

# Bachelor of Science in Applied Biological Sciences

## Applied Biological Sciences

A bachelor's degree in applied biological sciences offers students a strong background in genetics, microbiology, cell biology and biochemistry, as well as hands-on lab experience. Many students in this program continue on to pursue medical, dental or pharmacy school, or graduate work in the health sciences with high success rates.

The KU Edwards Applied Biological Sciences program is designed for undergraduate students who have already earned an associate's degree or equivalent hours and are looking to complete the last two years necessary for a bachelor's degree.

## Admission to KU

All students applying for admission must send high school and college transcripts to the Office of Admissions. Unless they are college transfer students with at least 24 hours of credit, prospective students must send ACT or SAT scores to the Office of Admissions. Prospective first-year students should be aware that KU has qualified admission requirements that all new first-year students must meet to be admitted. Consult the Office of Admissions (<http://admissions.ku.edu/>) for application deadlines and specific admission requirements.

Visit the International Support Services (<http://www.iss.ku.edu/>) for information about international admissions.

Students considering transferring to KU may see how their college-level course work will transfer on the Office of Admissions (<http://credittransfer.ku.edu/>) website.

## Applied Biological Sciences

### KU Edwards Campus

The undergraduate program in applied biological sciences is offered in its entirety only at the KU Edwards Campus (<http://edwardscampus.ku.edu/>), 12600 Quivira Rd., Overland Park, KS 66213. This program is designed for students who have earned an associate's degree or equivalent hours and wish to complete the upper-level courses necessary for a bachelor's degree.

## Requirements for the B.S. Degree in Applied Biological Sciences

The program offers students a strong background in genetics, microbiology, cell biology, and biochemistry, as well as laboratory skills in genetics and microbiology. Graduates have entered medical school, dental school, and graduate school with high success rates. Contact the Applied Biological Science academic success coach on the Edwards Campus for more information.

## General Education Requirements

In addition to degree and major requirements for all plans and subplans, all students must complete the KU Core.

Code	Title	Hours
<b>General Science Requirements</b>		
Majors must complete the following general science requirements that serve as foundational courses for this major.		
Chemistry I. Satisfied by one of the following:		5
CHEM 130	General Chemistry I	
CHEM 190 & CHEM 191	Foundations of Chemistry I, Honors and Foundations of Chemistry I Laboratory, Honors	
Chemistry II. Satisfied by one of the following:		5
CHEM 135	General Chemistry II	
CHEM 195 & CHEM 196	Foundations of Chemistry II, Honors and Foundations of Chemistry II Laboratory, Honors	
Organic Chemistry I. Satisfied by one of the following:		3
CHEM 330	Organic Chemistry I	
CHEM 380	Organic Chemistry I, Honors	
Organic Chemistry I Laboratory. Satisfied by:		
CHEM 331	Organic Chemistry I Laboratory	2
Organic Chemistry II. Satisfied by one of the following:		3
CHEM 335	Organic Chemistry II	
CHEM 385	Organic Chemistry II, Honors	
Calculus. Satisfied by one of the following:		4-6
MATH 115 & MATH 116	Calculus I and Calculus II	
MATH 125	Calculus I (Calculus I)	
Physics. Satisfied by one of the following:		8-9
Option 1: College Physics		
PHSX 114 & PHSX 115	College Physics I and College Physics II	
Option 2: General Physics		
PHSX 211 & PHSX 216	General Physics I and General Physics I Laboratory	
PHSX 212 & PHSX 236	General Physics II and General Physics II Laboratory	
Statistics. Satisfied by one of the following:		3-4
BIOL 570	Introduction to Biostatistics	
MATH 365	Elementary Statistics	
PSYC 210	Statistics in Psychological Research	
<b>Applied Biological Sciences Course Requirements</b>		
Molecular & Cellular Biology. Satisfied by:		
BIOL 150 or BIOL 151	Principles of Molecular and Cellular Biology Principles of Molecular and Cellular Biology, Honors	3
Principles of Organismal Biology. Satisfied by:		
BIOL 152 or BIOL 153	Principles of Organismal Biology Principles of Organismal Biology, Honors	3
BIOL 154	Introductory Biology Lab for STEM Majors	2
Principles of Genetics. Satisfied by:		
BSCI 350	Genetics	4
Fundamentals of Microbiology. Satisfied by:		
BSCI 400	Microbiology	3
Fundamentals of Microbiology Laboratory. Satisfied by:		
BSCI 401	Microbiology Laboratory	2
Laboratory in Genetics. Satisfied by:		

