

# Ecology

Undergraduate Handbook 2018



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

**SCIENCE**

# Welcome to Ecology

The Schools of Biological Sciences and Environment, with assistance from Statistics and Marine Science, welcome you to a rich and rewarding programme in Ecology.

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Challenges to the well-being of our environment, and the ecosystems that sustain it, are growing. Meeting these challenges head on requires a deep understanding of the ecological interactions in the world around us, and an ability to bring to bear a range of new techniques and technologies ranging from molecular genetics of small populations to tracking plants and animals across entire landscapes. Such work relies heavily on research done in the field and in the laboratory in New Zealand and abroad.

Are you up for the challenge? Are you excited by the prospect of mastering and creating new knowledge that pioneers ecological approaches that can help restore, maintain and enhance the resilience of our environment? Cooperation across our departments and schools

DR KEVIN SIMON  
Chair, Board of Studies in Ecology

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## Why study Ecology?

- Students study the relationships between living organisms, from microbes to animals, and their physical environment
- Core courses provide a foundation in general ecology and biological sciences, physical and environmental sciences, and analytical skills
- Highly flexible course schedule allows students to pursue areas that suit their interests and career aspirations
- Many courses include substantial field components, allowing students to see ecology in action
- Students have access to Centre for Biodiversity and Biosecurity ([www.cbb.org.nz](http://www.cbb.org.nz))
- Programme has strong links with Crown Research Institutes

# Bachelor of Science in Ecology

Ecology is the study of the distribution and abundance of life, and the interactions between organisms and their environment. It brings together aspects of Environmental Science, Biological Science, Marine Science, Geography and Statistics. The first two years of the programme focus on core ecology, environmental science, and management and modelling. In the third year, students have the opportunity to specialise in an area of interest to them. The programme also incorporates training in techniques and skills (computational/analytical/spatial/genetic) that are essential for solving ecological problems.



Photo: Richard Taylor

## Preparation for school leavers

Students will be selected on the basis of their rank score. English-rich subjects are useful; however, we recommend that Year 13 students take preparation subjects relating to the major of Ecology. This includes Chemistry, Biology, Statistics or Geography.

[www.science.auckland.ac.nz/subject-guide](http://www.science.auckland.ac.nz/subject-guide)

For course planning and enrolment, go to [www.science.auckland.ac.nz/student-centre](http://www.science.auckland.ac.nz/student-centre)

Thinking about postgraduate study options?  
Go to [www.science.auckland.ac.nz/ecology](http://www.science.auckland.ac.nz/ecology)

## Complementary majors

A double major is strongly recommended as it will enhance your career options by providing a broader base of skills and knowledge.

### ECOLOGY +

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Anthropological Science

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Biological Science

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Chemistry

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Earth Sciences

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Environmental Science

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Geography

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Marine Science

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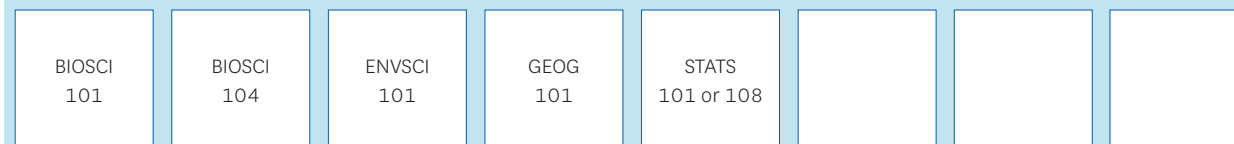
Statistics

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

# BSc degree planner – Ecology

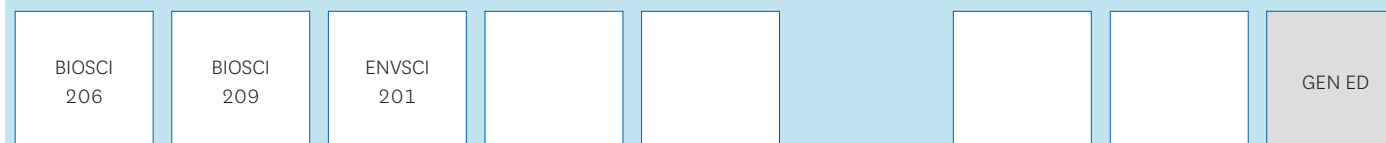
## BSc

Year 1



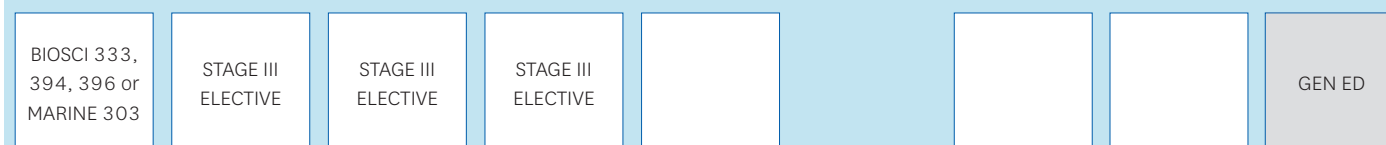
With appropriate prerequisites can also be filled by Stage II or III.

