

BIOLOGY B.S. WITH A CONCENTRATION IN NEUROBIOLOGY

Requirements

Code	Title	Units
Core Curriculum Requirements (https://catalog.vanguard.edu/college/core-curriculum/)		44-42
Biology Major Core Requirements		52
Concentration in Neurobiology (p. 1)		26-24
Total Units		122-118

Biology Major Core Requirements

Code	Title	Units
Lower Division Requirements		
BIOL-111 & 111L	Principles of Cell and Molecular Biology and Principles of Biology Lab, Principles of Cell/ Molecular Biology Lab	4
BIOL-112 & 112L	Principles of Organismal Biology and Principles of Organismal Biology Lab	4
BIOL-220 & 220L	Cell Biology and Cell Biology Lab	4
CHEM-120 & 120L	General Chemistry I and General Chemistry I Lab	4
CHEM-121 & 121L	General Chemistry II and General Chemistry II Lab	4
MATH-180C	Calculus 1	4
PSCI-223C & 223CL or PSCI-130 & 130CL	Mechanics of Solids and Fluids and Mechanics of Solids and Fluids Lab Introduction to Physics I and General Physics I Lab	4
PSCI-225 & 225L or PSCI-131 & 131L	Electricity and Magnetism and Electricity and Magnetism Lab General Physics II and General Physics II Lab	4
Upper Division Requirements		
BIOL-309 & 309L	Microbiology and Microbiology Laboratory	4
BIOL-311 & 311L	Genetics and Genetics Laboratory	4
CHEM-304 & 304L	Organic Chemistry I and Organic Chemistry Techniques I	4
BIOL-485 or BIOL-488 or BIOL-450	Undergrad Biological Research Biology Senior Project UG Research or Internship Program	2
BIOL-499C	Capstone Seminar in Biology	2
Select on of the following Ecology Focus courses:		4
BIOL-315 & 315L	General Ecology and Ecology Field and Lab Practicum	

BIOL-345C	Mountain Field Biology	
BIOL-346C	Desert Field Ecology	
BIOL-348C	Coastal Ecology	
Total Units		52

Concentration in Neurobiology Science

Code	Title	Units
PSYC-103C	Introduction to Psychology ¹	3
BIOL-365 & 365L	Neurobiology of Learning and Memory and Neurobiology of Learning/Memory Lab	4
BIOL-432 & 432L	Neuroscience and Neuroscience Lab	4
BIOL-440 & 440L	Molecular Biology and Techniques in Molecular Biology	4
BIOL-404	Neuropharmacology	3
Biology Electives		
Select two lecture/lab courses from BIOL, CHEM, or PSYC ²		6-8
BIOL-204C & 204CL	Human Anatomy and Human Anatomy Laboratory	
BIOL-302 & 302L	Comparative Vertebrate Anatomy and Comp Vertebrate Anatomy Lab	
BIOL-304 & 304L	Human Physiology and Human Physiology Lab	
BIOL-335	Biology of Cancer	
BIOL-403	Biotechnology	
BIOL-405 & 405L	Bioinformatics and Bioinformatics Laboratory	
BIOL-451 & 451L	Immunology and Immunology Lab	
CHEM-305 & 305L	Organic Chemistry II and Organic Chemistry Technqs II	
CHEM-430 & 430L	Biochemistry and Experimental Tech/Biochemistry	
PSYC-383	Addiction Studies	
Total Units		24-26

¹ PSYC-103C Introduction to Psychology is both a program requirement and fulfills a CORE Curriculum requirement.

² In consultation with your academic advisor, select one lecture/lab combination that best aligns with your career goals. Additional course selections in Kinesiology, Biology, or Psychology may be approved on a case-by-case basis.

Four Year Plan

Disclaimer: This *sample Four Year Plan* is provided as a guide for the recommended sequencing of courses. Vanguard University requires that students complete a minimum of 120 units of required course work as outlined on the Requirements tab in order to receive a Bachelor of Arts, Bachelor of Music, Bachelor of Science, or Bachelor of Science in Nursing degree. It is the student's responsibility to confirm with the department the course rotation before enrolling in courses. If applicable, please note the footnotes at the bottom of the page for additional information related



to courses listed in a particular year and term. Questions, contact the Department of Biological Sciences.

Course	Title	Units
Year 1 Term 1		
CORE-100C	Cornerstone	1
BIOL-111	Principles of Cell and Molecular Biology	3
BIOL-111L	Principles of Biology Lab, Principles of Cell/ Molecular Biology Lab	1
ENGL-120C	Persuasive Writing	3
NT-101C	New Testament Survey	3
CHEM-120	General Chemistry I	3
CHEM-120L	General Chemistry I Lab	1
Units		15
Year 1 Term 2		
BIOL-112	Principles of Organismal Biology	3
BIOL-112L	Principles of Organismal Biology Lab	1
HIST-PLCR1	History Core Requirement (US History)	3
CHEM-121	General Chemistry II	3
CHEM-121L	General Chemistry II Lab	1
PSYC-103C	Introduction to Psychology	3
Units		14
Year 2 Term 1		
BIOL-220	Cell Biology	3
BIOL-220L	Cell Biology Lab	1
ENGL-220C	Researched Writing	3
OT-201C	Old Testament Survey	3
BIOL-432	Neuroscience	3
BIOL-432L	Neuroscience Lab	1
Units		14
Year 2 Term 2		
BIOL-311	Genetics	3
BIOL-311L	Genetics Laboratory	1
THEO-PLHD	Theology Core Requirement	3
HIST-PLCR2	History Core Requirement (World Civ)	3
MATH-180C	Calculus 1	4
Units		14
Year 3 Term 1		
BIOL-440	Molecular Biology	3
BIOL-440L	Techniques in Molecular Biology	1
PSCI-PLGP1	Physics 1 Requirement	4
CHEM-304	Organic Chemistry I	3
CHEM-304L	Organic Chemistry Techniques I	1
BIOL-404	Neuropharmacology	3
Units		15
Year 3 Term 2		
BIOL-PLECO	Ecology Requirement	4
COMM-201C	Speech Composition and Presentation	3
PSCI-PLGP2	Physics 2 Requirement	4

BIOL-485	Undergrad Biological Research	1-4
KINE-145C	Lifetime Fitness/Wellness Lect	1
BIOL-PLHD4	Biology Elective	4
Units		17-20
Year 4 Term 1		
THEO-300C	Developing a Christian World View	3
FINA-PLCR	Fine Arts Core Curriculum Requirement	3
BIOL-PLHD4	Biology Elective	4
SOC-PLHD2	Social Science Requirement	3
BIOL-309	Microbiology	3
BIOL-309L	Microbiology Laboratory	1
Units		17
Year 4 Term 2		
BIOL-499C	Capstone Seminar in Biology	2
BIOL-365	Neurobiology of Learning and Memory	3
BIOL-365L	Neurobiology of Learning/Memory Lab	1
CHIS-400C	Christian Heritage	3
ENGL-230C	Literature and the Human Experience	3
KINE-146C	Lifetime Fitness/Well Activity	1
Units		13
Total Units		119-122

