

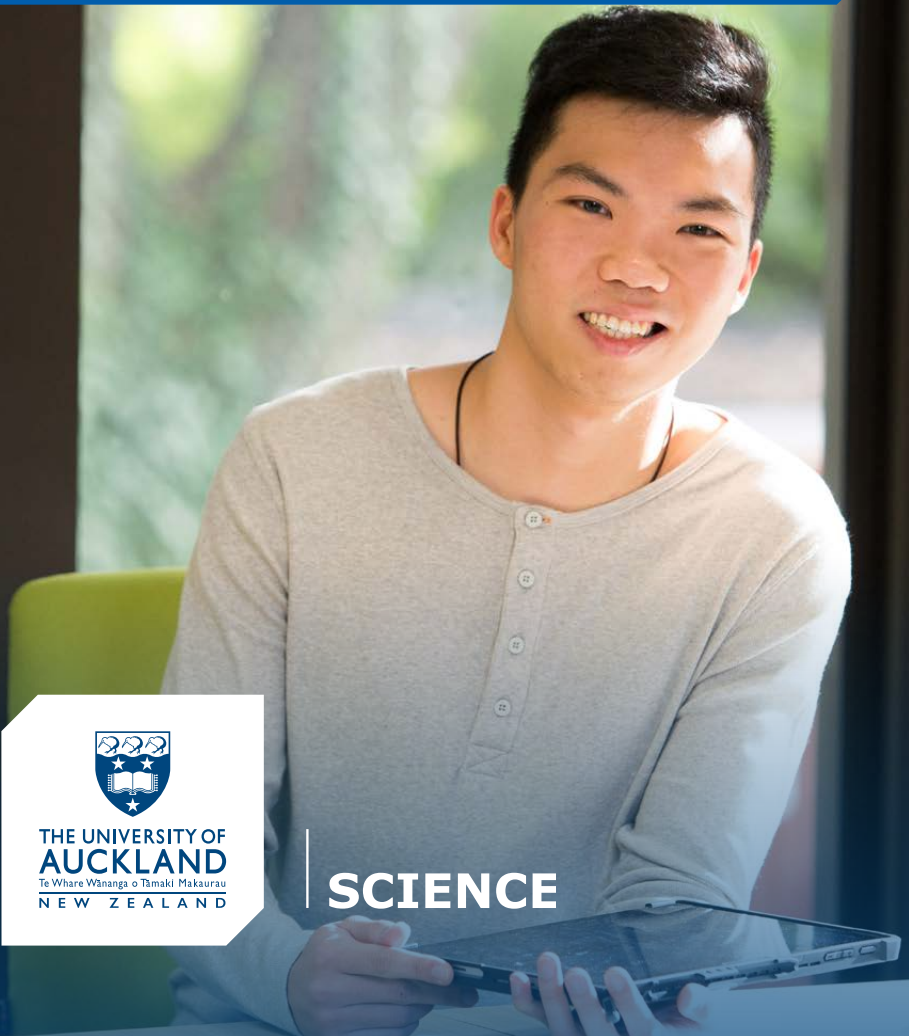
# Biomedical Science

Undergraduate Handbook 2018



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

**SCIENCE**





# Welcome to Biomedical Science

Biomedical Science is jointly taught by the Faculty of Science and the Faculty of Medical and Health Sciences, with the programme spread over the City and Grafton Campuses.

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This major is designed for very academically able students with an interest in emerging areas of biomedical science. The Biomedical Science programme provides an understanding of the scientific basis of health and disease in humans and animals. This programme will deliver rigorous scientific training in a range of disciplines and students will gain a unique insight into this important area of modern biological research.

This research-led field, which is currently the most rapidly developing area within biological science, attracts a high level of public interest. The University of Auckland is acknowledged as a centre of excellence in biomedical research and the options within the programme at Year 3 reflect our particular strengths.

DR KATE ANGEL  
Director, BSc Biomedical Science



# Study options in Biomedical Science

## Bachelor of Science (BSc) in Biomedical Science

This challenging and immensely rewarding major provides courses in Year 1 and 2 that deliver a strong foundation for a number of majors and professional careers (including medicine), and a unique insight into the principles underlying this important area of modern biological research. In Year 3 students may then follow options to specialise in areas such as cancer biology and therapeutics, molecular biology, cardiovascular biology, genetics and development, microbiology, immunology, neurobiology, nutrition, pharmacology, physiology or reproduction.

## Postgraduate study options in Biomedical Science

- Bachelor of Biomedical Science (Honours)
- Postgraduate Diploma in Biomedical Science
- Master of Biomedical Science

[www.science.auckland.ac.nz/biomed](http://www.science.auckland.ac.nz/biomed)

[www.fmhs.auckland.ac.nz/biomedicalscience](http://www.fmhs.auckland.ac.nz/biomedicalscience)

Students are strongly encouraged to consider postgraduate study.

