Faculty of Science
TE WĀHANGA PŪTAIAO
Postgraduate Study 2019
“I want to bridge the gap between the wineries and science research and make sure the wineries have the data they need to make informed business decisions.”

Alyssa Ryan
Student, Master of Environmental Studies

Read more about Alyssa’s story on page 36.
Victoria University of Wellington uses all reasonable skill and care to ensure the information contained in this document is accurate at the time of being made available. However, matters covered by this document are subject to change due to a continuous process of review, and to unanticipated circumstances. The University therefore reserves the right to make any changes without notice. So far as the law permits, the University accepts no responsibility for any loss suffered by any person due to reliance (either whole or in part) on the information contained in this document, whether direct or indirect, and whether foreseeable or not.
Welcome to the Faculty of Science at Victoria University of Wellington. Victoria University is one of New Zealand’s top universities in terms of both the quality of the student experience and the excellence of its research.

Postgraduate study is an opportunity for you to extend your undergraduate experience, become an expert in your chosen field and take the next step in your career. It will challenge your ideas and satisfy your search for new knowledge.

The Faculty of Science is home to five schools and a large community of postgraduate students who come from more than 20 countries. We’re also one of New Zealand’s top research institutions and our academics are some of the most respected in the world. This commitment to research is reflected in the most recent Performance-Based Research Fund rankings, which rated us first for research quality in New Zealand.

Postgraduate students are a key part of our research community. Carrying out work that leads to scientific breakthroughs, students regularly present at international conferences and publish in peer-reviewed international journals.

Wellington is home to the highest concentration of scientific research organisations in New Zealand (for example, the Malaghan Institute for Medical Research and Crown research institutes that include Callaghan Innovation, ESR, GNS Science and NIWA). These organisations contribute to our programmes and enhance the experience we provide to our students by ensuring the content of our courses is at the cutting edge of knowledge, and through opportunities for research placements and future employment opportunities.

We hope you will be excited at the prospect of undertaking your postgraduate study here and being part of our mission to educate the next generation of scientists. Welcome to the Faculty of Science / Te Wāhanga Pūtiao. We wish you every success in your future study.
STUDYING AND LIVING IN WELLINGTON

Our natural laboratory
Situated at the southernmost point of the North Island, Wellington is a beautiful city that makes the most of its natural setting. Wellington is home to conservation island Matiu / Somes Island, a gateway to the rugged beauty of the South Island and is located on two major highways that provide easy access to North Island regions, including Egmont, Tongariro and Whanganui National Parks. In just minutes, you can escape our compact city life to explore our varied biodiversity—discover more than 76 kilometres of accessible coastline, traverse native bush or encounter wildlife at eco-sanctuary Zealandia.

International community
Students come to study here from all over the world—each year, students from more than 100 different countries make up the student population, with more than 120 university partners worldwide. There are many international communities in Wellington—Chinese, Indonesian, Japanese and Malaysian among others—that help to make international students feel at home in their new learning environment. The programmes and research within the Faculty of Science draw on examples and findings worldwide, but have a special focus on New Zealand and the Asia-Pacific region. Opportunities for international learning continue outside the lecture theatres as students take up the opportunity to go on field trips, research expeditions and overseas exchanges.

The bustling capital lifestyle
Wellington has an excellent public transport system, vibrant nightlife centred on Cuba Street and Courtenay Place and something for everyone with great shopping, beaches, bush walks, reserves, mountain-bike trails, museums, restaurants, festivals and live shows every night of the week. You can swim, kayak, surf, windsurf and sail all within 15 minutes’ travel from the centre of the city. Wellington is home to Weta Workshop and Weta Digital and has a lively music and theatre scene, not to mention the best café culture in the country.

One of a kind
Our capital city status means that Wellington is home to many national organisations and treasures found nowhere else in the country. Many of them have strong and well-established teaching and research links to the University, including Parliament, the National Library, the Supreme Court, Te Papa Tongarewa, the New Zealand Film Archive and Zealandia, as well as the highest concentration of science organisations in New Zealand, including many Crown research institutes.

Wellington was ranked the world’s most liveable city for the second year running in the Deutsche Bank list of 50 most liveable global cities in May 2018.
Wellington is the hub of science innovation in New Zealand. As home to many national organisations and the highest concentration of science organisations in the country, our capital city location means Victoria University is at the heart of scientific discovery.

