Welcome to Environmental Science

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

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

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.

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
- **EARTHSCI 705** · (15 points) Geohazards
- **EARTHSCI 720** · (15 points) Geochemistry of our World
- **ENVSCI 704** · (15 points) Modelling of Environmental Systems
- **ENVSCI 713** · (15 points) Air Quality and Atmospheric Processes
- **ENVSCI 716** · (15 points) Aquatic Ecological Assessment
- **ENVSCI 733** · (15 points) Biodiversity Management and Conservation
- **ENVSCI 737** · (15 points) Applied Terrestrial Ecology
- **ENVSCI 738** · (15 points) Water and Society
- **ENVMGT 744** · (15 points) Resource Management
- **GEOG 730** · (15 points) Climate Change: Past, Present and Future
- **GEOG 746** · (15 points) Applied Coastal Geomorphology
- **GEOG 748** · (15 points) Current Issues in Coastal Management
- **GEOG 771** · (15 points) Spatial Analysis and Geocomputation
- **MARINE 703** · (15 points) Marine Protected Areas
- **ENVSCI 702** · (15 points) Applied Estuarine Ecology
- **ENVSCI 714** · (15 points) Water Quality Science
- **ENVSCI 734** · (15 points) Restoration and Landscape Ecology
- **ENVMGT 742** · (15 points) Social Dimensions of Global Environmental Change
- **GEOG 745** · (15 points) Applied Fluvial Geomorphology
- **GEOG 749** · (15 points) Climate and Society

At least four courses from the following (60 points)

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

'Srest' 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.

Our subject is ranked in the top 100 worldwide

QS World University Rankings by subject 2016

Students studying mangroves. Photo credit: Suyadi Suyadi.
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

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