# ENVIRONMENTAL SCIENCE

**POSTGRADUATE** HANDBOOK

2017

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

SCIENCE

# Welcome to Environmental Science

**Environmental Science is a well-established postgraduate programme offered by the School of Environment at the University of Auckland.**

As one of the leading schools of its type in Australasia we offer a diverse range of teaching programmes and opportunities for postgraduate study. The School of Environment houses a vibrant community of more than 50 instructors and researchers. The mix of different interests creates a rich training and research environment.

New Zealand and the South Pacific region offer an exciting environmental laboratory to examine a range of globally relevant research questions. Our location in Auckland provides a perfect gateway to access this unique natural laboratory.

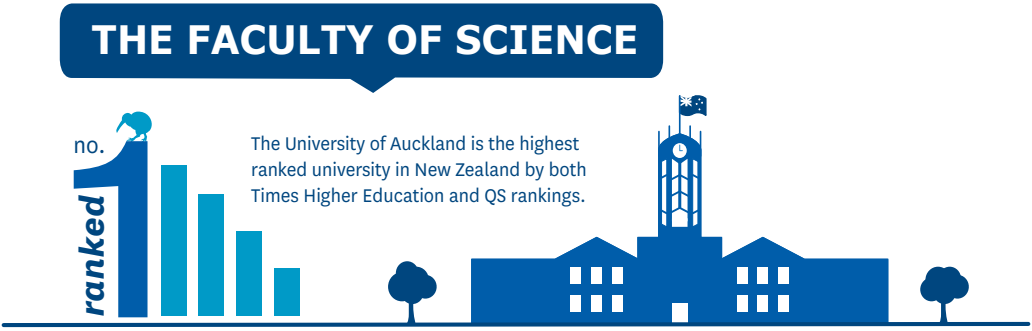
Postgraduate study in Environmental Science is an excellent step towards a number of careers and is a strong foundation for postgraduate research.

The School of Environment provides the opportunity to undertake research across a range of topics alongside many of New Zealand's leading scientists.

We have an impressive array of field equipment and analytical facilities to support our research activities. The School of Environment has a talented group of postgraduate students from around the world who help to provide a stimulating and supportive environment for your studies.

I am confident that you will find studying Environmental Science at the University of Auckland a satisfying and rewarding experience, and we look forward to working with you to meet your academic goals.

PROFESSOR PAUL KENCH
Head
School of Environment




*Cover page photo: PhD research on rapid evolution of invasive species and climate change. Photo credit: Kevin Simon.*

# Postgraduate studies in Environmental Science

**Environmental Science is the interdisciplinary, applied scientific study of natural and managed environments. The application of existing science skills and a scientific approach to environmental problem solving is core to the programme. The central philosophy is that environmental science provides the knowledge to enable society to sustainably manage the environment, through education and research.**

The programme includes aspects of environmental effects assessment and monitoring, modelling of environmental systems, water quality, air quality, freshwater and terrestrial ecology, environment restoration, and biodiversity management.

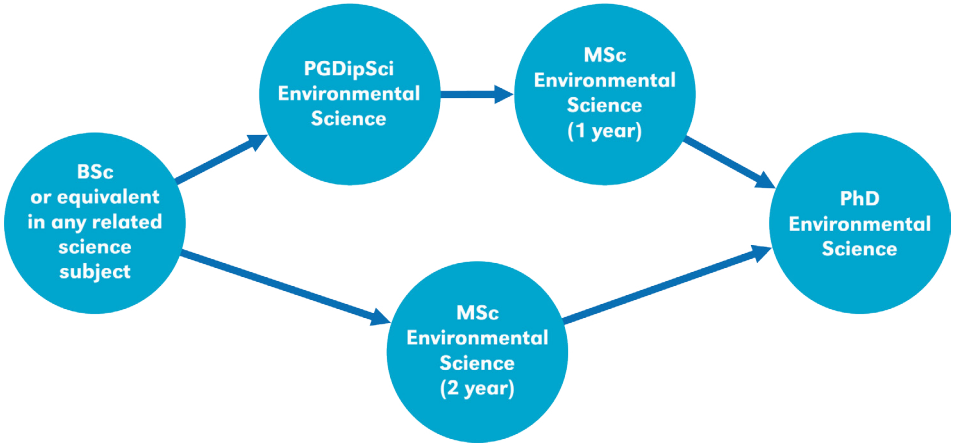
The inclusion of topics in physical geography and environmental management enables students to interact with and explore a greater diversity of environmental expertise, such as environmental planning, policy, law, economics, resource management and different approaches to community conservation.