Our postgraduate students have opportunities for research collaboration with many organisations, including Callaghan Innovation, the Department of Conservation, GNS Science and NIWA.

In 2018, eight students became the first-ever graduates from the only Master of Meteorology programme available in the country, run collaboratively by the University and MetService.

The programme sees students employed full time by MetService, learning academic and theoretical diagnostic and forecasting skills at the University and then implementing those skills in MetService’s state-of-the-art teaching laboratory.

Graduates Ashlee Parkes and Lewis Ferris valued the combination of the practical and theoretical.

“I have always wondered what makes the weather behave the way it does,” Lewis says. “When I heard that Victoria University offered a Master’s programme with a practical component, I knew what career I had to pursue. The instructors were very knowledgeable and the small class size meant we progressed really fast.”

“I always wanted to work in applied physics, but there aren’t many opportunities to do that,” Ashlee says. “Working while I studied made me more passionate about the topic and kept me looking forward to a career in the field.”

“Victoria University has a long-standing record of providing teaching and research opportunities in meteorology,” says Dr Jim McGregor, programme director for Meteorology. “By partnering with MetService, we can offer a Master’s degree that provides the depth of knowledge and understanding that a modern meteorologist needs.”

As well as employing the students during their studies, MetService also covered all fees from the programme. All eight students are now employed there full time.

To learn more about the Master of Meteorology, see page 34.
Graduate diploma

The Graduate Diploma in Science (GDipSc) enables you to transition to postgraduate study in a new area, or to learn about new developments in your original discipline.

<table>
<thead>
<tr>
<th>DURATION</th>
<th>One year full time or up to four years part time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREREQUISITES</td>
<td>A Bachelor’s degree in any discipline</td>
</tr>
</tbody>
</table>

Postgraduate certificates

Postgraduate certificates are designed to deepen your knowledge in an area of expertise or in a new branch of science. Many interesting courses are offered, and a research project is not required.

<table>
<thead>
<tr>
<th>DURATION</th>
<th>Six months full time or up to two years part time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREREQUISITES</td>
<td>A Bachelor of Science with an average grade of B or higher in appropriate 300-level courses*</td>
</tr>
</tbody>
</table>

Postgraduate diplomas

Postgraduate diplomas provide an alternative to Honours for graduates who wish to extend their subject expertise. An average grade of B+ may enable entry to Part 2 of a Master’s programme in the following year. Postgraduate diplomas do not require a research project, although a project may be included in some programmes.

<table>
<thead>
<tr>
<th>DURATION</th>
<th>One year full time or two years part time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREREQUISITES</td>
<td>A Bachelor’s degree in a relevant discipline with an average grade of B or higher in appropriate 300-level courses*</td>
</tr>
</tbody>
</table>

Bachelor’s degree with Honours

An Honours degree is a one-year full-time programme of coursework, undertaken after completion of the Bachelor’s degree. This can be taken as a Bachelor of Science with Honours in a named subject area (see pages 8–9 for options) or as a Bachelor of Biomedical Science with Honours. A research project is an important part of the work and provides practical training in research methods. An Honours degree can lead directly to PhD study.

<table>
<thead>
<tr>
<th>DURATION</th>
<th>One year full time or two years part time (with permission from the head of school)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREREQUISITES</td>
<td>A Bachelor’s degree in an appropriate field, with an average grade of B+ or higher in relevant 300-level courses</td>
</tr>
</tbody>
</table>

* Students may also qualify for entry if they have appropriate experience, as approved by the Associate Dean (Students).
Master’s by thesis

For a Master’s by thesis, students complete one year of coursework, followed by a 120-point thesis where they will work under the supervision of an academic staff member. Students can do this as part of a Master of Science (MSc) or in a specialised programme such as a Master of Biomedical Science, Master of Clinical Research, Master of Development Studies or Master of Environmental Studies. Students who already have a postgraduate diploma or an Honours degree in the subject area may be permitted to advance to the thesis year without completing the coursework.