For course planning and enrolment contact the Science Student Centre  
[scifac@auckland.ac.nz](mailto:scifac@auckland.ac.nz)



## Entry into other programmes from Biomedical Science

The Biomedical Science Common Year 1 serves as a gateway in part or whole to many other BSc majors: Biological Sciences, Medicinal Chemistry, Chemistry, Food Science and Nutrition, Pharmacology, Physiology, Psychology, and Exercise Sciences.

It is also the path to selection for several professional programmes:

- MBChB (Medicine)  
[www.fmhs.auckland.ac.nz/medicine](http://www.fmhs.auckland.ac.nz/medicine)
- Bachelor of Optometry  
[www.optometry.auckland.ac.nz](http://www.optometry.auckland.ac.nz)
- Bachelor of Pharmacy  
[www.fmhs.auckland.ac.nz/pharmacy](http://www.fmhs.auckland.ac.nz/pharmacy)

Students should apply at the end of BSc (Biomedical Science) Part 1.

**Note:** There is no selection advantage between the BHSc and BSc in Biomedical Science as a pathway into Medicine. Selection is based on overall GPA and performance in common core courses. Students should choose their programme according to their ability, interest and preference.

## Preparation for school leavers

Students will be selected on the basis of their rank score. We strongly recommend applicants study the school subjects Chemistry and Biology. English-rich subjects and a knowledge of Physics and Statistics is also recommended.

Guaranteed entry scores for school leavers for BSc (Biomedical Science)

- NCEA (Level 3) rank score 280
- CIE (taken in New Zealand) rank score 310
- IB rank score 33

Students who do not meet these scores may apply for Chemistry, Physics or Biological Sciences under the BSc and apply for Biomedical Science the following year. Applications from transferring students will be assessed on a case by case basis.



# BSc degree planner – Biomedical Science

## BSc

Year 1

BIOSCI 101	BIOSCI 106	BIOSCI 107	CHEM 110	PHYSICS 160	MEDSCI 142	YEAR I ELECTIVE	GEN ED
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**Notes:**

Year 1 Elective must be POPLHLTH 111 if intending to apply for MBChB after Year 1 Biomedical Science, otherwise it must be a course from the BSc schedule.

Year 2

BIOSCI 201	BIOSCI 202	BIOSCI 203	MEDSCI 205	YEAR II ELECTIVE	YEAR II ELECTIVE	YEAR II ELECTIVE	GEN ED
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Year II Elective: MEDSCI 201, 203, 204, 206,  
(BIOSCI 204 or MEDSCI 202), PSYCH 202

Year 3

BIOSCI 347-358	BIOSCI 347-358	MEDSCI 301-317	MEDSCI 301-317	Stage III BIOSCI, MEDSCI, CHEM 390, 392 or PSYCH 305	STATS 10x or BIOSCI 209	Any Stage Science	Any Stage Science
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1. At least 180 points (12 courses) must be above Stage I.
2. 30 points (two courses) must be taken from the appropriate General Education Schedules for BSc students.
3. STATS 101G will not count towards General Education requirements.

It is the student's responsibility to check that the final programme complies with University Regulations. The Faculty of Science is the final authority on all BSc regulations.

To view regulations for majors, and course descriptions, see [www.calendar.auckland.ac.nz](http://www.calendar.auckland.ac.nz)  
BSc degree requires: 360 points (24 x 15-point courses). Each box represents one 15-point course.  
It is recommend that students enrol in eight courses each year.

Degree Planners for can be found at [www.science.auckland.ac.nz/course-planning](http://www.science.auckland.ac.nz/course-planning)

<b>Undergraduate Biomedical Science Courses</b>		
<b>Course code</b>	<b>Title</b>	<b>Semester</b>
<b>Year 1</b>		
BIOSCI 101	Essential Biology: From Genomes to Organisms	S1
BIOSCI 107	Biology for Biomedical Science: Cellular Processes and Development	S1
CHEM 110	Chemistry of the Living World	S1
POPLHLTH111	Population Health	S1
BIOSCI 106	Foundations of Biochemistry	S2
PHYSICS 160	Physics for the Life Sciences	S2
MEDSCI 142	Biology for Biomedical Science: Organ Systems	S2
<b>Year 2</b>		
BIOSCI 201	Cellular and Molecular Biology	S1
BIOSCI 202	Genetics	S2
BIOSCI 203	Biochemistry	S2
MEDSCI 205	The Physiology of Human Organ Systems	S1
MEDSCI 201	Human Structure and Function	S1
MEDSCI 203	Mechanisms of Disease	S1
MEDSCI 204	Introduction to Pharmacology and Toxicology	S2
MEDSCI 206	Introduction to Neuroscience	S2
BIOSCI 204	Principles of Microbiology	S1
PSYCH 202	Biopsychology	S2
MEDSCI 202	Microbiology and Immunology	S1

For course descriptions and prerequisite information, go to [www.science.auckland.ac.nz/biomedical-science](http://www.science.auckland.ac.nz/biomedical-science)


## Third year Biomedical Science options

### Year 3

- At least 30 points from BIOSCI 347-358
- At least 30 points from MEDSCI 301-317
- At least 15 points at Stage III from BIOSCI, MEDSCI, CHEM 390, 392 or PSYCH 305

