BIOLOGICAL SCIENCES

POSTGRADUATE HANDBOOK

2017

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

SCIENCE

Welcome to the School of Biological Sciences

The school is a vibrant and exciting environment to work in, offering a wide range of multi-disciplinary research opportunities in plant, marine and animal biology, bioinformatics and biotechnology. Our staff are recipients of both national and international research funding and awards, and feature regularly in scientific communiqués and social media.

We offer real-world research experience in the Institute for Innovation in Biotechnology (IIB) with industry co-locators, or with our Joint Graduate Schools with Crown Research Institutes, the Department of Conservation, the Auckland Museum and Auckland Zoo. Our facilities are equipped to global standards enabling students to acquire internationally competitive skills. Postgraduate professional training which also contributes directly to the New Zealand economy is available through diplomas and masters degrees in Bioscience Enterprise.

The school also provides excellent support for both study and networking – we look forward to welcoming you to this exciting and fun stage of your career.

PROFESSOR EILEEN McLAUGHLIN
Head of School

Helpful information

Academic dates	www.auckland.ac.nz/dates
Accommodation	www.accommodation.auckland.ac.nz
Apply for postgraduate study	www.auckland.ac.nz/applynow
Career Development and Employment Services	www.cdes.auckland.ac.nz
Childcare	www.auckland.ac.nz/childcare
Degree planning and course advice	www.science.auckland.ac.nz/student-centre
Disability Services	www.disability.auckland.ac.nz
How to enrol	www.auckland.ac.nz/enrolment
Information for postgraduate students	www.postgraduate.ac.nz
International students	www.international.auckland.ac.nz
Libraries and Learning Services	www.library.auckland.ac.nz
Māori and Pacific students	www.science.auckland.ac.nz/tuakana
Need help?	www.askauckland.ac.nz
Postgraduate Student's Association	www.pgsa.org.nz
Rainbow Science Network for LGBTI students	www.science.auckland.ac.nz/rainbowscience
Scholarships, awards and fees	www.scholarships.auckland.ac.nz www.auckland.ac.nz/fees www.auckland.ac.nz/studentloansandallowances
Support for Science students	www.science.auckland.ac.nz/support

Questions about Biological Sciences? Email pgscience@auckland.ac.nz

Applications close on 8 December

Cover photo by Iain MacDonald

NEW ZEALAND CITIZENS OR PERMANENT RESIDENTS

Student Information Centre
The Clock Tower, Ground Floor
22 Princes Street, Auckland 1010

Phone: 0800 61 62 65
Email: postgradinfo@auckland.ac.nz
Web: www.postgraduate.ac.nz

AskAuckland: www.askauckland.ac.nz

INTERNATIONAL STUDENTS

International Office
The University of Auckland
Private Bag 92019, Auckland 1142
New Zealand

Street Address:
Old Choral Hall
7 Symonds Street, Auckland
Phone: +64 9 923 1969
Email: int-questions@auckland.ac.nz
Web: www.auckland.ac.nz/international

Student profiles

Tom Saunders

Tom is studying for a Master of Science in Biological Sciences.

"I've always had a deep interest in the natural world. I chose to study a Master of Science in Biological Sciences because I want to contribute something new to the study of biodiversity.

"My masters thesis is focused on improving capture methods for parasitoid wasps. Before we can begin to understand the estimated 3,000 species of parasitoid wasps in New Zealand, it is crucial to understand how to catch them more efficiently and in more cost-effective ways.

"I received two summer studentships at Landcare Research which gave me paid experience in the field of biodiversity and ecology, and an understanding of what 'real research' looks like.

"When I finish my masters in December 2016, I hope to begin a career in academia or within applied sciences."

Aqfan Jamaluddin

Aqfan is studying for PhD in Biological Sciences. He received the Maurice Wilkins Centre PhD Student Scholarship.

"My interest in Biology and the research environment meant that postgraduate study was a natural direction for me.

"My doctoral research is focused on drug development to target and treat obesity and diabetes. My area of study utilises the theory and practicality of all fields of research within the biological sciences, ranging from structural biology to translational animal studies.

"The programme is challenging yet rewarding. There is plenty of support for times when it can get overwhelming, ranging from postgraduate advisors and other researchers, to colleagues and students.

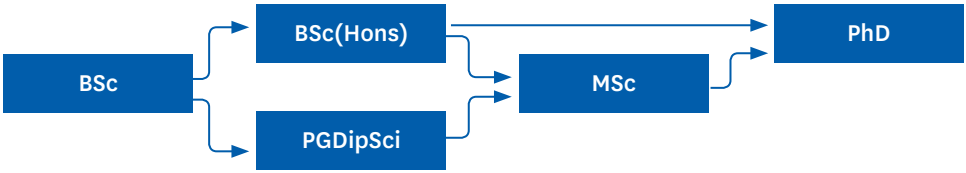
"When I complete my PhD in April 2019, I hope to enter the highly competitive research field. My other career options include academia and teaching."