An MSc is a way of advancing your understanding and skill in your undergraduate major or, in some cases, to undertake study in a new professional area. This Master’s degree is evidence of the ability to work independently, critically evaluate research and interpret and communicate with a high level of skill. To explore the available subjects in an MSc, see pages 8–9.

For more information about the specialised programmes, see pages 14–15 and pages 30–32.

Course-based Master’s

Our course-based Master’s programmes are designed for students who enjoy a collaborative approach to study. You’ll attend lectures and classes with your peers, complete assignments and undertake individual research that is tailored to your interests. A course-based Master’s is a way of advancing your scientific knowledge in a practical and guided environment. To explore your options in the course-based Master’s programmes, see the pages for the relevant schools in this publication.

Doctor of Philosophy

The Doctor of Philosophy (PhD) programme requires a major piece of original research that makes a significant contribution to the knowledge or understanding of a field of study.

Although coursework does not form an integral part of the PhD degree, a student may be required or encouraged to undertake a limited amount of coursework. On completion, each thesis is assessed by three examiners, one of whom is from an overseas university. This assessment is followed by an oral examination.

Supervision for PhD research is available in almost all subject areas offered by the Faculty of Science.

<table>
<thead>
<tr>
<th>DURATION</th>
<th>The PhD programme normally requires at least three years of full-time study. A PhD may be undertaken part time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREREQUISITES</td>
<td>You will need a First Class or Second Class Honours degree or a Master’s degree to apply for a PhD. However, meeting this requirement does not guarantee a place as you also need to be accepted by the School and assigned a supervisor.</td>
</tr>
<tr>
<td>ENROLMENT</td>
<td>The Faculty of Graduate Research (FGR) provides a first contact point for all students enrolling in a PhD, including international students. Application is available online. There are three application deadlines each year—1 March, 1 July and 1 November. For any enquiries about PhD admission and enrolment, contact <a href="mailto:pg-research@vuw.ac.nz">pg-research@vuw.ac.nz</a></td>
</tr>
</tbody>
</table>

Broken line indicates pathways that are possible in some programmes.

* Some postgraduate diploma courses can lead to Master’s study.
For details, contact the postgraduate liaison officer at postgrad-enquiries@vuw.ac.nz

** Some Bachelor’s degrees offer pathways straight into a Master’s programme.
## OUR PROGRAMMES

### Biological Sciences

<table>
<thead>
<tr>
<th></th>
<th>GDipSc</th>
<th>PGCert</th>
<th>PGDip</th>
<th>HONOURS</th>
<th>COURSE-BASED MASTER’S</th>
<th>MASTERS BY THESIS</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOLOGY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOMEDICAL SCIENCES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOTECHNOLOGY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CELL AND MOLECULAR BIOSCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLINICAL IMMUNOLOGY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLINICAL RESEARCH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSERVATION BIOLOGY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECOLOGICAL RESTORATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECOLOGY AND BIODIVERSITY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARINE BIOLOGY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARINE CONSERVATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOLECULAR MICROBIOLOGY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Chemical and Physical Sciences

<table>
<thead>
<tr>
<th>GDipSc</th>
<th>PGCert</th>
<th>PGDip</th>
<th>HONOURS</th>
<th>COURSE-BASED MASTER'S</th>
<th>MASTERS BY THESIS</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLIED PHYSICS</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEMISTRY</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>DRUG DISCOVERY AND DEVELOPMENT*</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>PHYSICS</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>

* Taught in collaboration with the Ferrier Research Institute and the School of Biological Sciences.

## Geography, Environment and Earth Sciences

<table>
<thead>
<tr>
<th>GDipSc</th>
<th>PGCert</th>
<th>PGDip</th>
<th>HONOURS</th>
<th>COURSE-BASED MASTER'S</th>
<th>MASTERS BY THESIS</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIMATE CHANGE SCIENCE AND POLICY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>DEVELOPMENT STUDIES</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>ENVIRONMENTAL SCIENCE</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>ENVIRONMENTAL STUDIES</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>GEOGRAPHIC INFORMATION SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>GEOGRAPHY</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>GEOLOGY</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>GEOPHYSICS</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>METEOROLOGY</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>PHYSICAL GEOGRAPHY</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