Some courses in the Environmental Science programme are delivered as intensive, four day modules followed by a self-directed assessment. These modules may be more accessible to people in full-time jobs and those from out of Auckland.

The postgraduate programme in Environmental Science is well established, and well recognised by employers.

*Great Barrier Island field trip.*

*Photo credit: Sandra Anderson*




## Environmental Science qualifications pathway

There are two pathways for study toward a postgraduate qualification in Environmental Science:

- The Postgraduate Diploma in Science (Environmental Science) is a one year taught programme. Students can also choose to continue on to a one year research masters upon completion of the diploma.
- The Master of Science (Environmental Science) is a two year programme comprised of one year of taught courses (as for the PGDipSci) and a research thesis in the second year. This programme is often more appealing to international students.

The entry requirement for postgraduate study in Environmental Science is a Bachelor of Science in any related discipline. For example, this could be earth sciences, environmental chemistry, biology, or geology. You do not need to have completed the undergraduate Environmental Science major, or any Environmental Science courses. Although, an interest in the environment is ideal. However, to be considered eligible for entry to the PGDipSci (Environmental Science) or the two year MSc programme, students must have at least a C+ average in their best five courses at Stage III.

Admission to the one year Master of Science (MSc) in Environmental Science or continuation into the second year of the two year MSc requires an average grade equivalent to at least B- in the taught year. In both cases students must have an approved research proposal and the support of a supervisor in order to commence the thesis year.

Both the PGDipSci and MSc programmes may be taken part-time as well as full-time.

The degree of Doctor of Philosophy (PhD) is for those interested in advanced research in Environmental Science.

## Postgraduate Diploma in Science (Environmental Science)

The PGDipSci (Environmental Science) emphasises the use of interdisciplinary science and relevant technical skills in the prevention and resolution of environmental problems that face industry and communities in the Asia-Pacific region and beyond. Although it may lead directly onto a MSc, the PGDipSci is also a well-recognised qualification in its own right. It is often completed as a 'stand-alone' by students who may already have postgraduate qualifications in a related field but wish to attain an environmental qualification. The schedule of studies can be designed to suit a student's personal situation and requirements. You may select a full (one year) or part-time (up to four years) programme of study.

# The PGDipSci and first year of 2 year MSc (Environmental Science) programmes

Two core courses (30 points)

**ENVSCI 701** · (15 points) Research Practice in Environmental Science

**ENVSCI 711** · (15 points) Assessing Environmental Effects

At least four courses from the following (60 points)

**EARTHSCI 705** · (15 points) Geohazards

**EARTHSCI 720** · (15 points) Geochemistry of our World

**ENVSCI 702** · (15 points) Applied Estuarine Ecology

**ENVSCI 704** · (15 points) Modelling of Environmental Systems

**ENVSCI 713** · (15 points) Air Quality and Atmospheric Processes

**ENVSCI 714** · (15 points) Water Quality Science

**ENVSCI 716** · (15 points) Aquatic Ecological Assessment

**ENVSCI 733** · (15 points) Biodiversity Management and Conservation

**ENVSCI 734** · (15 points) Restoration and Landscape Ecology

**ENVSCI 737** · (15 points) Applied Terrestrial Ecology

**ENVSCI 738** · (15 points) Water and Society

**ENVMGT 742** · (15 points) Social Dimensions of Global Environmental Change

**ENVMGT 744** · (15 points) Resource Management

**GEOG 730** · (15 points) Climate Change: Past, Present and Future

**GEOG 745** · (15 points) Applied Fluvial Geomorphology

**GEOG 746** · (15 points) Applied Coastal Geomorphology

**GEOG 748** · (15 points) Current Issues in Coastal Management

**GEOG 749** · (15 points) Climate and Society

**GEOG 771** · (15 points) Spatial Analysis and Geocomputation

**MARINE 703** · (15 points) Marine Protected Areas

Up to two courses from 700-level courses as approved by the Progamme Adviser (30 points)

*'Pest' fish Gambusia affinis. Photo credit: Kevin Simon.*

# Postgraduate research in Environmental Science

Postgraduate research is highly valued and forms an important part of the PGDipSci, MSc and PhD programmes in Environmental Science. The following research themes identify the expertise of environmental scientists at the University of Auckland.

