HUMAN BIOLOGY, BACHELOR OF SCIENCE

College of Biological Sciences

Frédéric Chédin, Ph.D., Professor, Chairperson of the Department of Molecular & Cellular Biology; term ends June 30, 2026
W. Martin Usrey, Ph.D., Chairperson of the Department Neurobiology, Physiology, & Behavior

149 Briggs Hall; 530-752-3611; Molecular & Cellular Biology (http://www.mcb.ucdavis.edu)
196 Briggs Hall; 530-752-0203; Neurobiology, Physiology & Behavior (https://npb.ucdavis.edu/)

The Human Biology major provides students with a broad biological understanding of our species, from molecules, genes, and cells to tissues, organ systems and organism/environment interactions. The curriculum includes classes on the basic principles that help us understand normal human physiology, human health, and the molecular basis of disease.

The Program

In the freshman and sophomore years, students majoring in Human Biology build a broad scientific background, taking courses in chemistry, biology, physics, and mathematics. As juniors or seniors, students can enroll in a variety of courses focused on biological processes and diseases that affect humans.

Career Alternatives

The Human Biology major provides fundamental knowledge needed for a broad range of careers, including those in the areas of healthcare, biotechnology, public health, public policy, and education, and for advanced study in health-related disciplines, including medicine, dentistry, nursing, physical therapy, and pharmacy.

Faculty

Faculty includes all members of the Departments of Neurobiology, Physiology, & Behavior, Molecular & Cellular Biology, Evolution & Ecology, Microbiology & Molecular Genetics, and Plant Biology in the College of Biological Sciences.

Faculty Advisors

Mona Monfared, Ph.D.; Alex Nord, Ph.D.

Advising

Biology Academic Success Center (BASC) (https://basc.biology.ucdavis.edu/) in 1023 Katherine Esau Science Hall (formerly Sciences Laboratory Building); 530-752-0410.

The major requirements below are in addition to meeting University Degree Requirements (https://catalog.ucdavis.edu/undergraduate-education/university-degree-requirements/) & College Degree Requirements (https://catalog.ucdavis.edu/undergraduate-education/college-degree-requirements/); unless otherwise noted. The minimum number of units required for the Human Biology Bachelor of Science is 96.

Code	Title	Units
Preparatory Subject Matter		
Biological Science		*15*
BIS 002A & BIS 002B & BIS 002C	Introduction to Biology: Essentials of Life on Earth and Introduction to Biology: Principles of Ecology & Evolution and Introduction to Biology: Biodiversity & the Tree of Life	
Chemistry		
Choose CHE 002 or CHE 004 series: [1]		15
CHE 002A & CHE 002B & CHE 002C	General Chemistry and General Chemistry and General Chemistry	
OR		
CHE 004A & CHE 004B & CHE 004C	General Chemistry for the Physical Sciences & Engineering and General Chemistry for the Physical Sciences & Engineering and General Chemistry for the Physical Sciences & Engineering	
Choose CHE 008 or CHE 118 series: [2]		6-12
CHE 008A & CHE 008B	Organic Chemistry: Brief Course and Organic Chemistry: Brief Course	
OR		
CHE 118A & CHE 118B & CHE 118C	Organic Chemistry for Health & Life Sciences and Organic Chemistry for Health & Life Sciences and Organic Chemistry for Health & Life Sciences	
Mathematics		
Choose MAT 017 or MAT 021 series: [3]		8-12
MAT 017A & MAT 017B & MAT 017C	Calculus for Biology & Medicine and Calculus for Biology & Medicine and Calculus for Biology & Medicine	
OR		
MAT 021A & MAT 021B & MAT 021C	Calculus and Calculus and Calculus (Recommended)	
Physics		*12*
PHY 007A & PHY 007B & PHY 007C	General Physics and General Physics and General Physics	
Preparatory Subject Matter Subtotal		56-66
Depth Subject Matter		
Biological Science		
BIS 101	Genes & Gene Expression	4
or BIS 101V	Genes & Gene Expression	
BIS 104	Cell Biology	3
BIS 105	Biomolecules & Metabolism	3-6
or BIS 102 & BIS 103	Structure & Function of Biomolecules and Bioenergetics & Metabolism	
Statistics		
STA 100	Applied Statistics for Biological Sciences	4
Choose one:		3-4
EVE 100	Introduction to Evolution	
EVE 131	Human Genetic Variation & Evolution	
MCB 162	Human Genetics & Genomics	

Microbiology		
MIC 102	Introductory Microbiology	3
Neurobiology, Physiology, & Behavior		
NPB 101	Systemic Physiology	5
Depth Subject Matter Subtotal		25-29
Restricted Electives		
Courses meeting this requirement must come from at least two of the following categories; any cross-listed courses taken will count for only one category; must include at least one approved lab course.		15-19
Genetics, Genomics, & Development (p. 2)		
Physiology & Neurobiology (p. 2)		
Origins of Disease & Human Health (p. 2)		
Restricted Electives Subtotal		15-19
Total Units		**96-114**

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With BASC advisor approval, these combinations also satisfy the Chemistry requirement: CHE 004A-CHE 002A (3 units w/no lab)-CHE 002B-CHE 002C; CHE 004A, CHE 004B-CHE 002C.