## Mathematics and Statistics

<table>
<thead>
<tr>
<th>GDipSc</th>
<th>PGCert</th>
<th>PGDip</th>
<th>HONOURS</th>
<th>COURSE-BASED MASTER'S</th>
<th>MASTERS BY THESIS</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLIED STATISTICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>MATHEMATICS</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>STATISTICS</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>STOCHASTIC PROCESSES IN FINANCE AND INSURANCE</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>

## Psychology

<table>
<thead>
<tr>
<th>GDipSc</th>
<th>PGCert</th>
<th>PGDip</th>
<th>HONOURS</th>
<th>COURSE-BASED MASTER'S</th>
<th>MASTERS BY THESIS</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLINICAL PSYCHOLOGY</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>COGNITIVE AND BEHAVIOURAL NEUROSCIENCE</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>CROSS-CULTURAL PSYCHOLOGY</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>FORENSIC PSYCHOLOGY</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>PSYCHOLOGY</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

● Subject to regulatory approval.

## Science in Society

<table>
<thead>
<tr>
<th>GDipSc</th>
<th>PGCert</th>
<th>PGDip</th>
<th>HONOURS</th>
<th>COURSE-BASED MASTER'S</th>
<th>MASTERS BY THESIS</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIENCE IN SOCIETY</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

● Subject to regulatory approval.
Discover the science of life

Biology is studied at Victoria University in two main areas: Ecology and Biodiversity and Cell and Molecular Bioscience. Our academics in these areas are considered some of the best researchers in New Zealand in topics including biotechnology, cell biology, drug discovery and development, conservation biology, ecological restoration, marine biology and microbiology.

Why study with us?

The Performance-Based Research Fund ranks us first nationally for research quality in Biomedical Science and Ecology, Evolution and Behaviour and these subjects were also ranked as first in New Zealand in the 2018 QS World Ranking.

Wellington’s ambition to take an environmental leadership role as the capital of clean and green New Zealand, and the presence of eco-sanctuaries such as Zealandia and the Kapiti Island nature reserve make Wellington one of the best cities in the world to study urban ecology.

In 2016, the University signed a memorandum of understanding with eco-sanctuary Zealandia. This partnership proposes a joint research centre with a focus on urban ecology and continues to nurture the positive relationship between the two institutions.

Our close ties with research institutes, including the Malaghan Institute for Medical Research, Ferrier Research Institute and the Capital and Coast District Health Board, mean students in our Cell and Molecular Bioscience postgraduate programmes benefit from a wealth of research expertise and opportunities.

Additional education and research opportunities for our postgraduate students are provided through our key links with the Cawthron Institute, the Department of Conservation and NIWA.
Interdisciplinary research

Interdisciplinary research is celebrated within the School. Often, postgraduate research is conducted on the interface between the biological sciences and other disciplines such as the chemical and physical sciences, psychological sciences and engineering.

Funding is available for postgraduate students' individual research projects. This is administrated by supervisors, and is for specific research needs or to attend conferences in New Zealand or overseas.

Modern teaching and learning

Our new science building, Te Toki a Rata, with 12,500 square metres of modern teaching, research and laboratory facilities, opened in February 2018. We have state-of-the-art research and teaching laboratories and equipment covering a range of biological disciplines.

Our award-winning Victoria University Coastal Ecology Laboratory is a purpose-built research lab that overlooks the exposed rocky reef systems of the Taputeranga Marine Reserve on Wellington’s south coast. The lab has four seagoing research vessels, two wet-lab facilities and a shared office space for up to 30 researchers.

