

# **BIOLOGY AREA REQUIREMENTS**

The breadth of the biological sciences requires 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.

**Students should not that not all courses are offered every year. Courses @ Brown should be consulted for the most current course offerings.**

## **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.

<b>Area 1: Cellular &amp; Molecular Biology</b>	<b>Area 2: Organismal Structure &amp; Function</b>	<b>Area 3: Organismal Diversity</b>
Introductory Biochemistry (BIOL 0280)	Biological Design: Structural Architecture of Organisms (BIOL 0400)	Diversity of Life (BIOL 0210)
Genetics (BIOL 0470)	Invertebrate Zoology (BIOL 0410)	The Fossil Record: Life Through Time on Earth (BIOL 0350)
Cell and Molecular Biology (BIOL 0500)	Plant Organism (BIOL 0440)	Experimental Evolution (BIOL 0370)
Introductory Microbiology (BIOL 0510)	Principles of Physiology (BIOL 0800)	The Ecology and Evolution of Infectious Disease (BIOL 0380)
		Invertebrate Zoology (BIOL 0410)
		Microbes in the Environment (BIOL 0415)
Principles of Immunology (BIOL 0530)	Biomaterials (BIOL 1120)	Principles of Ecology (BIOL 0420)
Biology of the Eukaryotic Cell (BIOL 1050)	Developmental Biology (BIOL 1310)	The Evolution of Plant Diversity (BIOL 0430)
Principles of Neurobiology (NEUR 1020)	Biology of Reproduction (BIOL 1330)	Evolutionary Biology (BIOL 0480)
Developmental Biology (BIOL 1310)	Comparative Biology of the Vertebrates (BIOL 1880)	Comparative Biology of the Vertebrates (BIOL 1880)
	The Brain: An Introduction to Neuroscience (NEUR 0010)	Environmental Science in a Changing World (ENVS 0490)