Careers in Biological Sciences

Biological Sciences investigates all levels of life, from biological molecules to global ecosystems. The number of graduates in this area has grown rapidly in recent years. Possible career options are as follows:

- Agriculture
- Aquaculture
- Aquatic biologist
- Biomedical research scientist
- Biomedical company representative
- Biotechnologist in Government and industrial laboratories
- Brewing industry
- Clinical biochemist
- Conservation biology
- Dairy industry
- Ecologist
- Entomologist
- Environmental resource Management planning
- Environmental consultant
- Fisheries scientist
- Food scientist
- Government service (MAF, DOC)
- Health-related occupations
- Journalism
- Laboratory technician
- Marine biologist
- Medical research
- Museum curator
- Nursery management
- Parks conservator
- Patent law/intellectual property
- Pharmaceutics
- Physiologist
- Plant tissue culture
- Plant protection and conservation
- Publishing
- Research scientist
- Science librarian
- Teaching
  - primary, secondary
  - polytechnic
  - university
- Zoological curator

Postgraduate study options in Biological Sciences



Bachelor of Science (Honours) (BSc(Hons))

Prerequisites

A BSc, or an approved equivalent, with at least 90 points at Stage III and with a GPA of ≥5 including at least 60 points in Biological Sciences above Stage II.

Permission from the Head of School is required.

Students with a GPA below 7 are advised to consider taking the PGDipSci followed by the 120-point MSc degree.

Admission is at the discretion of the Postgraduate Coordinator.

1 The average number of years it takes to complete a Bachelor of Science (Honours) degree

Programme structure

One year full-time, or two years part-time including a research dissertation (BIOSCI 788) worth 45 points.

The courses, worth a total of 75 points, must include BIOSCI 762 (15 points); the remaining 60 points selected from BIOSCI 724-759 and BIOINF 701 (15 points each). Up to 15 points may be substituted for a 700-level course in a related subject.

Postgraduate Diploma in Science (PGDipSci)

Prerequisites

A BSc, or an approved equivalent, with a GPA ≥3 in the best three BIOSCI courses at Stage III. Students with a GPA below 7 are advised to consider taking the PGDipSci followed by the one-year MSc degree.

Programme structure

90 points in BIOSCI 724-761 and BIOINF 701. 30 points may be taken from 600 or 700-level courses in related subjects. The total enrolment for the PGDipSci must not exceed 160 points. A class size limit is imposed on (BIOSCI 724, 725, 727, 731, 735, 736, 739, 741, 747, 748, 749, 755, 757, 758, 759, BIOINF 701) and students may be placed on a waitlist.

Students wishing to proceed to MSc should enrol in the Thesis Proposal course (BIOSCI 761) as part of their PGDipSci programme, provided they have achieved the required grades and identified a thesis research topic in consultation with a member of the academic staff who has agreed to supervise the MSc project.

Master of Science (MSc)

Prerequisites

A PGDipSci in Biological Sciences, including BIOSCI 761 or equivalent with a GPA ≥ 4 in 90 points, at least 75 points of which must be in 700-level courses; or a BSc(Hons) in Biological Sciences, with a GPA ≥ 4 in 90 points.

Applications for admission to the MSc following the Bachelor of Technology (Biotechnology) will be considered on a case-by-case basis.

Programme structure

A Thesis (BIOSCI 796) worth 120 points, completed between one year full-time to two years part-time, or some combination.
Enrolment must begin on 1 December, 1 March or 15 July, as arranged with the supervisor.
Students who have passed BIOSCI 762, BTECH 432, ENVSCI 701 or MEDSCI 701 are not required to complete BIOSCI 761.
If BIOSCI 761 was not completed as part of the PGDipSci, special permission must be obtained to complete this course in the first semester of the MSc programme.

Doctor of Philosophy (PhD)

Quick facts

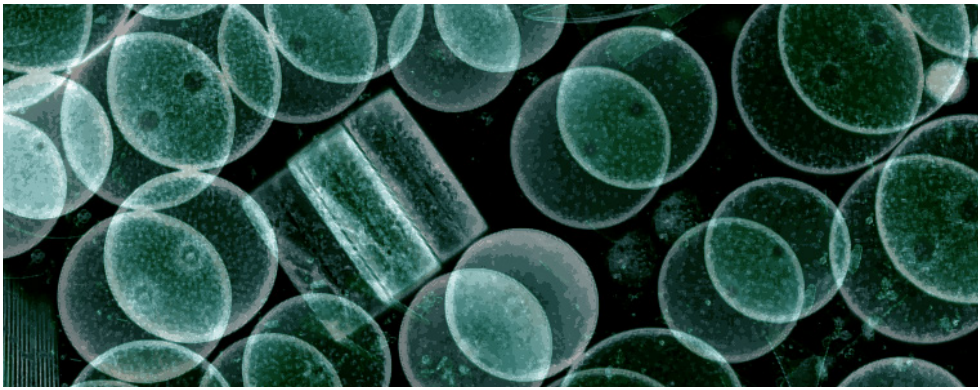
Full-time study: 3-4 years
Part-time study: 6-8 years
Degree structure: research
Application closing dates: apply at anytime
Start date: anytime