Programme coordinators

<table>
<thead>
<tr>
<th>Programme</th>
<th>Coordinator</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>Associate Professor Ken Ryan</td>
<td><a href="mailto:ken.ryan@vuw.ac.nz">ken.ryan@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Biomedical Science</td>
<td>Dr Bronwyn Kivell</td>
<td><a href="mailto:bronwyn.kivell@vuw.ac.nz">bronwyn.kivell@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Biotechnology</td>
<td>Professor David Ackerley</td>
<td><a href="mailto:david.ackerley@vuw.ac.nz">david.ackerley@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Cell and Molecular Bioscience</td>
<td>Dr Bronwyn Kivell</td>
<td><a href="mailto:bronwyn.kivell@vuw.ac.nz">bronwyn.kivell@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Clinical Immunology</td>
<td>Professor Anne La Flamme</td>
<td><a href="mailto:anne.laflamme@vuw.ac.nz">anne.laflamme@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Clinical Research</td>
<td>Professor Elaine Dennison</td>
<td><a href="mailto:elaine.dennison@vuw.ac.nz">elaine.dennison@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Conservation Biology</td>
<td>Associate Professor Nicola Nelson</td>
<td><a href="mailto:nicola.nelson@vuw.ac.nz">nicola.nelson@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Drug Discovery and Development</td>
<td>Dr Simon Hinkley</td>
<td><a href="mailto:simon.hinkley@vuw.ac.nz">simon.hinkley@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Ecological Restoration</td>
<td>Associate Professor Heiko Wittmer</td>
<td><a href="mailto:heiko.wittmer@vuw.ac.nz">heiko.wittmer@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Ecology and Biodiversity</td>
<td>Associate Professor Ken Ryan</td>
<td><a href="mailto:ken.ryan@vuw.ac.nz">ken.ryan@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Marine Biology</td>
<td>Associate Professor James Bell</td>
<td><a href="mailto:james.bell@vuw.ac.nz">james.bell@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Marine Conservation</td>
<td>Associate Professor James Bell</td>
<td><a href="mailto:james.bell@vuw.ac.nz">james.bell@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Molecular Microbiology</td>
<td>Dr Joanna Mackichan</td>
<td><a href="mailto:joanna.mackichan@vuw.ac.nz">joanna.mackichan@vuw.ac.nz</a></td>
</tr>
</tbody>
</table>

Your study options

There are three ways that you can undertake postgraduate study in the School of Biological Sciences:

1. Complete your own individual study with a supervisor who has a background in the chosen field.
2. Join an already established funded research project and have a guided research topic.
3. Complete a taught programme.

Careers in biological sciences

Our location, adjacent to New Zealand’s governmental hub, means that postgraduate students are able to network with potential employers throughout their degree because of our established links with government organisations.

Many researchers who complete advanced-level study with us enter the job market in higher-level positions than people with an undergraduate degree because of the management and independent research skills they have gained throughout postgraduate study.

Our graduates work in areas including biosecurity, biotechnological innovation, environmental consultancy and monitoring, field ecology, genetic counselling, immunology, laboratory management, marine biology, policy analysis, research science and teaching.
RESEARCH CONNECTIONS

Centre for Biodiscovery
The Centre for Biodiscovery is dedicated to understanding the biological basis of disease, finding new chemical entities for cures and developing diagnostics through multidisciplinary collaborative research. Operating at the boundary of chemistry and biology, the Centre is composed of scientists from the School of Biological Sciences, the School of Chemical and Physical Sciences and the Ferrier Research and Malaghan Medical Institutes. The 25 principal investigators in the Centre are respected as national leaders in natural products-based drug discovery, cancer biology and development of vaccines, proteomics and chemical genetics. This is underpinned by strong foundations in biotechnology, cell biology and synthetic and natural products chemistry.

Centre for Biodiversity and Restoration Ecology
Research in the Centre for Biodiversity and Restoration Ecology explores a range of topics under the areas of reservation, restoration and reconciliation ecology. Our specialist topics include mammalian pest management, invasive plant and insect species, ecology, translocation and meta-population management and monitoring.

The Centre works in collaboration with local city and regional government and non-governmental agencies, including Zealandia.

Malaghan Institute of Medical Research
Situated at the University's Kelburn campus, the Malaghan Institute of Medical Research is New Zealand's leading independent medical research facility and an international leader in the development of immunotherapies.

Postgraduate students have the opportunity to do supervised research within the Institute, and are encouraged to apply for a place in its competitive summer internship programme.

Victoria University Coastal Ecology Laboratory
The award-winning Victoria University Coastal Ecology Laboratory (VUCEL) is an active research facility in Island Bay, overlooking the spectacular exposed rocky reef systems of the Taputeranga Marine Reserve and eight kilometres from the University's main campus.