## Coasts and Rivers

The Coasts and Rivers group investigate the natural processes operating on the landscape, across a range of temporal and spatial scales, from catchment to cobble, from Holocene to a few days.

## Environmental Change

Researchers in this theme are involved in reconstructing and investigating long-term environmental change, using a range of proxies from tropical corals to Antarctic sediments.

## Hazards and Disasters

Research in this theme covers the breadth of hazards and disasters, from the underlying physical processes themselves and methods of assessment, through to people's vulnerabilities and capacities, and risk assessment and management.

## Our Changing Forests

Researchers in this theme are concerned with the dynamics of forest environments past, present and future encompassing the long-term dynamics of social, ecological and climatic interactions with forests.

## Pacific Futures

The Pacific Futures group are engaged in exploring the multiple dimensions of the environmental, social, cultural and political challenges confronting Pacific nations.

## Urban Environments and Ecology

Our research addresses how bio-physical systems operate in urban areas, the role of humans in driving terrestrial, aquatic and atmospheric processes, and the implications for governance, design and restoration.

Suggested topics may be found on the School of Environment webpage. See **www.env.auckland.ac.nz/research** for more information.

*Students studying mangroves. Photo credit: Suyadi Suyadi.*

**Our subject is ranked in the top 100 worldwide**

**QS World University Rankings by subject 2016**

TOP 100 in the world

Environmental Science

# Environmental Science academic staff

**Paul Augustinus** | **Associate Professor**
Paleoclimatology, landscape evolution

**Joel Baker** | **Professor**
Geochemistry, environmental chemistry

**Gretel Boswijk** | **Senior Lecturer**
Dendrochronology, environmental change

**Gary Brierley** | **Professor**
River science and management

**Giovanni Coco** | **Associate Professor**
Coastal processes, estuarine morphodynamics

**Mark Dickson** | **Senior Lecturer**
Coastal processes, geomorphic models

**Murray Ford** | **Senior Lecturer**
Coral reefs, coastal processes, remote sensing

**Anthony Fowler** | **Associate Professor**
Climate change, hydroclimatology

**Paul Kench** | **Professor**
Coastal processes, coral reefs

**Jan Lindsay** | **Associate Professor**
Volcanology, volcanic hazards

**Susan Owen** | **Senior Lecturer**
Environment, health, voluntary sector

**Meg Parsons** | **Lecturer**
Climate adaptation, policy, justice

**George Perry** | **Professor**
Forest ecology, fire, spatial modelling

**Jennifer Salmond** | **Senior Lecturer**
Urban meteorology, air pollution

**Luitgard Schwendenmann** | **Senior Lecturer**
Ecosystem carbon dynamics, ecohydrology

**Kevin Simon** | **Senior Lecturer**
Water and ecosystem ecology, biogeochemistry

**Simon Thrush** | **Professor**
Marine and socio-ecological systems

**Sam Trowsdale** | **Senior Lecturer**
Water governance, urban water

**Jon Tunnicliffe** | **Lecturer**
Fluvial geomorphology, near surface geophysics

**Janet Wilmshurst** | **Associate Professor**
Palaeoecology, environmental change

## Environmental Science Adviser

**Dr Luitgard Schwendenmann**
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23 Symonds Street,
Auckland 1010

# 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 Environmental Science?***

***Email environment@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.*

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

**NEW ZEALAND CITIZENS OR PERMANENT RESIDENTS**

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Email: postgradinfo@auckland.ac.nz
Web: www.postgraduate.ac.nz

**AskAuckland: www.askauckland.ac.nz**

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7 Symonds Street, Auckland.
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