Year 2



Any Stage

Year 3



Stage III Science

Stage II or III Science

1. Courses in a minimum of three subjects listed in the BSc Schedule.
2. At least 180 points (12 courses) must be above Stage I.
3. Up to 30 points (two 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.
5. At least 75 points (5 courses) must be at Stage III, of which 60 points must be in the majoring subject.

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 1.5 point courses). Each box represents one 1.5 point course.  
It is recommended that students enrol in 8 courses each year.

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

## Undergraduate Ecology courses

Course code	Title
<b>Stage I</b>	
BIOSCI 101	Essential Biology: From Genomes to Organisms
BIOSCI 104	New Zealand Ecology and Conservation
ENVSCI 101	Environment, Science and Management
GEOG 101	Earth Surface Processes and Landforms
STATS 101	Introduction to Statistics
STATS 108	Statistics for Commerce
<b>Stage II</b>	
BIOSCI 206	Principles of Ecology
BIOSCI 209	Biometry
ENVSCI 201	Natural and Human Environmental Systems
<b>Stage III</b>	
ANTHRO 349	Primate Behaviour, Ecology and Conservation
BIOSCI 320	Pure and Applied Entomology
BIOSCI 321	Plant Pathology
BIOSCI 322	Evolution of Genes, Populations and Species
BIOSCI 323	Plant Diversity
BIOSCI 328	Fisheries and Aquaculture
BIOSCI 329	Biology of Fish
BIOSCI 333	Marine Ecology
BIOSCI 335	Ecological Physiology
BIOSCI 337	Animal Behaviour
BIOSCI 347	Environmental Microbiology and Biotechnology
BIOSCI 394	Conservation Ecology
BIOSCI 395	Pacific Biogeography and Biodiversity
BIOSCI 396	Terrestrial Ecology
ENVSCI 301	Environmental Science and Decision Making
GEOG 317	Remote Sensing and GIS
GEOG 318	GIS Principles and Practice
GEOG 320	Resources and Environmental Management
GEOG 330	Research Methods in Physical Geography
GEOG 331	Fluvial Geomorphology
GEOG 332	Climate and Environment
MARINE 303	Freshwater and Estuarine Ecology

Students can select courses to focus on subject areas such as:

- Conservation Ecology and Biosecurity (BIOSCI 394, 396)
- Ecology, Evolution and Behaviour (BIOSCI 322,337, 396)
- Marine and Coastal Ecology (MARINE 302, 303, BIOSCI 329, 333)
- Quantitative Ecology and Modelling (STATS 302, 330, 341)

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



# Careers in Ecology

Ecological principles and methods are fundamental to the management of resources, including the utilisation and conservation of species and ecosystems. This degree provides you with a qualification that certifies you have the field, laboratory and analytical skills required by many organisations and companies in New Zealand and overseas. Often graduates further specialise with an MSc or PhD depending on their career goals.

- Conservation careers with councils and government departments (Department of Conservation, Ministry for the Environment, Ministry of Fisheries, Ministry of Agriculture and Forestry)
- Biosecurity and pest management (MAF Biosecurity NZ, regional councils)
- Ecological and environmental research roles in crown research institutes (Landcare Research, NIWA, Cawthron Institute)
- Careers in ecological restoration (terrestrial and aquatic environments)
- Environmental policy, consulting and science advisory roles
- Teaching careers in ecology
- Environmental education and community liaison

**Nicole McAulay** graduated with a Bachelor of Science (Ecology). She was also an Alumni Scholarship recipient.

*"I have always been interested in a wide range of outdoor pursuits, so when I discovered the (then) new Ecology major at the University of Auckland it seemed like the perfect fit. I graduated in 2011 with a BSc (Ecology) specialising in Biosecurity and Conservation.*

*"After graduating, I enrolled in the NMIT Trainee Ranger Certificate in Nelson. Part of the one-year course was work placement with DOC, mostly with weed control. At the end of that year I managed to secure a job with the Ministry for Primary Industries (MPI) as a Fisheries Observer, and have been with MPI for almost three years now. My job involves living and working at sea on board local and foreign fishing vessels within New Zealand waters.*

*"I am really enjoying this role as it has a very strong, practical component that allows me to spend a lot of time in the field, while at the same time allowing me to put my academic learning to good use!"*



# 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)



Photo: Richard Taylor

**APPLICATIONS CLOSE ON 8 DECEMBER**

**Questions about Ecology?  
[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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