2

With BASC advisor approval, this combination also satisfies the Organic Chemistry requirement: CHE 118A-CHE 008B.

3

With BASC advisor approval, this combination also satisfies the Mathematics requirement: MAT 021A-MAT 017B-MAT 017C; MAT 017A-MAT 021B.

Genetics, Genomics, & Development

Code	Title	Units
ANT 153	Human Genetics: Mutation & Migration	5
BIS 181	Comparative Genomics	3
BIS 183	Functional Genomics	3
EVE 102	Population & Quantitative Genetics	4
EVE 131	Human Genetic Variation & Evolution	3
MCB 121	Advanced Molecular Biology	3
MCB 144	Mechanisms of Cell Division	3
MCB 150	Developmental Biology	4
MCB 162	Human Genetics & Genomics	3
MCB 163	Developmental Genetics	3
MCB 164	(Discontinued)	3
MCB 182	Principles of Genomics	3
MIC 150	(Discontinued)	3
NPB 122	Developmental Endocrinology	3
NPB 132	Nature vs. Nurture: Physiological Interactions Among Genes, Nutrients & Health	3
NPB 133	Genes & the Brain	4
NPB 161	Developmental Neurobiology	3
Approved Laboratory Courses:		
MIC 103L	Introductory Microbiology Laboratory [1]	
MCB 160L	Principles of Genetics Laboratory	
EVE 105	Phylogenetic Analysis of Vertebrate Structure	

1

MIC 103L will be discontinued; This course will be offered under MMG 103L.

Physiology & Neurobiology

Code	Title	Units
EXB 101	Exercise Physiology	4
EXB 106/CHA 101	Human Gross Anatomy	4
EXB 106L/CHA 101L	Human Gross Anatomy Laboratory	3
EXB 110	Exercise Metabolism	3
EXB 124	Physiology of Maximal Human Performance	4
NPB 100	Neurobiology	4
NPB 107	Cell Signaling in Health & Disease	3
NPB 109	Kinesiology: Analysis & Control of Human Movement	4
NPB 113	Cardiovascular, Respiratory, & Renal Physiology	4
NPB 114	Gastrointestinal Physiology	3
NPB 122	Developmental Endocrinology	3
NPB 130	Physiology of the Endocrine Glands	4
NPB 132	Nature vs. Nurture: Physiological Interactions Among Genes, Nutrients & Health	3
NPB 133	Genes & the Brain	4
NPB 134	General Immunology for Physiologists	3
NPB 140	Principles of Environmental Physiology	3
NPB 152/PSC 123	Hormones & Behavior	3
NPB/HPH 157	Advanced Physiology of Animal/Human Disease	3
NPB 161	Developmental Neurobiology	3
NPB 163	Systems Neuroscience	4
NPB 164	Mammalian Vision	4
NPB 165	Neurobiology of Speech Perception	3
NPB 167	Computational Neuroscience	5
NPB 168	Neurobiology of Addictive Drugs	4
NPB 171	Physiology of Neuroimmune Interactions	4
NPB 172	Map Formation in the Brain	3
NPB 173	Neurobiology of Brain Disorders	3
Approved Laboratory Courses:		
EVE 105	Phylogenetic Analysis of Vertebrate Structure	
NPB 100L	Neurobiology Laboratory	
NPB 101L	Systemic Physiology Laboratory	

Origins of Disease & Human Health

Code	Title	Units
EVE 161	Microbial Phylogenomics; Genomic Perspectives on the Diversity & Diversification of Microbes	3
EXB 101	Exercise Physiology	4

EXB 106	Human Gross Anatomy	4
EXB 106L	Human Gross Anatomy Laboratory	3
EXB 110	Exercise Metabolism	3
EXB 124	Physiology of Maximal Human Performance	4
MIC 150	(Discontinued)	3
MMG 111	Human Microbiology	3
or MIC 111 DISCON		
MMG 162	General Virology	3
or MIC 162 DISCONTINUED		
MMG 172	Host-Parasite Interactions	3
or MIC 172 DISCON		
MMG 175	Cancer Biology	3
or MIC 175 DISCONTINUED		
NPB 107	Cell Signaling in Health & Disease	3
NPB 109	Kinesiology: Analysis & Control of Human Movement	4
NPB 132	Nature vs. Nurture: Physiological Interactions Among Genes, Nutrients & Health	3
NPB 134	General Immunology for Physiologists	3
NPB/HPH 157	Advanced Physiology of Animal/Human Disease	3
NPB 168	Neurobiology of Addictive Drugs	4
NPB 171	Physiology of Neuroimmune Interactions	4
NPB 173	Neurobiology of Brain Disorders	3
Approved Laboratory Courses:		
MCB 120L	Molecular Biology & Biochemistry Laboratory	
MMG 103L	(Pending Approval) [1]	
or MIC 103L	Introductory Microbiology Laboratory	

1

MIC 103L will be discontinued; this course will be offered under MMG 103L.