Much of the research and teaching conducted here focuses on the population and community ecology of coastal ecosystems, including coastal forests, watersheds, sand dune plant communities and rocky reef ecosystems. Further areas of research include behavioural ecology, conservation biology, disturbance ecology, larval biology, marine reserves, marine symbiosis, metapopulation dynamics, physiological ecology, population genetics and evolution.

www.victoria.ac.nz/biodiscovery
www.victoria.ac.nz/biodiversity
www.malaghan.org.nz
www.victoria.ac.nz/coastal-ecology-lab
Master of Biomedical Science

There are many medical challenges facing the world today such as antibiotic resistance, global disease and the need for advanced drug design. Biomedical science is about innovative research into human health. Students will be at the forefront of discovery—from researching genetics and reproduction to understanding the cellular and molecular structure of a disease and searching for a cure.

The Master of Biomedical Science (MBMedSc) is a two-year full-time Master’s programme that includes one year of coursework and a thesis. You’ll gain advanced skills and contribute to the field of biomedical research.

In Part 1 of the programme, you will complete at least five courses worth 120 points, which include:
- BMSC 580 Research Preparation.
- Courses worth 30 points from:
  - BMSC 401-406
  - CLNR 413 Advanced Topics in Clinical Research 1
  - CLNR 414 Advanced Topics in Clinical Research 2.
- Courses worth 60 points from:
  - BIOL 430-432
  - BMSC 401-499
  - CLNR 410 Clinical Immunology
  - CLNR 413 Advanced Topics in Clinical Research 1
  - CLNR 414 Advanced Topics in Clinical Research 2.

These courses will prepare you for Part 2 in your second year, in which you’ll do a full-time research project, leading to a thesis. You’ll need to arrange a thesis topic with a supervisor before you enrol in Part 1 of the programme.

Why study with us?

The University has a close relationship with the Capital and Coast District Health Board, the Ferrier Research Institute and the Malaghan Institute of Medical Research, which provides students with a range of research opportunities. Throughout the Master’s programme, you will learn from both academic and industry experts, ensuring you complete the programme with a unique skill set.

| Programme coordinator | Dr Andrew Munkacsi
|                        | andrew.munkacsi@vuw.ac.nz |
| Entry requirement      | A Bachelor of Biomedical Science with at least a B+ average or acceptance by the head of school |
| Key dates              | Start in Trimester One, standard trimester closing dates |

Master of Clinical Immunology

Clinical immunology sits at the centre of all aspects of human health and is one of the most exciting and active areas of biological discovery. Clinical immunologists are at the forefront of medical discovery and are concerned with solving diagnostic challenges and developing new clinical treatments such as vaccines.

The Master of Clinical Immunology (MClinIm) is a 180-point course-based Master’s programme designed to equip students with the skills required to assess, analyse and undertake clinical research in immunology. You will be trained in clinical trial design, biostatistics and advanced immunological theory and techniques.

The first part of the programme includes the following core courses:
- CLNR 401 Introduction to Clinical Research and Clinical Trial Practice
- CLNR 403 Biostatistics and Informatics
- CLNR 410 Clinical Immunology
- CLNR 413 Advanced Topics in Clinical Research 1
- CLNR 414 Advanced Topics in Clinical Research 2
- either CLNR 411 Practicum in Clinical Immunology or CLNR 412 Research Project in Clinical Immunology.

In the second part of the programme, you’ll undertake:
- CLNR 510 Advanced Clinical Immunology
- CLNR 511 Research Design and Implementation.

Why study with us?

We have close ties to the Malaghan Institute of Medical Research and the Medical Research Institute of New Zealand, the largest private medical research institutes in New Zealand. Additionally, we work closely with clinicians at Wellington Regional Hospital and the Wellington School of Medicine, University of Otago. Clinicians and researchers from all of these organisations contribute to the MClinIm programme by delivering lectures, sharing their expertise and leading research in the development of more effective immunotherapies and treatments for cancer, asthma and allergy, multiple sclerosis and infectious disease.

| Programme coordinator | Professor Anne La Flamme
|                        | anne.laflamme@vuw.ac.nz |
| Entry requirement      | A Bachelor of Biomedical Science majoring in Molecular Pathology or an equivalent qualification, with an average grade of B or higher in appropriate 300-level courses |
| Key dates              | Start in Trimester One, standard trimester closing dates |
Master of Clinical Research

Developed in partnership with Capital and Coast District Health Board, the Master of Clinical Research (MClinRes) is a thesis-based programme completed full time over one year.

