BIOTECHNOLOGY

UNDERGRADUATE HANDBOOK

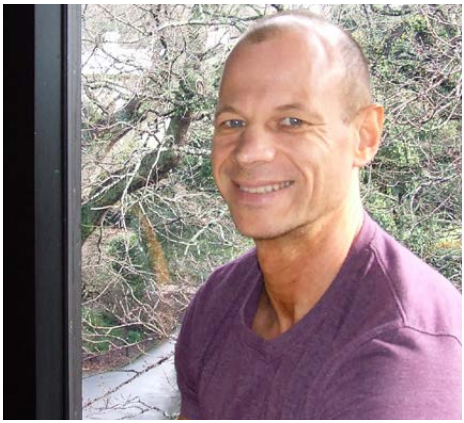
2016

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

SCIENCE

Welcome to Biotechnology

Biotechnology, in its broadest sense, is the commercial exploitation of living organisms or their components, such as proteins.



Traditionally, these technologies have encompassed industrial microbiology, and dealt with ancient processes such as brewing or the microbial production of cheese and yoghurt, for instance. In the last few years, however, an avalanche of genetic and protein information has been discovered, with equally impressive advances in transgenic and animal cloning technologies.

In this light, biotechnology has broadened its scope and is making significant impacts on our health, welfare and nutrition, and how we interact with our environment. It is exciting to see such a tangible translation of the work from our laboratories into life enhancing commercial developments, and the global placement of our graduates in these productive enterprises.

We welcome good students with an interest in technology and commercialisation to this major.

KERRY LOOMES
Director of Biotechnology

The Faculty of Science has

6317 students

12% of these are international students

The University of Auckland is the highest ranked university in New Zealand by both Times Higher Education and QS rankings.

Bachelor of Science (BSc) in Biotechnology

A BSc major in Biotechnology provides students with a strong foundation in biological sciences, biotechnology and entrepreneurship. The programme enables you to be taught by specialists from the Faculties of Science, Business and Economics, and Medical and Health Sciences.

After an introduction to core biological and chemical concepts, instruction is provided in the areas of fermentation technology, aspects of medical technology, down-stream processing and protein purification and their applications. In addition, the specialisation includes courses in computing, innovation and entrepreneurship, managing technology and a wider appreciation of the social, legal, and ethical place of biotechnology in society. Final year projects investigate how biotechnology applies in industry, and the principles of commercialisation.

3 The average number of years it takes to complete a Bachelor of Science degree

You can choose either a single or double major

Preparation for school leavers

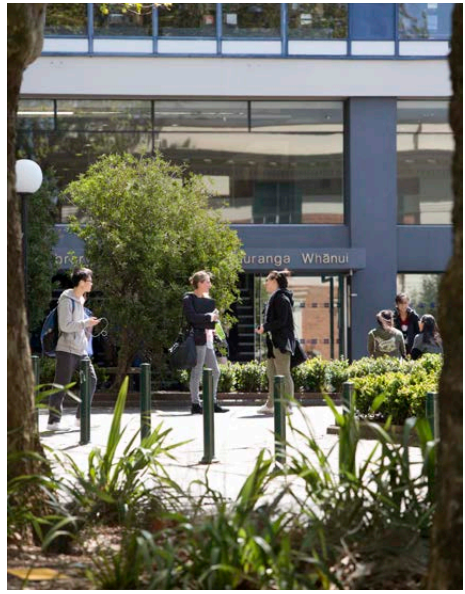
Students will be selected on the basis of their rank score. There are no required subjects, but recommended subjects to take in Years 12 and 13 to prepare you for this programme are Biology, Chemistry, Physics, Statistics and English, or another subject that develops literacy and communication skills.

For more information, visit **www.science.auckland.ac.nz/subject-guide**.

Why study Biotechnology?

Biotechnology, in its broadest sense, is the commercial exploitation of living organisms or their components, such as proteins. The last few years has seen impressive advances in information about protein, genetics and transgenic and animal cloning technologies. Biotechnology has broadened its scope to make a significant impact on our health, nutrition and how we interact with the environment.

For more information, visit **www.science.auckland.ac.nz/biotech**



For course planning and enrolment, go to **www.science.auckland.ac.nz/student-centre**

Planning your major

BSc

Year 1	BIOSCI 101	BIOSCI 106	BIOSCI 107	CHEM 110 or 120				GEN ED
	With appropriate prerequisites can also be filled by Stage II or III.							
Year 2	BIOSCI 201	BIOSCI 202	BIOSCI 203	BIOSCI 204	SCIGEN 201	STATS 101, 108 or BIOSCI 209		GEN ED
	Stage II						Any Stage	
Year 3	BIOSCI 350	BIOSCI 351	BIOSCI 349 or 356	BIOSCI 353 or 354	SCIENT 301	INNOVENT 201	BIOSCI 340, 347, 348 or MEDSCI 314	BIOSCI 340, 347, 348 or MEDSCI 314

1. Courses in a minimum of three subjects listed in the BSc Schedule.
2. At least 180 points (12 courses) must be above Stage 1.
3. Up to 30 points (2 courses) may be taken from outside the Faculty.
4. 30 points (2 courses) must be taken from the appropriate General Education Schedules for BSc students.

