

HUMAN BIOLOGY, B.S.

As of Fall 2022, this degree program is in teach-out phase, it is not open to new or readmit students. The program has been renamed Health Sciences, B.S. For more information on the renamed degree program, see the Health Sciences, B.S. program page (<https://catalog.biola.edu/ssth/BIHS-bs/>).

Mission

The mission of the Bachelor of Science in Human Biology (<https://www.biola.edu/degrees/u/health-sciences-bs/>) is to provide an academically stimulating and challenging environment for intellectual and spiritual growth, preparing students to pursue careers and advanced degrees in health related fields.

Degree Program

A Bachelor of Science degree in Human Biology is offered upon completion of the University baccalaureate and major requirements. The major offers two different concentrations: Pre-Chiropractic and Pre-Health Care Professional.

Learning Outcomes

Program Learning Outcomes

Upon completion of the Bachelor of Science in Human Biology, students will be able to:

1. Apply the scientific method in research (ULO 3).
2. Explain the biomolecular basis of life at the cellular level (ULO 1).
3. Distinguish the unique and integrated function of human organs and body systems (ULO 1).
4. Integrate faith and scientific knowledge to practice science with integrity, steward creation, and articulate the merit of their worldview (ULO 2).

Each Program Learning Outcome (PLO) listed above references at least one of the University Learning Outcomes (ULO 1, 2, 3), which may be found in the General Information section (<https://catalog.biola.edu/general-information/#UniversityLearningOutcomes>) of this catalog.

Admission Recommendations

Admission Recommendations

Recommended high school courses are: one year of biology, one year of chemistry, three years of mathematics, and two years of foreign language. One year of physics is desirable. The student should be aware that Advanced Placement (AP) science courses may not be used to fulfill science requirements for this degree.

Program Requirements

Graduate/Professional School Requirements

The student should be aware that most graduate programs and many professional schools require an overall minimum GPA of 3.0 and that a grade of "C" or better was earned for all science courses and they will not accept Advanced Placement science credit to fulfill the entrance requirements.

Curriculum Requirements Concentrations

The Human Biology major offers a concentration in Pre-Health Care Professional and one in Pre-Chiropractic.

Pre-Chiropractic (75-76 Credits)

A Bachelor of Science degree in Human Biology with a concentration in Pre-Chiropractic is offered in cooperation with the Southern California University of Health Sciences (SCUHS). Students attend Biola for three years taking courses in biology, chemistry, physics, biblical studies and the liberal arts. The upper-division biology courses are taken at Los Angeles College of Chiropractic (LACC) at SCUHS. Upon successful completion of the required courses at Biola and SCUHS, the student receives a B.S. degree with a major in Human Biology from Biola. Upon successful completion of the entire chiropractic program the student receives the D.C. degree from the Southern California University of Health Sciences' Los Angeles College of Chiropractic (LACC).

The student should be aware that LACC has a minimum GPA requirement of 2.5, and that all transfer courses must be completed with a "C" grade (2.0 on a 4.0 scale) or higher. A course in ethics before application to LACC is strongly recommended. The following courses do not count as supporting science or major electives: BIOS 100, BIOS 105, BIOS 110, BIOS 120, BIOS 130.

The upper-division biology course requirements to be taken at LACC are General Anatomy I, General Histology, General Anatomy II, Neuroscience, Systemic Histology, Systemic Physiology and Micro/Immunology.

The minimum required pre-chiropractic courses taken at Biola are:

Code	Title	Credits
Program-Specific Core Curriculum Courses		
Human Biology majors automatically meet the Core Curriculum requirement of 6 credits of science and mathematics. The foreign language requirement is met by two years in high school or the first 4 credits in college.		
Students in the Pre-Chiropractic Human Biology program sequence are exempt from Core Curriculum requirements in literature, World Civilization, and the last semester Biola residency requirement.		
PHIL 215 is strongly recommended for all Human Biology majors.		
Program Courses		
Students in the Pre-Chiropractic program must take at least 8 credits of upper-division science at Biola to meet the graduation requirements. These credits must include CHEM 301/CHEM 311 Organic Chemistry I and Lab, or CHEM 321/322 Basic Organic and Biochemistry and Lab. The remaining 4 credits can be either CHEM 302/CHEM 312 Organic Chemistry II and Lab or upper-division Biological Sciences courses. If Organic Chemistry is transferred into Biola, the student must take 8 credits of upper-division Biological Sciences courses to meet the graduation requirements.		
BIOS 111	Fundamentals of Cellular and Molecular Biology	3
BIOS 113	Fundamentals of Cellular and Molecular Biology Laboratory	1