BSCI 351	Genetics Laboratory	3
Cell Structure & Function. Satisfied by:		
BSCI 416	Cell Structure and Function	3
Molecular Biology Laboratory. Satisfied by:		
BSCI 430	Molecular Biology Laboratory	3
Introductory Biochemistry. Satisfied by:		
BSCI 600	Biochemistry	3
Principles of Biochemistry Laboratory. Satisfied by:		
BSCI 601	Biochemistry Laboratory	2

**Senior Seminar in Applied Biological Sciences**

Satisfied by:

BSCI 599	Senior Seminar: _____	1
----------	-----------------------	---

**Applied Biological Sciences Required Electives**

Satisfied by completing 12 hours of BSCI courses numbered 400 or higher or BTEC 300, 310, 400, 475, 494, or 550, including at least 2 hours of a seminar/topics course. No more than 3 hours of BSCI 423 Non-Lab Independent Study and/or BSCI 424 Independent Study (combined) can be applied towards the elective requirement.

Seminar. Satisfied by completing at least 2 hours of the following seminar or topics courses:

BSCI 421	Topics in Applied Biological Sciences: _____	
----------	--	--

**Major Hours & Major GPA**

While completing all required courses, majors must also meet each of the following hour and grade-point average minimum standards:

**Major Hours**

Satisfied by 43-44 hours of major courses.

**Major Hours in Residence**

Satisfied by a minimum of 15 hours of KU resident credit in the major.

**Major Junior/Senior Hours**

Satisfied by a minimum of 12 hours from junior/senior courses (300+) in the major.

**Major Junior/Senior Graduation GPA**

Satisfied by a minimum of a 2.0 KU GPA in junior/senior courses (300+) in the major. GPA calculations include all junior/senior courses in the field of study including F's and repeated courses. See the Semester/Cumulative GPA Calculator (<http://clas.ku.edu/undergrad/tools/gpa/>).

Below is a sample 4-year plan for students pursuing the B.S. in Applied Biological Sciences. To view the list of courses approved to fulfill KU Core Goals, please visit the KU Core website (<http://kucore.ku.edu/courses/>).

This degree plan assumes students will have the equivalent of MATH 101 or MATH 104, or equivalent prior to the freshman year, fall semester.

The Applied Biological Sciences major is only available at the Edwards campus in Overland Park, KS. The Edwards Campus only offers Junior/Senior level courses (300+). Lower level courses (100-299) may need to be taken at the KU Lawrence campus or transferred in from another institution. Please consult an academic advisor for more assistance.

**Freshman**

Fall	Hours	Spring	Hours
BIOL 150 or 151 (Goal 3 Natural Science, Major Requirement) <sup>2</sup>	3	BIOL 152 or 153 (Goal 3 Natural Science, Major Requirement)	3

BIOL 154 (Major Requirement)	2	CHEM 135 (General Science Requirement)	5
CHEM 130 (Goal 1.2 Quantitative Literacy, General Science Requirement) <sup>1</sup>	5	MATH 115 (Goal 1.2 Quantitative Reasoning, General Science Requirement) <sup>1</sup>	3
Goal 2.1 Written Communication (First Course, 2 Crs Required)	3	Goal 2.1 Written Communication (Second Course, 2 Crs Required)	3
Goal 2.2 Communication	3		
<b>16</b>		<b>14</b>	