Research area	Stage III courses
Cancer Biology and Therapeutics	MEDSCI 301-303
	BIOSCI 351, 353, 354, 356, 358, CHEM 390, 392, MEDSCI 306, 314
Cardiovascular Biology	MEDSCI 309, 311, 316
	BIOSCI 350, 351, 353, 354, MEDSCI 301, 305, 317
Cellular and Molecular Biomedicine	BIOSCI 350, 351, 353
	MEDSCI 301, 303-305, 309, 316
Genetics and Development	BIOSCI 351, 354, 356
	BIOSCI 350, 353, MEDSCI 301, 312
Microbiology and Immunology	BIOSCI 349 MEDSCI 301, 314
	BIOSCI 347, 348, 350-353
Neurobiology	MEDSCI 304, 307, 316, 317
	BIOSCI 350, 351, 353, 354, MEDSCI 309, 312, PSYCH 305
Nutrition	BIOSCI 358, MEDSCI 312, 315
	BIOSCI 348, 351, 353, FOODSCI 301, MEDSCI 301, 306, 307, 314, 316
Reproduction, Growth and Metabolism	BIOSCI 351, MEDSCI 312, 313
	BIOSCI 350, 353, 354, 356, 358, MEDSCI 301, 314





**Monique Peattie** is studying for a Bachelor of Science majoring in Biomedical Science.

*"I enjoyed all the science and maths subjects at high school, and I thought about going on to study science or something towards a career in the health industry. The more I found out about Biomedical Science the more I wanted to do it.*

*"I enjoy having a mix of lectures and laboratories. I thoroughly enjoy the laboratories that we do for the courses – each one is different. The lab tutors are great to talk to, to discuss the theory behind an experiment, or to demonstrate the use of equipment that we've not used before.*

*"Currently I am planning on doing postgraduate study after I have finished my BSc. After that I would quite like to go into research, or potentially work somewhere involving health promotion.*

*"Having moved away from home, living in a hall of residence for my first year helped me ease into University life and was a great way of meeting new people and making friends."*

# Careers in Biomedical Science

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Biomedical science has made transformative contributions over the past decade, stimulating growth in a wide range of industries including agriculture, pharmaceuticals, veterinary science and medical research.

You may find employment in the following areas or industries:

[Biotechnology and pharmaceutical companies](#)

[University and academia](#)

[Private research laboratories](#)

[Crown Research Institutes](#)

[Government agencies](#)

[Environmental Risk Management Authority](#)

[Ministry of Primary Industries](#)

[Ministry of Business, Innovation and Employment as:](#)

- Analysts
- Laboratory technicians
- Scientific officers
- Teachers
- Researchers

Employment in biotechnology and pharmaceutical companies is especially buoyant in the United States and Europe, with significant growth expected in New Zealand.



# Helpful information

## Academic dates

[www.auckland.ac.nz/dates](http://www.auckland.ac.nz/dates)

## Academic Integrity Course

[www.auckland.ac.nz/academic-integrity](http://www.auckland.ac.nz/academic-integrity)

## Accommodation

[www.accommodation.auckland.ac.nz](http://www.accommodation.auckland.ac.nz)

## Buy coursebooks

[www.science.auckland.ac.nz/resource-centre](http://www.science.auckland.ac.nz/resource-centre)

## Career Development and Employment Services

[www.auckland.ac.nz/careers](http://www.auckland.ac.nz/careers)

## Course advice and degree planning in Science

[www.science.auckland.ac.nz/student-centre](http://www.science.auckland.ac.nz/student-centre)

## General education

[www.auckland.ac.nz/generaleducation](http://www.auckland.ac.nz/generaleducation)

## How to apply

[www.apply.auckland.ac.nz](http://www.apply.auckland.ac.nz)

## How to enrol

[www.auckland.ac.nz/enrolment](http://www.auckland.ac.nz/enrolment)

## International students

[www.international.auckland.ac.nz](http://www.international.auckland.ac.nz)

## Māori and Pacific students

[www.science.auckland.ac.nz/tuakana](http://www.science.auckland.ac.nz/tuakana)

## Need help?

[www.askauckland.ac.nz](http://www.askauckland.ac.nz)

## Rainbow Science Network for LGBTI students

[www.science.auckland.ac.nz/rainbowsience](http://www.science.auckland.ac.nz/rainbowsience)

## Scholarships and awards

[www.scholarships.auckland.ac.nz](http://www.scholarships.auckland.ac.nz)

## Support for students

[www.science.auckland.ac.nz/support](http://www.science.auckland.ac.nz/support)



**APPLICATIONS CLOSE ON 8 DECEMBER**

**Questions about Biomedical Science? [scifac@auckland.ac.nz](mailto:scifac@auckland.ac.nz)**

### 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.*



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Web: [www.science.auckland.ac.nz/biomedical-science](http://www.science.auckland.ac.nz/biomedical-science)



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