

BSc Molecular Biology & Biotechnology

The subject areas of Biochemistry, Genetics and Microbiology together form the core of Biotechnology. Biochemists, geneticists, and microbiologists are like detectives that use Molecular Biology tools to unravel the exact functioning of microscopic cells, such as human and animal cells, yeasts, bacteria, fungi and viruses. This knowledge is then applied through Biotechnology to e.g. develop new drug targets, diagnostic tests for diseases, medicines, vaccines or exploiting plants and microbes for industrial use. This programme gives you the background knowledge to understand the functioning of any living organism at the molecular level and lays the foundation for a career requiring knowledge and skills in Molecular Biology and its application in biotechnology.

Major/s

Combination of Biochemistry, Genetics, Microbiology.

NB: Consult the Faculty of Science Yearbook for detailed information on subjects and module electives.

Do I qualify?

Minimum admission requirements

- Average (excluding Life Orientation): **65%**
- English OR Afrikaans
(Home Language or First Additional Language): **50%**
- Maths: **60%** or **70%** (depending on subject choice)
- Physical Sciences: **50%**



Majors Explained

What is biochemistry?

Biochemistry explores chemical and molecular processes related to living organisms. Biochemists study the structure, composition, and chemical reactions of substances in living systems and, in turn, their functions and ways to control or harness them. This allows Biochemistry to power scientific and medical discovery in a diverse range of human, animal, and plant research fields such as human and animal pharmaceuticals, forensics and nutrition.

What is genetics?

Genetics deals with the molecular structure and function of genes, gene behaviour in the context of a cell or organism (e.g. dominance and epigenetics), patterns of inheritance from parent to offspring, and gene distribution, variation, and change in populations. Given that genes are universal to living organisms, genetics can be applied to the study of all living systems, from viruses and bacteria, through plants and domestic animals, to humans.

What is microbiology?

Microbiology is the study of microscopically small living organisms such as bacteria, archaea, viruses, fungi, prions, protozoa, and algae. Although microbes are impossible to see with the naked eye, they make up 60% of all living matter on earth with a massive impact in every living organism on the planet. Microbial activities and interactions are vitally important to virtually all processes on earth, playing key roles in nutrient cycling, biodegradation, climate change, food spoilage, as well as the cause and control of disease. The science of microbiology aims to gain and expand our fundamental understanding of microorganisms by studying their morphology, metabolism, physiology, reproduction, and genetics, while others investigate their interactions with other organisms and role in ecology.



Why study BSc Molecular Biology & Biotechnology?

This field of study will allow you to make a positive difference in the world when applying your scientific skills to address real-world problems such as wastewater treatment, the adverse impacts of contraceptives, control of pathogens, assess the way in which patients respond to drugs or the discovery of new drugs for the treatment of debilitating diseases such as malaria, tuberculosis, and cancer.



Why study BSc Molecular Biology & Biotechnology at Stellenbosch University?

The Departments of Biochemistry, Genetics and Microbiology strive to provide the best possible academically stimulating and enabling environment for students to be trained as future scientists and biotechnologists. We strive for the creative development of human resources to benefit the individual, the scientific and medical communities, but also broader society.

What can I do with a BSc Molecular Biology & Biotechnology degree?

Agricultural advisor
Biochemist
Biofuel developer
Biologist
Cosmetic developer

Food inspection analyst
Forensic scientist
Geneticist
Laboratory analyst

Laboratory technologist
Life sciences teacher
Microbiologist
Water quality expert

"It is a challenging, multidisciplinary course that focuses on the student's level of understanding rather than just absorbing and memorising information."

- undergraduate BSc student

Contact details

Department of Biochemistry

Tel: (021) 808 5861/2 E-mail: gdl@sun.ac.za

Website: <https://www.sun.ac.za/english/faculty/science/biochemistry/>

Department of Genetics

Tel: (021) 808 5829 E-mail: mja@sun.ac.za

Website: <https://www.sun.ac.za/english/aculty/agri/genetics>

Department of Microbiology

Tel: (021) 808 5847 E-mail: wendyw@sun.ac.za

Website: <https://www.sun.ac.za/english/faculty/science/microbiology>

Contact our recruitment officer

Qaqamba Mhlauli

qmhlauli@sun.ac.za or science@sun.ac.za

Deadline for applications: 31 July

General selection and application criteria

<https://www.sun.ac.za/english/maties>