For more information, go to
www.science.auckland.ac.nz/phd

Entry to PhD

The normal requirement for admission to the PhD is an honours degree with second class honours (first division or better), either BSc(Hons), BTech or MSc. Candidates with overseas qualifications will have their eligibility for admission to PhD assessed by the Admissions Office upon receipt of all required documentation. Candidates may be required to enrol in one or more courses concurrent with research work to complement either their research work, or their background in the subject.

For a searchable database where you can find masters and doctoral supervisors and research projects that you can join, visit www.findathesis.auckland.ac.nz



Research areas

Research in the School of Biological Sciences is conducted across three research groups and several research centres and institutes. Subject areas range from biomedical, microbial and plant biotechnology to environmental, ecological and conservation science. The school operates cutting-edge facilities and services supporting both academic groups and co-located companies. Many services are also available to external companies on a contract basis.

- Biomedical and Applied Biology
- Cellular, Molecular and Organismal Biology
- Ecology, Evolution and Behaviour
- Joint Graduate Schools with Crown Research Institutes

Scholarships and awards

The University of Auckland will provide guaranteed scholarships to high-achieving domestic students admitted to programmes, including BSc(Hons), PGDipSci, MSc and PhD.

Guaranteed postgraduate scholarships

- The University of Auckland Research Masters/Postgraduate Honours/PG Diploma Scholarships up to $13,000 p.a. plus compulsory fees
- The University of Auckland Māori and Pacific Postgraduate Scholarships (honours/postgraduate diploma/masters) up to $13,000 p.a. plus compulsory fees
- The University of Auckland Doctoral Scholarships up to $27,000 p.a. plus compulsory fees for three years

Find out more on www.auckland.ac.nz/scholarships

Faculty of Science Alumni Masters Scholarships

Value: up to $9,000 p.a. plus compulsory fees
Tenure: One year
Closing date: 31 January
For more information and to apply, visit www.auckland.ac.nz/scholarships

Postgraduate Biological Sciences courses		
Course code	**Title**	**Semester**
BIOINF701	Bioinformatics	S1
BIOINF 702	Comparative Bioinformatics	S1
BIOSCI 724	Marine Ecology	S1
BIOSCI 725	Ecological Physiology	S1
BIOSCI 728	Neuroethology	S1
BIOSCI 735	Advanced Behavioural Ecology	S1
BIOSCI 737	High Resolution Imaging of Biological Molecules	S1
BIOSCI 738	Advanced Biological Data Analysis	S1
BIOSCI 739	Dialogues in Biology	S1
BIOSCI 741	Applied Microbiology and Biotechnology	S1
BIOSCI 747	Biosecurity and Invasion Biology	S1
BIOSCI 752	Plant Genomics and Biotechnology	S1
BIOSCI 755	Genomics and Gene Expression	S1
BIOSCI 759	Molecular Cell Biology and Biomedicine	S1 & 2
BIOSCI 761	MSc Thesis Proposal	S1 & 2
BIOSCI 762	BSc(Hons) Dissertation Proposal	S1
BIOSCI 788 A+B BSc(Hons)	Dissertation in Biological Sciences	S1 & 2
BIOSCI 796 A+B MSc	Thesis in Biological Sciences	S1 & 2
BIOINF 703	Genome Bioinformatics and Systems Biology	S2
BIOINF 704	Statistical Bioinformatics	S2
BIOSCI 727	Aquaculture	S2
BIOSCI 729	Evolutionary Biology	S2
BIOSCI 730	Entomology and Biosecurity	S2
BIOSCI 731	Biogeography	S2
BIOSCI 733	Molecular Ecology and Evolution	S2
BIOSCI 734	Terrestrial Plant Ecology	S2
BIOSCI 736	Microbial Genomics and Metabolism	S2
BIOSCI 746	The Molecular Machinery of The Cell	S2
BIOSCI 748	Weed and Pest Management	S2
BIOSCI 749	Ecology of Microbial Interactions	S2
BIOSCI 751	Plant-microbiology Interactions	S2
BIOSCI 753	Synthesis of Plant Products and Foods	S2
BIOSCI 754	Plant Genomes and Gene Expression	S2
BIOSCI 757	Structural Biology	S2
BIOSCI 758	Development, Differentiation and Disease	S2

For course descriptions and more information, go to www.sbs.auckland.ac.nz/courses