

B.S. in Applied Biology

The BS in Applied Biology provides students with foundational knowledge across the biological sciences, while also allowing them the freedom to design their upper-level coursework to suit their particular interests in a diversity of career paths. The dynamic nature of this program, with 20 hours of open electives, encourages students to explore possible concentrations such as health, ecological, wildlife, and environmental sciences, especially as they relate to our core niche in aerospace and aviation. Students are encouraged to explore minors in uncrewed aerial systems, psychology, accounting, cyber intelligence and security, mechanical engineering or finance.

Students will:

- Apply mathematics, physics, chemistry, and basic biological sciences including genetics, microbiology, anatomy, physiology, and ecology at a foundational level.
- Demonstrate topic mastery of core concepts in biological sciences.
- Analyze the historical context of biological discoveries and assess biology's role in modern society.
- Apply modern biological techniques to critically evaluate and synthesize information in biological sciences.
- Demonstrate in-depth knowledge in a specific area of expertise.
- Refine career-related or post-graduate goals through internships or capstone experiences.

Degree Requirements

Students in the AB program take 120 credit hours of coursework that includes a solid foundation in mathematics, physics, chemistry, and the basic biological sciences such as genetics, microbiology, anatomy and physiology, and ecology. One thing that sets our biology degree programs apart from those at other universities is that we offer a lab – equipped with professional-grade scientific equipment with nearly every course, which means students will graduate with not only theoretical knowledge and critical thinking skills, but also with the ability to practice science in the lab, field, or examination room. Students will also be required to complete a capstone experience, which will allow them to build their resumes and experience working in biology outside of the traditional classroom.

Students are expected to earn a C grade or better in core biology and chemistry courses before moving on to subsequent courses.

Program Requirements

General Education

Embry-Riddle degree programs require students to complete a minimum of 36 hours of General Education coursework. For a full description of Embry-Riddle General Education guidelines, please see the General Education section of this catalog.

Students may choose other classes outside of their requirements, but doing so can result in the student having to complete more than the degree's 120 credit hours. This will result in additional **time and cost** to the student.

Communication Theory and Skills	9
Computer Science/Information Technology	3
Mathematics	6
Physical and Life Sciences (Natural Sciences)	6
Humanities and Social Sciences	12
3 hours of Lower-Level Humanities	
3 hours of Lower-Level Social Science	
3 hours of Lower-Level or Upper-Level Humanities or Social Science	

3 hours of Upper-Level Humanities or Social Science

Total Credits **36**

Applied Biology Core (63 credits)

The following course of study outlines the quickest and most cost-efficient route for students to earn their B.S. in Applied Biology. Students are encouraged to follow the course of study to ensure they complete all program required courses and their prerequisites within four years.

Courses in the core with a # will satisfy your general education requirements.

BIO 120 & 120L	Foundations of Biology I and Foundations of Biology I Laboratory	4
BIO 121 & 121L	Foundations of Biology II and Foundations of Biology II Lab	4
BIO 215 & 215L	Genetics and Genetics Laboratory	4
BIO 309 & 309L	Principles of Ecology and Principles of Ecology Lab	4
CHM 110 & 110L	General Chemistry I and General Chemistry I Laboratory	4
CHM 111 & 111L	General Chemistry II and General Chemistry II Laboratory	4
COM 122	English Composition #	3
	General Education - Communications Elective #	6
	General Education - Computer Science/Information Technology Elective #	3
	General Education - Humanities Lower-Level Elective #	3
	General Education - Social Science Lower-Level Elective #	3
HU 330	Values and Ethics #	3
MA 222	Business Statistics #	3
MA 241	Calculus and Analytical Geometry I #	4
PS 113 & 113L	Introductory Physics I and Introductory Physics I Laboratory ***#	4
PS 117 & 117L	Introductory Physics II and Introductory Physics II Lab #	4
PSY 101 or SS 210	Introduction to Psychology #	3
	Introduction to Sociology	

Designated Electives (37 credits)

Choose a total of 37 credits from the list of courses below:

BIO 216 & 216L	Microbiology and Microbiology Laboratory	4
BIO 220	Wildlife Management	3
BIO 245 & 245L	Natural History of the Region and Natural History of the Region Laboratory	4
BIO 302 & 302L	Instrumental Analysis and Trace Evidence and Instrumental Analysis and Trace Evidence Lab	4
BIO 305 & 305L	Human Anatomy and Physiology I and Human Anatomy & Physiology Laboratory	4
BIO 306 & 306L	Human Anatomy and Physiology II and Human Anatomy and Physiology II Laboratory	4
BIO 312	Plant Identification	3
BIO 313	Riparian Ecology	3
BIO 315 & 315L	Ornithology and Ornithology Lab	4
BIO 318	Mammalogy	4
BIO 330	Environmental Consulting	3
BIO 403	Wildlife and Airports	3

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BIO 405 & 405L	Molecular and Cell Biology and Molecular and Cell Biology Laboratory	4
BIO 406 & 406L	Forensic DNA Analysis and Forensic DNA Analysis Laboratory	4
BIO 420	Wildlife Management Techniques	3
BIO 444	Immunology	3
BIO 490	Senior Seminar	3
CHM 210 & 210L	Organic Chemistry I and Organic Chemistry I Laboratory	4
CHM 211 & 211L	Organic Chemistry II and Organic Chemistry II Laboratory	4
CHM 310 & 310L	Biochemistry and Biochemistry Laboratory	4
GEO 210	Introduction to Geographic Information Systems	3
GEO 310	Advanced Geographic Information Systems	3

Open Electives (20 Credits)

Open Electives	20
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Total Credits	120
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* Offered in Fall Only

** Offered in Spring Only

General Education Courses

All Army ROTC students are required to complete SS 321 - U.S. Military History 1900-Present (3 credits) in order to commission.

Applied Biology - General

Freshman Year

Fall		Credits
BIO 120 & 120L	Foundations of Biology I	4
CHM 110 & 110L	General Chemistry I	4
COM 122	English Composition	3
	Open Elective	3
UNIV 101	College Success	(1)
	Credits Subtotal	14.0

Spring

BIO 121 & 121L	Foundations of Biology II	4
CHM 111 & 111L	General Chemistry II	4
	Humanities Lower-Level Elective	3
MA 241	Calculus and Analytical Geometry I	4
	Credits Subtotal	15.0

Sophomore Year

Fall		Credits
BIO 215 & 215L	Genetics	4
BIO 309 & 309L	Principles of Ecology	4
MA 222	Business Statistics	3
	Social Science Lower-Level Elective	3
	Credits Subtotal	14.0

Spring

	Designated Electives	4
	Communication Elective	3
	Computer Science/Information Technology Elective	3

PSY 101 or SS 210	Introduction to Psychology Introduction to Sociology	3
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Credits Subtotal	13.0
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Junior Year

Fall		Credits
	Designated Electives	4
	Communication Elective	3
	Open Electives	6
PS 113 & 113L	Introductory Physics I	4

Credits Subtotal	17.0
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Spring

	Designated Electives	12
PS 117 & 117L	Introductory Physics II	4

Credits Subtotal	16.0
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Senior Year

Fall		Credits
	Designated Electives	11
	Open Electives	5

Credits Subtotal	16.0
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Spring

	Designated Electives	6
HU 330	Values and Ethics	3
	Open Electives	6

Credits Subtotal	15.0
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Credits Total:	120.0
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