Disease		PHEP 300	Epidemics, Pandemics and Syndemics	
BIOL 376	Parasitology		PHEP 301	Global Public Health - D2 (https://catalog.louisville.edu/undergraduate/general-education-requirements/), SBH (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 395	Pharmacology and Toxicology		PHEP 341	Epidemiological Concepts and Methods for Public Health	
BIOL 396	Preview to Dentistry -WR - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)		PHIL 320	Death	
BIOL 404	Undergraduate Research		PHIL 323	Medical Ethics	
or BIOL 405	Undergraduate Research - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	PHIL 325	Feminist Medical Ethics - AH (https://catalog.louisville.edu/undergraduate/general-education-requirements/)		

PSYC 201	Introduction to Psychology - SB (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
PSYC 305	Brain and Behavior	
PSYC 355	Neuroscience	
SOC 325	Sociology of Human Sexuality	
SOC 342	Medical Sociology	
WGST 302	LGBTQ and Applied Healthcare	
Minimum Total Hours		38-40

Accelerated BS/MS in Biology

With approval from the Director of Graduate Studies, successful applicants to the Accelerated BS/MS in Biology will identify up to 9 credit hours at the 500-600 level to count toward both the undergraduate and graduate degrees. These credits will count as elective credits toward the undergraduate degree.

Flight Plan

Track in Molecular, Cellular, and Developmental Biology

Year 1		Hours
Fall		
GEN 100 or GEN 101	Student Success Center First Year Experience or Arts & Sciences First Year Experience	1
BIOL 240	Unity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹	3
BIOL 241	Experimental Biology I: Molecules and Cells - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
CHEM 201 & CHEM 207 & CHEM 208	General Chemistry I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Introduction to Chemical Analysis I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Introduction to Chemical Analysis II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	5
Foreign Language 1 ²		3-4
ENGL 101	Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
Hours		16-17
Spring		
BIOL 242	Diversity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹	3
BIOL 243	Experimental Biology II: Organismal Biology - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
CHEM 202 & CHEM 209	General Chemistry II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Introduction to Chemical Analysis III	4
MATH 205	Calculus I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
Foreign Language 2 ²		3-4
Hours		15-16
Year 2		
Fall		
BIOL 329	Cellular and Molecular Biology	3
CHEM 341 & CHEM 343	Organic Chemistry I Organic Chemistry Laboratory I	5

ENGL 102	Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
General Education: Cardinal Core Oral Communication - OC ¹		3
Hours		14
Spring		
BIOL 330	Genetics and Molecular Biology	3
BIOL 331	Genetics and Molecular Biology: Laboratory	2
CHEM 342 & CHEM 344	Organic Chemistry II Organic Chemistry Laboratory II	5
PHYS 221 & PHYS 223	Fundamentals of Physics I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Fundamentals of Physics Lab I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
General Education: Cardinal Core Arts & Humanities Global Perspectives - AHP2 ¹		3
Hours		17
Year 3		
Fall		
BIOL 372 or BIOL 440	Evolutionary Ecology of Disease or Global Change Ecology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
BIOL 540	Metabolic Biochemistry	3
Select one of the following lab experiences: ³		1-3
BIOL 458	Microbiology Laboratory	
BIOL 404	Undergraduate Research	
BIOL 405	Undergraduate Research - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 406	Undergraduate Research (WR) - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 416	Biotechnology Methods - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 541	Medicinal Plant Biochemistry - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 548	Experimental Design and Analysis - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
PHYS 222	Fundamentals of Physics II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
PHYS 224	Fundamentals of Physics Laboratory II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
General Education: Cardinal Core Arts & Humanities -AH ¹		3
Hours		14-16
Spring		
BIOL 465	Principles of Physiology	3
BIOL 350	Biostatistics	3
Biology MCD elective 1 (choose one)		3-4
BIOL 347	Comparative Vertebrate Anatomy	
BIOL 359	Microbial Genetics and Pathogenesis - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 415	Biology of the Cell - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	

BIOL 435	Chemical Ecology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 480	Introduction to Immunology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 485	Microbial Physiology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 511	Behavioral Endocrinology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 512	Endocrinology	
BIOL 515	Environmental Physiology	
BIOL 542	Gene Structure and Function - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 552	Evolutionary Medicine	
BIOL 553	Chronic Disease Biology	
Biology elective		3-4
Humanities/Social Science/Biology WR course (300 level or above) ⁴		3
Hours		15-17
Year 4		
Fall		
BIOL 409	Evolutionary Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
BIOL 457	Microbiology	3
Biology MCD elective 2 (choose one)		3-4
BIOL 347	Comparative Vertebrate Anatomy	
BIOL 359	Microbial Genetics and Pathogenesis - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 415	Biology of the Cell - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 435	Chemical Ecology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 480	Introduction to Immunology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 485	Microbial Physiology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 511	Behavioral Endocrinology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 512	Endocrinology	
BIOL 515	Environmental Physiology	
BIOL 542	Gene Structure and Function - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 552	Evolutionary Medicine	
BIOL 553	Chronic Disease Biology	
Humanities/Social Science/Biology Elective (300 level or above)		3
General Education: Cardinal Core Historical Perspective – SBH ¹		3
Hours		15-16
Spring		
BIOL 443	Developmental Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
Biology MCD Elective 3 (choose one)		3-4
BIOL 347	Comparative Vertebrate Anatomy	

