

Core Modules

Example Modules

Year 1

Biological Sciences, Biomedical Science, Biochemistry & Neuroscience
Molecules, Cells & Organisms
Agents of Infectious Disease
Physiology & Metabolism
Quantitative Skills for Biology

Biological Sciences only
Environmental Biology

Biochemistry only
Physical Chemistry
Organic Chemistry

Molecules, Cells & Organisms

This key module provides you with an essential foundation for most other modules covering organisms at the molecular, genetic, cellular, tissue and organ levels. It introduces whole organism and developmental biology, within the context of evolution. It also introduces intracellular biological systems and subcellular structures and looks at cell division, the cell cycle and transmission of genetic material.

Physiology & Metabolism

How do parts of the body function and work together? This module shows you how physiology & metabolism are integrated in our bodies. You will develop an understanding of the nervous, respiratory and cardiovascular systems along with neurobiology of sight and hearing. In metabolism you will link physiology to bioenergetics covering the role of enzymes in, for example glycolysis, the citric acid cycle, photosynthesis and cell signalling.

Agents of Infectious Disease

Infectious agents come in many forms, from viruses & bacteria to eukaryotic parasites, the diseases they cause affect us all. This module will introduce you to these organisms and our response to them, from the immune system & treatment to how we study diseases through epidemiology. Infections of other species also have major impacts on human activity, such as when crops fail. You will gain an understanding of how infections occur and how we fight them.

Year 1 Laboratories

Year 1 labs introduce you to microbiology, biochemistry, physiology and genetics laboratory techniques. You learn how to analyse results and write a lab report. Extensive Maths support is available. Labs cover spectroscopy, how to culture microbes, biochemical assays and understanding enzymes and their kinetics. You learn how to record respiration and stimulate nerves. Eukaryote genetics practicals cover both human and fruit fly genetics.

Year 2

Biological Sciences
Molecular Cell Biology; Biological Oceanography; Genetics & Genomics; Ecology Principles & Processes; Plant Molecular Development; Evolution
Biomedical Science
Molecular Cell Biology; Blood & Circulation; Epidemiology & Public Health; Virology; Immunology; Microbial Pathogens
Biochemistry
Molecular Cell Biology; Tools for Biochemical Discovery; Protein Structure & Function; Enzymology; Molecular Endocrinology; Neuropharmacology
Neuroscience
Molecular Cell Biology; Neurobiology of Disease; Neurobiology; Neuropharmacology; Blood & Circulation for Neuroscience; Molecular Endocrinology

Molecular Cell Biology

This module adds depth to your understanding of the molecular biology of the three domains of life, from the organisation and complexity of chromosomes, the cytoskeleton in cell structure, function and motility to secretion and programmed cell death. How do cells perform their many functions and how are modern molecular methods used to study key biological problems?

Blood & Circulation

This module expands on your understanding of cells biology and physiology, focusing on the haematological, cardiovascular and renal/hepatic systems. The module will provide a detailed understanding of how each is needed to maintain health, common insults that cause common disorders and how these can be diagnosed and treated.

Neuropharmacology

This module covers the fundamental principles of pharmacology. It primarily focuses on the major drug classes that are common in clinical practice, with an emphasis on the peripheral and central nervous system. The module will concentrate on the use of drug-based therapeutics and bridge the gap between basic cell signalling and the complex pathophysiology and treatment of human disease.

Year 2 Laboratories

As in year 1, year 2 labs are linked to core modules. All students take bioinformatics and molecular cell biology labs.
Biological Sciences: labs cover multicellular systems and genetics and evolution. There is an environmental field trip.
Biochemistry: labs cover protein biochemistry and signalling (neurotransmitters).
Biomedical Science: labs cover human and animal physiology, immunology and epidemiology and infection.
Neuroscience: labs cover signalling (neurotransmitters) and neurobiology of disease.

Year 3

Biological Sciences
Research Project
Biomedical Science
Research Project
Modern Approaches to Human Disease
Biochemistry
Research Project
Structural Molecular Biology
Neuroscience
Research Project
Modern Approaches to Human Disease
Integrative Neuroscience

Modern Approaches to Human Disease

By examining important medical specialties such as metabolic, reproductive and central nervous system medicine you will learn about modern, evidence-based medicine and medical ethics. You will examine accounts of the nature of disorders of these systems and how they are dealt with by treatment and prevention strategies. What is the meaning and importance of "evidence-based medicine" and "medical ethics"?

Integrative Neuroscience

By considering the important cellular components of the central nervous system you will gain current knowledge of how these determine and contribute to the integrative function of the nervous system. You will build on knowledge gained in previous modules, expanding your understanding of signalling in the CNS, genetic targeting and manipulation of brain cells, the role of glial cells, cortical function and development, motor control and the regulation of sleep and consciousness.

Structural Molecular Biology

It is becoming ever more apparent that to completely understand a protein's biological mechanism, three-dimensional structural information is essential. You will have the opportunity to explore and apply modern approaches and practical techniques to the study of biological macromolecules. You will pay particular attention to the structural techniques used to elucidate fundamental aspects and problems in biology-specific fields of interest in structural biology.

Research Project

Your Third Year Research Project will be either lab, dry or literature-based with academic supervisory support. Project topics range across the full spectrum of modern bioscience. Project work is mostly focused in term 3, when you interact with your supervisor to do your research and produce your dissertation. You will learn how to plan and engage in an independent and sustained critical investigation and effectively construct scientific results and arguments using multiple sources.

MBio

Research Skills
Extended Research Project

Research Skills

This taught module trains you in advanced laboratory techniques, data handling and statistical analyses, critical analysis of the literature and designing research proposals.

Extended Research Project

You will undertake a substantial year-long laboratory-based research project either within the School or in industry. School based projects take place within one of our research groups and include weekly meetings with your academic supervisor.

Option module information can be found in our undergraduate study brochure and online at warwick.ac.uk/uglifesci

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