BIOS 112	Fundamentals of Organismal Biology	3
BIOS 114	Fundamentals of Organismal Biology Laboratory	1
BIOS 200	Sophomore Writing Seminar	1
BIOS 254	Human Anatomy	4
CHEM 105	General Chemistry I	4
CHEM 106	General Chemistry II	4
Select one of the following:		4
CHEM 301 & CHEM 311	Organic Chemistry I and Laboratory in Organic Chemistry I	
CHEM 321 & CHEM 322	Basic Organic and Biochemistry and Basic Organic and Biochemistry Lab	
PHSC 111	Physics I	3
PHSC 117	Physics I Laboratory	1
PHSC 112	Physics II	3
PHSC 118	Physics II Laboratory	1
PSYC 200	Introduction to Psychology	3
BIOS 281	Physiology	4
or BIOS 282	Microbiology	
or BIOS 381	Advanced Physiology	
Select one of the following:		3-4
MATH 125	Precalculus Mathematics	
MATH 150	Calculus I	
MATH 210	Introduction to Probability and Statistics	
MATH 318	Biostatistics	
Select one of the following:		4
Select 4 credits of upper-division Biological science courses OR		
CHEM 302 & CHEM 312	Organic Chemistry II and Laboratory in Organic Chemistry II	
Biola Credits		47-48
Additional Credits at LACC counted towards the B.S. degree		28
Total Credits		75-76

Pre-Health Care Professional (68 Credits)

A Bachelor of Science degree in Human Biology for Pre-Health Care Professional careers, especially Pre-Physical Therapy and Pre-Physician's Assistant is offered upon the completion of the University baccalaureate and major requirements as follows:

Code	Title	Credits
Program Courses		
BIOS 111	Fundamentals of Cellular and Molecular Biology	3
BIOS 113	Fundamentals of Cellular and Molecular Biology Laboratory	1
BIOS 112	Fundamentals of Organismal Biology	3
BIOS 114	Fundamentals of Organismal Biology Laboratory	1

BIOS 200	Sophomore Writing Seminar	1
BIOS 254	Human Anatomy	4
BIOS 281	Physiology	4
or BIOS 381	Advanced Physiology	
BIOS 308	Biochemistry	3
BIOS 311	Neurobiology	3
BIOS 312	Cell and Molecular Biology	3
BIOS 322	Laboratory in Cell and Molecular Biology	1
BIOS 355	Environmental Health: An Ecological Perspective	4
PSYC 200	Introduction to Psychology ¹	3
PSYC 309	Introduction to Psychopathology	3
or PSYC 320	Developmental Psychology: Lifespan	
Supporting Science courses ²		
CHEM 105	General Chemistry I	4
CHEM 106	General Chemistry II	4
CHEM 301	Organic Chemistry I	3
CHEM 311	Laboratory in Organic Chemistry I	1
MATH 210	Introduction to Probability and Statistics	3
or MATH 318	Biostatistics	
PHSC 111	Physics I	3
PHSC 117	Physics I Laboratory	1
Select 12 credits from the following (9 credits of BIOS upper-division, 3 credits of BIOS/KNES/PSYC)		12
BIOS 282	Microbiology	
BIOS 302	Vertebrate Biology	
BIOS 310	Prosection	
BIOS 315	Nutrition and Metabolism	
BIOS 316	Nutrition and Metabolism Lab	
BIOS 332	Genetics	
BIOS 380	Advanced Microbiology	
BIOS 402	Parasitology	
BIOS 431	Developmental Biology	
BIOS 440	Topics in Advanced Biology	
BIOS 445	Immunology	
BIOS 455	General Virology	
BIOS 460	Clinical Observation Practicum	
BIOS 480	Internship	
BIOS 490	Directed Research (formerly BIOS 450)	
KNES 301	Kinesiology	
KNES 302	Exercise Physiology	
PSYC 309	Introduction to Psychopathology	
PSYC 320	Developmental Psychology: Lifespan	
PSYC 325	Developmental Psychology: Childhood and Adolescence	
PSYC 355	Psychology of Family	
Total Credits		68

¹ Fulfills Core Curriculum Behavioral Science requirement.