To view regulations for majors, and course descriptions, see www.calendar.auckland.ac.nz

BSc degree requires: 360 points (24 x 15 point courses). Each box represents one 15 point course.

It is recommended that students enrol in 8 courses each year.

Undergraduate Biotechnology courses

Stage I		Semester
BIOSCI 101	Essential Biology: From Genomes to Organisms	S1
BIOSCI 106	Foundations of Biochemistry	S2
BIOSCI 107	Biology for Biomedical Science: Cellular Processes and Development	S1
CHEM 110	Chemistry of the Living World	S1, S2
CHEM 120	Chemistry of the Material World	S2
STATS 101	Introduction to Statistics	S1, S2, SS
STATS 108	Statistics for Commerce	S1, S2, SS

Stage II		
BIOSCI 201	Cellular and Molecular Biology	S1
BIOSCI 202	Genetics	S2
BIOSCI 203	Biochemistry	S2
BIOSCI 204	Principles of Microbiology	S1
BIOSCI 209	Biometry	S1
INNOVENT 201	Understanding Innovation and Entrepreneurship	S1, S2
SCIGEN 201	Innovating for a Knowledge Society	S1

Stage III		
BIOSCI 340	Plant Cell Biology and Biotechnology	S2
BIOSCI 347	Environmental Microbiology and Biotechnology	S2
BIOSCI 348	Food and Industrial Microbiology	S2
BIOSCI 349	Biomedical Microbiology	S1
BIOSCI 350	Protein Structure and Function	S1
BIOSCI 351	Molecular Genetics	S1
BIOSCI 353	Molecular and Cellular Regulation	S2
BIOSCI 354	Gene Expression and Gene Transfer	S2
BIOSCI 356	Developmental Biology and Cancer	S1
MEDSCI 314	Immunology	S2
SCIENT 301	Bio-entrepreneurship	S1, S2

For course descriptions and prerequisite information, go to **www.science.auckland.ac.nz/biotech**

Careers in Biotechnology

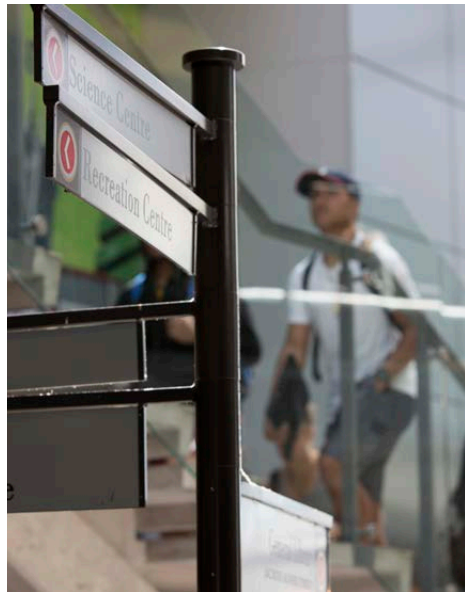
The three-year BSc major in Biotechnology, followed by the one year BSc (Hons) in Biotechnology, provides students with an appropriate academic background for a professional career in the traditional and emerging biotechnology industries.

Standards are high, but career prospects are excellent. You will build a strong foundation in the biological and engineering basis of biotechnology, as well as learning about new technologies.

Biotechnology is at the forefront of the knowledge economy, and is an excellent specialisation if you're interested in the commercialisation of cutting edge science.

If you are looking to move straight into the workforce after your degree, you are likely to qualify for technical and research assistant positions within fundamental and applied research programmes such as:

- Biotechnology companies
- Brewing Fermentation industries
- Crown Research Institutes
- Pharmaceutical companies
- Universities



The University of Auckland consistantly ranks in the **TOP 100** universities worldwide*

*QS World University Rankings 2015

ranked no. **8** in Oceania*

Disclaimer

Although every reasonable effort is made to ensure accuracy, the information in this document is provided as a general guide only for students and is subject to alteration. All students enrolling at the University of Auckland must consult its official document, the University of Auckland Calendar, to ensure that they are aware of and comply with all regulations, requirements and policies.

Helpful information

Academic dates	www.auckland.ac.nz/dates
Academic Integrity Course	www.auckland.ac.nz/academic-integrity
Accommodation	www.accommodation.auckland.ac.nz
Career Development and Employment Services	www.auckland.ac.nz/careers
Course advice and degree planning in Science	www.science.auckland.ac.nz/student-centre
General education	www.auckland.ac.nz/generaleducation
How to apply	www.apply.auckland.ac.nz
How to enrol	www.auckland.ac.nz/enrolment
International students	www.international.auckland.ac.nz
Māori and Pacific students	www.science.auckland.ac.nz/tuakana
Need help?	www.askauckland.ac.nz
Rainbow Science Network for LGBTI students	www.science.auckland.ac.nz/rainbowscience
Scholarships and awards	www.scholarships.auckland.ac.nz
Support for students	www.science.auckland.ac.nz/support

Applications close on December 8.

Questions about Biotechnology? Email scifac@auckland.ac.nz

THE UNIVERSITY OF AUCKLAND
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NEW ZEALAND

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