A postgraduate qualification in clinical research is the perfect starting point for medical graduates at all levels of experience who would like to undertake clinical research.

You’ll normally complete the Postgraduate Diploma of Clinical Research (PGDipClinRes) (or equivalent) before starting the MClinRes.

The postgraduate diploma is a 120-point taught programme and comprises the following courses:

- CLNR 401 Introduction to Clinical Research and Clinical Trial Practice
- CLNR 402 Ethics and Research in Special Populations as Applied to Clinical Research
- CLNR 403 Biostatistics and Informatics
- CLNR 404 Qualitative Methods in Clinical Research
- CLNR 405 Advanced Clinical Research Design, Management and Analysis
- CLNR 580 Research Preparation.

The Master’s qualification requires the completion of a 120-point thesis:

- CLNR 591 Thesis in Clinical Research.

A typical thesis will include a detailed literature search around the proposed study topic, a summary of the methods proposed and some pilot results data. Some candidates may wish to follow the Master’s degree with a PhD in Clinical Research.

Why study with us?

The University’s relationship with Capital and Coast District Health Board means you will have access to both practical and academic knowledge in clinical research. The programme is supervised by clinicians who are involved in clinical research and it focuses on health research processes and methodology.

| Programme coordinator | Professor Elaine Dennison  
elaine.dennison@vuw.ac.nz |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry requirement for PGDipClinRes</td>
<td>A Bachelor’s degree in health, medicine, neuroscience, psychology, biomedical science or biostatistics</td>
</tr>
<tr>
<td>Entry requirement for MClinRes</td>
<td>PGDipClinRes or equivalent</td>
</tr>
<tr>
<td>Key dates</td>
<td>Start in Trimester One or Two, standard trimester closing dates</td>
</tr>
</tbody>
</table>

www.victoria.ac.nz/clinical-research
GLISELLE MARIN

Student, Master of Conservation Biology

Having worked on various conservation projects, Gliselle Marin was searching for a graduate programme that would provide options outside the traditional MSc path to academia, which led her to enrolling in the Master of Conservation Biology.

“The option to do independent research meant I did not have to give up the development of critical research skills whilst also exploring conservation approaches through policy, communications, human dimensions, protected areas management and restoration.”

Gliselle, who’s from Belize, completed her research project at Zealandia and received mentorship from people working in conservation, including the conservation research manager, site advisers, rangers and volunteers. Her research project monitored the health of translocated hihi (stitchbird) populations.

“I was able to be part of one of the projects that contributes to a larger vision for conservation in New Zealand through the translocation of vulnerable endemic species.”

The programme allowed Gliselle to visit organisations and conservation projects around New Zealand and learn from some of the world’s leading scientists and conservationists.

“I am leaving with practical skills and knowledge to enter the field of conservation, and the confidence to take on new challenges.

“After graduating, I will return to Belize and work to keep it moving forward as a leader in global conservation strategies. I hope to work in a capacity to preserve national resources, increase public awareness and encourage sustainable development.”

---

**Master of Conservation Biology**

With 13 national parks, a diverse dramatic coastline and breathtaking native bush that is home to more than 80,000 species of native animals, plants and fungi, New Zealand's natural living space is a biological scientist's dream. Study Conservation Biology to make a valuable contribution to the maintenance and restoration of the diversity of native species in their natural environments in New Zealand and abroad.

The Master of Conservation Biology (MConBio) is a one-year full-time course-based Master's programme that draws on scientific skills such as experimental design, the collection and analysis of data and presentation of research results and applies these skills to conservation problems and examples throughout New Zealand.

You’ll take three core courses, including a three-week field course to key conservation sites throughout New Zealand, and choose further relevant electives that suit your interests.

**Core courses:**

- BIOL 405 Invasive Species, Biosecurity and Law
- BIOL 420 Conservation Ecology
- BIOL 424 New Zealand Conservation Practice

and 90 points from:

- BIOL 401–440
- BIOL 510–530
- ERES 525–527.

Another elective course may be substituted (with approval of the head of school).