² The following courses do not count as supporting science or major electives: BIOS 100, BIOS 105, BIOS 110, BIOS 120, BIOS 130.

Course Sequence

NOTE: The course sequence table is designed by the major department and is one way that the classes will work out properly in sequence for your major. However, there are alternative or flexible ways to rotate some of the classes within the same year/level and sometimes between year levels. Please contact your major department advisor to discuss flexible alternatives in scheduling the sequence of your classes.

Taking coursework during the summer session may also be an option to accelerate your degree path.

See Core Curriculum Program section (<https://catalog.biola.edu/academic-policies/undergraduate-core-curriculum-program/>) for a list of approved Core Curriculum courses.

- Pre-Chiropractic (p. 3)
- Pre-Health Care Professional (p. 3)

Human Biology, B.S. Pre-Chiropractic (BIHC)

First Year		
Fall	Credits Spring	Credits
BBST 103 or 165	3 BBST 103 or 165	3
BIOS 112	3 BIOS 111	3
BIOS 114	1 BIOS 113	1
CHEM 105	4 CHEM 106	4
ENGL 100 or 112	3 Communication (see Core Curriculum)	3
GNST 102	1	
KNES 107	1	
16		14

Total Credits 30

Second Year		
Fall	Credits Spring	Credits
BBST 209 or 210	3 BBST 209 or 210	3
BBST 251	3 BBST 354	3
BIOS 200	1 BIOS 300/400 or CHEM 302 & 312	4
BIOS 254	4 MATH 125, 150, 210, or 318	3-4
CHEM 301	3 PHIL 215 (strongly recommended)	3
CHEM 311	1 KNES Activity	1
PSYC 200 (required)	3	
18		17-18

Total Credits 35-36

Third Year		
Fall	Credits Spring	Credits
BBST 300/400 Bible Elective	3 BBST 306, 316, 326, or 336	3
BBST 365	3 BBST 465	3
BIOS 281, 282, or 381	4 HIST 200, 201, or POSC 225	3
ENGL 313	3 PHSC 112	3
PHSC 111	3 PHSC 118	1
PHSC 117	1 Fine Arts (see Core Curriculum)	3

Writing Competency Requirement	Graduation Petition due in Registrar's Office	
		17
		16

Total Credits 33

Fourth Year		
Fall	Credits Spring	Credits
Coursework taken at Los Angeles Chiropractic College (Southern California University of Health Sciences)		See Catalog for details
		0

Total Credits 0

Human Biology, B.S. Pre-Health Care Professional (BIHH)

First Year		
Fall	Credits Spring	Credits
BBST 103 or 165	3 BBST 103 or 165	3
BIOS 112	3 BIOS 111	3
BIOS 114	1 BIOS 113	1
CHEM 105	4 CHEM 106	4
ENGL 100 or 112	3 PSYC 200 (required)	3
GNST 102	1 KNES Activity (see Core Curriculum)	1
KNES 107	1	
16		15

Total Credits 31

Second Year		
Fall	Credits Spring	Credits
BBST 209 or 210	3 BBST 209 or 210	3
BBST 251	3 BIOS 200	1
BIOS 254	4 BIOS 281 or 381	4
CHEM 301 & CHEM 311	4 BIOS 308	3
MATH 210 or 318	3 PHIL 215 (strongly recommended)	3
		Literature (see Core Curriculum)
17		17

Total Credits 34

Third Year		
Fall	Credits Spring	Credits
BBST 365	3 BBST 354	3
BIOS 311	3 BIOS 312	3
ENGL 313	3 BIOS 322	1
PHSC 111	3 BIOS Elective (upper-division)	3
PHSC 117	1 Elective (BIOS/KNES/PSYC)	3
PSYC 309 or 320	3 Communication (see Core Curriculum)	3
Writing Competency Requirement	Graduation Petition due in Registrar's Office	
16		16

Total Credits 32

Fourth Year		
Fall	Credits Spring	Credits
BBST 300/400 Bible Elective	3 BBST 465	3
BIOS 355	4 BBST 306, 316, 326, or 336	3
BIOS Elective (upper-division)	3 BIOS Elective (upper-division)	3

HIST 200, 201, or POSC 225	3 Fine Arts (see Core Curriculum)	3
	13	12

Total Credits 25

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NOTE: The course sequence table is designed by the major department and is one way that the classes will work out properly in sequence for your major. However, there are alternative or flexible ways to rotate some of the classes within the same year/level and sometimes between year levels. Please contact your major department advisor to discuss flexible alternatives in scheduling the sequence of your classes.