BIOL 359	Microbial Genetics and Pathogenesis - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 415	Biology of the Cell - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 435	Chemical Ecology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 480	Introduction to Immunology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 485	Microbial Physiology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 511	Behavioral Endocrinology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 512	Endocrinology	
BIOL 515	Environmental Physiology	
BIOL 542	Gene Structure and Function - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	
BIOL 552	Evolutionary Medicine	
BIOL 553	Chronic Disease Biology	
Humanities/Social Science/Biology Elective (300 level or above)		3-4
Humanities/Social Science/Biology WR Course (300 level or above) ⁴		3
General Education: Cardinal Core Social & Behavioral Sciences US Perspectives - SBP1 ¹		3
Hours		15-17
Minimum Total Hours		121-130

- ¹ Fulfills the requirement for one of two required Gen Ed courses. However, only one Gen Ed course from each program will be counted towards your degree.
- ² Students with high school language experience or multilingual backgrounds should consult the Classical and Modern Languages department for information on partially or completely satisfying the language requirements through testing.
- ³ This is a good time to think about performing undergraduate research. Look at faculty websites here and at the HSC, then email faculty whose research you find interesting. See if they have openings.
- ⁴ Biology WR courses that fit well in this track include: BIOL 359, BIOL 415, BIOL 416, BIOL 480, BIOL 485, BIOL 511, BIOL 541, and BIOL 542 but note that only some of these are offered in a given semester. BIOL 406 (undergraduate research) would be appropriate if you plan to do an honors project, and is also a good source of writing credit. You MUST have mentor approval.

Track in Ecology

Year 1		
Fall		
GEN 100 or GEN 101	Student Success Center First Year Experience or Arts & Sciences First Year Experience	1
BIOL 240	Unity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹	3
BIOL 241	Experimental Biology I: Molecules and Cells - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1

CHEM 201 & CHEM 207 & CHEM 208	General Chemistry I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Introduction to Chemical Analysis I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Introduction to Chemical Analysis II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹	5
MATH 205	Calculus I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
ENGL 101	Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
Hours		17
Spring		
BIOL 242	Diversity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹	3
BIOL 243	Experimental Biology II: Organismal Biology - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
CHEM 202 & CHEM 209	General Chemistry II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Introduction to Chemical Analysis III	4
ENGL 102	Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
General Education: Cardinal Core Social & Behavioral Sciences - SB (PSYC 201) ¹		3
General Education: Cardinal Core Arts & Humanities US Perspectives – AHP1 (300 level or above)		
Hours		14
Year 2		
Fall		
BIOL 329	Cellular and Molecular Biology	3
CHEM 341	Organic Chemistry I	3
CHEM 343	Organic Chemistry Laboratory I	2
Foreign Language 1 ²		4
General Education: Cardinal Core Oral Communication - OC (e.g., BIOL 203)		3
Hours		15
Spring		
BIOL 330	Genetics and Molecular Biology	3
BIOL 331	Genetics and Molecular Biology: Laboratory	2
PHYS 221	Fundamentals of Physics I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
PHYS 223	Fundamentals of Physics Lab I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
Foreign Language 2 ²		4
ENVS 363	Climate Science (or other Ecology supporting course)	3
Hours		16
Year 3		
Fall		
BIOL 363	Principles of Ecology	3
BIOL 372 or BIOL 440	Evolutionary Ecology of Disease or Global Change Ecology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
BIOL 300	Plant Biology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
ENVS 365	Biogeography	3
PHYS 222	Fundamentals of Physics II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3

PHYS 224	Fundamentals of Physics Laboratory II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
Hours		16
Spring		
BIOL 310	Animal Behavior	3
BIOL 350	Biostatistics	3
BIOL 457	Microbiology (or other Biology elective)	3
BIOL 458	Microbiology Laboratory (or other Biology elective)	1
BIOL 406	Undergraduate Research (WR) - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
Humanities/Social Science elective (300 level or above)		3
Hours		16
Year 4		
Fall		
BIOL 409	Evolutionary Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
BIOL 562	Ecosystems Ecology	3
BIOL 401	Advanced Ecology	3
BIOL 304	Plant Taxonomy & Ecology - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
General Education: Cardinal Core Arts & Humanities Global Perspectives – AHP2 ¹		3
Hours		15
Spring		
BIOL 563	Population and Community Ecology	3
BIOL 567	Conservation Biology	3
Humanities/Social Science elective (300 level or above)		3
General Education: Cardinal Core Historical Perspective US Perspectives – SBHP1 ¹		3
Hours		12
Minimum Total Hours		121

- ¹ Fulfills the requirement for one of two required Gen Ed courses. However, only one Gen Ed course from each program will be counted towards your degree.
- ² Students with high school language experience or multilingual backgrounds should consult the Classical and Modern Languages department for information on partially or completely satisfying the language requirements through testing.

