

BIOLOGY AREA REQUIREMENTS

The breadth of the biological sciences requires that students have foundational knowledge in three core areas: 1) Cellular & Molecular Biology, 2) Organismal Structure & Function, and 3) Organismal Diversity. Students pursuing Biology ScB and AB concentrations will successfully complete at least one course in each of these areas. Courses which fulfill each of these area requirements are listed below.

Please note the following:

- No course substitutions are allowed for the approved area courses listed below.
- Not all courses are offered every year. Courses @ Brown should be consulted for the most current course offerings.
- A course listed in more than one area can satisfy only one area requirement, e.g. Bio 1310 could be applied to either the Area 1 or Area 2 requirement but not both.

Area 1 - Cellular & Molecular Biology

Fundamental understanding of cellular processes at the molecular level is essential to all biological sciences. Billions of molecules assemble in organized ways to form cells with the ability to respond to the environment, carry out distinctive functions, and ultimately create life. Courses in the Cell & Molecular Biology Area requirement draw on the physical sciences to explore the basic mechanisms governing living systems at the cellular level.

Area 2 - Organismal Structure & Function

Understanding the form and function of life is essential to biology whether the organism of interest is a plant, invertebrate or vertebrate animal. Organismal structure forms the basis of taxonomic categorization and in this way is essential to understanding the phylogenetic history of life on Earth. The physical and biochemical functions necessary to maintain healthy organs, organ systems and mechanics of locomotion are important concepts for students with interests ranging from plant biology to human health.

Area 3 - Organismal Diversity

The diversity and distribution of life on Earth is a function of the evolutionary relationships that exist between and within major taxonomic groups, the dynamics of populations, and the ecological processes that govern species interactions within communities. The patterns and processes that govern interactions among organisms over space and time are important concepts for students in the biological sciences to understand.

Area 1: Cellular & Molecular Biology	Area 2: Organismal Structure & Function	Area 3: Organismal Diversity
Introductory Biochemistry (BIOL 0280)	Invertebrate Zoology (BIOL 0410)	Diversity of Life (BIOL 0210)
Genetics (BIOL 0470)	Inquiry in Plant Biology: Analysis of Plant Growth, Reproduction and Adaptive Responses (BIOL 0440)	The Ecology and Evolution of Infectious Disease (BIOL 0380)
Cell and Molecular Biology (BIOL 0500)	Principles of Physiology (BIOL 0800)	Invertebrate Zoology (BIOL 0410)
Introductory Microbiology (BIOL 0510)	Biomaterials (BIOL 1120)	Principles of Ecology (BIOL 0420)
Principles of Immunology (BIOL 0530)	Hormones and Behavior (BIOL 1155)	The Evolution of Plant Diversity (BIOL 0430)
Biology of the Eukaryotic Cell (BIOL 1050)	Developmental Biology (BIOL 1310)	Evolutionary Behavioral Ecology (BIOL 0450)
Developmental Biology (BIOL 1310)	Biology of Reproduction (BIOL 1330)	Evolutionary Biology (BIOL 0480)
Conservation in the Genomics Age (BIOL 1515)	Environmental Physiology (BIOL 1505)	Conservation in the Genomics Age (BIOL 1515)
21st Century Applications in Cell and Molecular Biology (BIOL 1810)	Environmental Health and Disease (BIOL 1820)	Comparative Biology of the Vertebrates (BIOL 1880)
Environmental Health and Disease (BIOL 1820)	Toxicology (BIOL 1865)	Environmental Science in a Changing World (ENVS 0490)
Toxicology (BIOL 1865)	Human Anatomy and Biomechanics (BIOL 1885)	Terrestrial Biogeochemistry, Ecosystems and the Global Carbon Cycle (ENVS/EEPS 1300)
Principles of Neurobiology (NEUR 1020)	The Brain: An Introduction to Neuroscience (NEUR 0010)	Biogeography (ENVS 1775)

****Some courses might be inactive during the current academic year. Please refer to [Courses@Brown](#) and [BUE Course Offerings](#) for further references.***