Taking coursework during the summer session may also be an option to accelerate your degree path.

See Core Curriculum Program section (<https://catalog.biola.edu/academic-policies/undergraduate-core-curriculum-program/>) for a list of approved Core Curriculum courses.

- Pre-Chiropractic (p. 4)
- Pre-Health Care Professional (p. 4)

Human Biology, B.S. Pre-Chiropractic (BIHC)

For students who enroll in more than 18 semester credits, please note the additional cost per credit in the catalog's Financial Information section (<https://catalog.biola.edu/financial-information/tuition-information/>).

First Year		
Fall	Credits Spring	Credits
HNRS 101	4 HNRS 105	4
HNRS 102	4 HNRS 106	4
BIOS 112	3 BIOS 111	3
BIOS 114	1 BIOS 113	1
CHEM 105	4 CHEM 106	4
GNST 102	1 KNES 107	1
	17	17

Second Year		
Fall	Credits Spring	Credits
HNRS 210	4 HNRS 230	4
HNRS 215	4 HNRS 231	4
BIOS 200	1 BIOS/CHEM Elective (upper-division)	4
BIOS 281, 282, or 381	4 BIOS 254	4
CHEM 301	3 ENGL 313	3
CHEM 311	1	
KNES Activity (see Core Curriculum)	1	
	18	19

Third Year		
Fall	Credits Spring	Credits
HNRS 324	4 HNRS 337	4
HNRS 326	2 HNRS 339	2
HNRS 443	4 HNRS 458	4
PHSC 111	3 PHSC 112	3
PHSC 117	1 PHSC 118	1
BBST 465	3 MATH 125, 150, 210, or 318	3
	PSYC 200	3
	17	20

Fourth Year		
Fall	Credits Spring	Credits
Coursework taken at Los Angeles Chiropractic College (Southern California University of Health Sciences)	14 Coursework taken at Los Angeles Chiropractic College (Southern California University of Health Sciences)	14
	14	14
Total Credits 136		

Note: If you have taken 2 years of the same language in high school, you have fulfilled your foreign language requirement. Otherwise, contact the Modern Language Department for placement test instructions.

Human Biology, B.S. Pre-Health Care Professional (BIHH)

First Year		
Fall	Credits Spring	Credits
HNRS 101	4 HNRS 105	4
HNRS 102	4 HNRS 106	4
BIOS 112	3 BIOS 111	3
BIOS 114	1 BIOS 113	1
CHEM 105	4 CHEM 106	4
GNST 102	1 KNES 107	1
	17	17

Second Year		
Fall	Credits Spring	Credits
HNRS 210	4 HNRS 230	4
HNRS 215	4 HNRS 231	4
BIOS 200	1 BIOS 308	3
BIOS 281 or 381	4 BIOS 254	4
CHEM 301	3 KNES Activity (see Core Curriculum)	1
CHEM 311	1	
	17	16

Third Year		
Fall	Credits Spring	Credits
HNRS 324	4 HNRS 337	4
HNRS 326	2 HNRS 339	2
BIOS 311	3 BIOS 312	3
BIOS Elective	3 BIOS 322	1
PHSC 111	3 MATH 210 or 318	3
PHSC 117	1 PSYC 200	3
	16	16

Fourth Year		
Fall	Credits Spring	Credits
HNRS 443	4 HNRS 458	4
BIOS 355	4 BIOS Elective	3
BIOS Elective	3 BIOS/KNES/PSYC Elective	3
ENGL 313	3 PSYC 309 or 320	3
	BBST 465	3
	14	16
Total Credits 129		

Note: If you have taken 2 years of the same language in high school, you have fulfilled your foreign language requirement. Otherwise, contact the Modern Language Department for placement test instructions.