Track in Biomedical Science

Year 1		
Fall		
GEN 100 or GEN 101	Student Success Center First Year Experience or Arts & Sciences First Year Experience	1
BIOL 240	Unity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
BIOL 241	Experimental Biology I: Molecules and Cells - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
CHEM 201	General Chemistry I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
CHEM 207	Introduction to Chemical Analysis I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
CHEM 208	Introduction to Chemical Analysis II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1

ENGL 101	Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
Foreign Language 1		3-4
Hours		16-17
Spring		
BIOL 242	Diversity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
BIOL 243	Experimental Biology II: Organismal Biology - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
CHEM 202	General Chemistry II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
CHEM 209	Introduction to Chemical Analysis III	1
MATH 205	Calculus I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	4
Foreign Language 2		3-4
Hours		15-16
Year 2		
Fall		
BIOL 329	Cellular and Molecular Biology	3
CHEM 341	Organic Chemistry I	3
CHEM 343	Organic Chemistry Laboratory I	2
ENGL 102	Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
General Education: Cardinal Core Oral Communication - OC 1		3
Hours		14
Spring		
BIOL 330	Genetics and Molecular Biology	3
BIOL 331	Genetics and Molecular Biology: Laboratory	2
CHEM 342	Organic Chemistry II	3
CHEM 344	Organic Chemistry Laboratory II	2
PHYS 221	Fundamentals of Physics I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
PHYS 223	Fundamentals of Physics Lab I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
General Education: Cardinal Core Arts & Humanities Global Perspectives - AHP2		3
Hours		17
Year 3		
Fall		
BIOL 372 or BIOL 440	Evolutionary Ecology of Disease or Global Change Ecology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
BIOL 540	Metabolic Biochemistry	3
BMS Lab Experience		1-4
PHYS 222	Fundamentals of Physics II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
PHYS 224	Fundamentals of Physics Laboratory II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	1
General Education: Cardinal Core Arts & Humanities -AH 1		3
Hours		14-17
Spring		
BIOL 465	Principles of Physiology	3
BIOL 350	Biostatistics	3
Biology BMS elective 1 (choose one)		3
BMS Non-Biology elective		3
Humanities/Social Science WR course (300 level or above)		3
Hours		15

Year 4**Fall**

BIOL 409	Evolutionary Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
BIOL 457	Microbiology	3
Biology BMS elective 2 (choose one)		3
Humanities/Social Science WR (300 level or above)		3
General Education: Cardinal Core Historical Perspective – SBH 1		3

Hours **15**

Spring

BIOL 443	Developmental Biology - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/)	3
Biology BMS Elective 3 (choose one)		3
BMS Non-Biology elective		3
BMS Non-Biology elective		3
General Education: Cardinal Core Social & Behavioral Sciences US Perspectives - SBP1		3

Hours **15**

Minimum Total Hours **121-126**

The Flight Plan outlined above is intended to demonstrate one possible path to completing the degree within four years. Course selection and placement within the program may vary depending on course offerings and schedule, elective preferences, and other factors (study abroad, internship availability, etc.). Please consult your advisor for additional information about building a flight plan that works for you.

Degree Audit Report

Degree Audit reports illustrate how your completed courses fulfill the requirements of your academic plan, and which requirements are still outstanding. Degree audits also take transfer credits and test credits into account. "What-if" reports allow you to compare the courses you have completed in your current academic plan to the courses required in another academic plan. Should you have questions about either report, please consult with your academic advisor.

Flight Planner

The Flight Planner tool is available for you to create a personalized Flight Plan to graduation. Advisors have access to review your Flight Planner and can help you adjust it to ensure you remain on track to graduate in a timely manner.

To create these reports:

1. Log into your ULink account.
2. Click on the Academic Progress tile.
3. Select the appropriate report.
 - a. To run a Degree Audit report, click on "View my Degree Audit."
 - b. To create a What-if report, click on "What-if Advisement Report."
 - c. To run a Flight Planner report, click on "Use My Flight Planner."

Click here to run a Degree Audit report, create a What-if report, or run a Flight Planner report. (<https://ulink.louisville.edu>)