Bachelor of

BIOMEDICAL

SCIENCE

(HONOURS)

Discover the latest in globally relevant biomedical research, and get the theoretical and hands-on skills to prepare yourself for an exciting career in an industry that’s making incredible advances in modern medical science.

Why Biomedical Science at UQ?

Biomedical scientists understand how the human body works and what goes wrong in disease, and apply this knowledge to develop new treatments. From cancer screening, diagnosis of HIV, blood transfusion for surgery, food poisoning and infection control, biomedical scientists provide the foundation of modern healthcare. Working in partnership with doctors, nurses and other healthcare professionals, they diagnose disease, evaluate the effectiveness of treatment and research the causes and cures for disease. Biomedical Science at UQ is based on the latest research developments to make sure you’ll graduate with the skills, knowledge and understanding to enter a rewarding career in modern biomedical science.

What you will study

The Bachelor of Biomedical Science (Honours) will give you foundation skills in chemistry, biology, physics, statistics and research. In your second and third years, you will specialise in a chosen area and have the option to pursue a research project and study abroad. You will also work on projects in research labs while on placement for first-hand experiences that will help you graduate job-ready. In your final year you can undertake the Honours program and gain hands-on experience in research by conducting your own research project.

Your choice of specialisation areas

Developmental Biology

This examines how organisms and cells grow and develop according to their genetic blueprint and gain an understanding of how genes contribute to the development of organs and tissues. This knowledge is central to understanding the basis of human health and disease. It also provides essential knowledge needed for Bioengineering and Nanotechnology.

Human Genetics

This examines the human genome and its significance as the instruction book of life. You can contribute to the ethical debate on the use of genetic information and be a part of future discoveries identifying the genetic mechanisms that define what it is to be human. It will allow you to employ statistical and mathematical skills needed to analyse large biological data sets – generated from sequencing the genomes of humans, animals and plants.

Immunology and Infectious Diseases

Examples include HIV, malaria, tuberculosis, SARS, and exotic influenzas, all of which are a threat to global health. You will study molecular diagnostics to understand how new vaccines and therapeutic treatments are developed.

Molecular and Cellular Biology

This examines the molecules made by living organisms in a cellular context and the application of this knowledge in
developmental biology, neurobiology and immunology. You will gain the research tools to address questions on how cells divide, grow, communicate and die, and understand the structure, function and interactions of nucleic acids, proteins, carbohydrates and lipids, and their contribution to cellular activities and processes.

**Neuroscience**
This is a rapidly growing field examining animal and human nervous systems. The nervous system is a complex array of billions of interconnected cells responsible for integrating, processing and coordinating sensory information and motor commands. You will examine how neuroscience and neural stem cells are being used in new therapeutic strategies to treat neurological and mental illnesses.

**Pharmacology and Toxicology**
These examine drugs and their impact on the molecular structure of the human body and how pharmacologists are significantly improving therapies for diseases through advances in drug design and development, leading to new drugs or better use of existing drugs.

**Physiology**
This studies how the body works, from the molecular and cellular levels to the integrative control of tissues, organs and systems. Physiology aims to understand normal processes in the body and the changes that occur in cells, tissues and organs that lead to disease. Molecular and systems-based approaches allow researchers to gain a unique insight into physiology from many different perspectives.

**Placements and practical experience**
In your fourth year, you will conduct an honours research project within one of UQ’s research laboratories or institutes to put your theoretical knowledge into practice.

**Career opportunities**
As a biomedical scientist, you will have excellent career prospects in management, research, education and specialised laboratory work including:

- academia and research in universities, research institutes and hospitals
- technical and scientific roles in research projects
- biotechnology company roles
- laboratory work in molecular and cellular biology
- other scientific and administration roles that require logical reasoning and independent thinking.

**Your postgraduate options**
Research higher degrees (MPhil and PhD) in your area of interest are available. See health.uq.edu.au/postgraduate

**SAMPLE COURSES**
- Analysis of Scientific Data
- Biochemistry and Molecular Biology
- Cell Structure and Function
- Cells to Organisms
- Chemistry (I and II)
- Differentiation and Development
- Genes, Cells and Evolution
- Genetics
- Microbiology and Immunology
- Physical Basis of Biological Systems
- Research project

**For more information**
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