**Sophomore**

Fall	Hours	Spring	Hours
Goal 3 Arts and Humanities	3	Goal 4.1 US Diversity	3
MATH 116 (General Science Requirement) <sup>1</sup>	3	CHEM 335 (General Science Requirement) <sup>3</sup>	3
CHEM 330 (General Science Requirement)	3	BSCI 400	3
CHEM 331 (General Science Requirement)	2	BSCI 401	2
BSCI 350	4	BSCI 416	3
		Elective (Total Hours)	1
<b>15</b>		<b>15</b>	

**Junior**

Fall	Hours	Spring	Hours
Goal 3 Social Science	3	Goal 5 Social Responsibility and Ethics	3
PHSX 211 & PHSX 216 (or PHSX 114, Goal 1.1 Critical Thinking, General Science Requirement)	5	PHSX 212 & PHSX 236 (or PHSX 115; General Science Requirement)	4
BSCI 351	3	BSCI 600	3
BIOL 400+ (Major Requirement) <sup>7</sup>	3	BSCI 400+ (Major Requirement) <sup>7</sup>	3
Elective (Total Hours) (Elective hours vary depending on which PHSX is taken)	2-3	Elective (Total Hours)	3
<b>16-17</b>		<b>16</b>	

**Senior**

Fall	Hours	Spring	Hours
Goal 4.2 Global Awareness	3	BSCI 599	1
MATH 365, BIOL 570, or PSYC 210 (General Science Requirement) <sup>3</sup>	3-4	BSCI 430	3
BIOL 400+ (Major Requirement) <sup>7</sup>	1	BSCI 400+ (Major Requirement) <sup>7</sup>	3
BIOL 601 (Major Requirement) <sup>4</sup>	2	Elective (300+, if needed) (Total Hours)	3
BIOL 419, 420, or 701 (Major Requirement) <sup>7</sup>	2	Elective (Total Hours)	2
Elective (Total Hours)	3	Elective (Total Hours)	3
<b>14-15</b>		<b>15</b>	

**Total Hours 121-123**

- <sup>1</sup> Requires MATH ACT scores of 26+, a comparable SAT or KU Math Placement Exam score, or credit for a MATH 101 or MATH 104 equivalent course. MATH 125 can be taken instead of MATH 115 and MATH 116 to fulfill the B.S. Molecular Biosciences math requirement.
- <sup>2</sup> Concurrent or prior enrollment in CHEM 130 is required.
- <sup>3</sup> CHEM 335 is offered only in the spring and summer (Lawrence campus). BIOL 570 is offered only in the fall (Lawrence campus).
- <sup>4</sup> BSCI 350, BSCI 351, and BSCI 601 are offered only on the Edwards campus in the fall.
- <sup>5</sup> BSCI 400, BSCI 401, and BSCI 600 are offered on the Edwards campus in both spring and summer semesters.
- <sup>6</sup> BSCI 416, BSCI 430, and BSCI 599 are offered on the Edwards campus only in the spring.
- <sup>7</sup> Twelve hours of BSCI/BIOL 400+ level elective and seminar courses, including at least 2 hours of seminar/topics course. No more than 3 hours of independent study can be applied towards the elective requirements.

**Please note:**

All students are required to complete 120 total hours of which 45 hours must be at the Jr/Sr (300+) level.

The same course cannot be used to fulfill more than one KU Core Goal. However, overlap of a KU Core course with a major or degree-specific requirement is allowed. Overlapping is recommended to allow more opportunities to explore other majors and/or minors.

## Study Abroad

Consult an advisor at least 4 months before undertaking study abroad. Consult the Office of Study Abroad (<http://www.studyabroad.ku.edu/>), 108 Lippincott Hall, for information about study in one of the many countries (e.g., Scotland, Australia, Switzerland) with special arrangements with KU.