**Why study with us?**

The School of Biological Sciences is staffed with internationally respected scientists whose work informs the management of New Zealand’s unique biota and conservation. These staff have established close connections with Crown research institutes, local and national government departments, New Zealand’s national museum Te Papa Tongarewa and local Māori.

We have private and public conservation sites on our doorstep, creating opportunities for students to gain research experience and learn conservation techniques.

---

**Programme coordinator**

Associate Professor Nicola Nelson

nicola.nelson@vuw.ac.nz

**Entry requirement**

Relevant undergraduate degree with a B+ average or equivalent, or acceptance by the programme coordinator

**Key dates**

Start in Trimester One or Two, enrolments close 15 October 2018 for Trimester One and 21 June 2019 for Trimester Two.

www.victoria.ac.nz/conservation-biology
Master of Marine Conservation

The University’s Master of Marine Conservation (MMarCon) is the only course-based Master’s degree in marine conservation in New Zealand.

The programme educates students in marine conservation issues and practice through course and field work from New Zealand, Australia and the Asia-Pacific region. Students are prepared for a career in a range of marine conservation areas worldwide, including the conservation and management of marine organisms and ecosystems.

The programme is made up of three core courses and three elective courses and includes two field trips.

You will take:

- BIOL 424 New Zealand Conservation Practice
- BIOL 519 Principles of Marine Conservation
- BIOL 529 Tropical Marine Conservation Practice
- a further 90 points from the MMarCon schedule; refer to the University’s Calendar or website for a list of courses.

Why study with us?

The School of Biological Sciences is one of New Zealand’s prominent centres for marine biology research, ranking first in New Zealand for biology in the latest national assessment of research excellence.

Much of the teaching takes places at the Victoria University Coastal Ecology Laboratory—an active research facility in Island Bay, just eight kilometres from the main campus, and situated right on the doorstep of 76 kilometres of accessible coastline along Wellington harbour with nearby access to two marine reserves. The lab provides 816 square metres of state-of-the-art research space, including two wet-lab facilities, and access to four marine research vessels.

Programme coordinator | Associate Professor James Bell
| james.bell@vuw.ac.nz

Entry requirement | Relevant undergraduate degree with a B+ average grade or approval from the programme director

Key dates | Start in Trimester One or Two, enrolments close 15 October 2018 for Trimester One, 1 March 2019 for Trimester Two

www.victoria.ac.nz/marine-conservation
After working as a marine biologist and conservation manager in Thailand, Jennifer Matthews decided to pursue a PhD on the ability of corals to adapt to, and survive, climate change.

“The Marsden project that my PhD was part of utilised both field and lab work to answer a pivotal question about the adaptive ability of coral reefs. I was able to develop new lab techniques, gain field experience, collaborate with scientists around the world and present my findings at international conferences.

“Currently, major gaps exist in our understanding of the nutritional flux between reef-building cnidarians and their phototrophic algal symbionts (Symbiodinium sp.), but greater in-depth knowledge is of paramount importance for understanding the potential for coral reefs to adapt to environmental change.”

During her PhD, Jen developed and applied several important methodological advances, including the integration of gene expression and metabolite-profiling techniques, to unravel the molecular and metabolic implications for cnidarians when they harbour different Symbiodinium types.

“My work raised the intriguing possibility that such novel pairings, should they persist, may evolve over time to a more beneficial symbiotic state, providing an adaptive potential for coral reefs in the face of climate change.”

Jen says that the University offered academic and extracurricular opportunities that broadened her expertise, not just in marine science, but also in writing and communication, leadership, innovative thinking and the art of collaboration.

After submitting her thesis, Jen worked at the Ministry for Primary Industries, initially in the fisheries science team and, subsequently, in the marine biosecurity investigation team. But her determination to continue a career in research saw her search for postdoctoral opportunities all around the world.

“I’ve been awarded a Human Frontier Science Foundation postdoctoral fellowship at the University of Technology, Sydney. This project will employ state-of-the-art molecular, imaging and microbiological techniques to investigate marine microbes.”
External factors such as chemicals found in plastics and recreational drugs can influence the cell-to-cell communication that happens in the ovary, as alumna Kelly Campen discovered during her PhD study.

“My research was focused on female fertility. I found that the communication pathways of the cells inside the ovaries are susceptible to external factors, which suggests they reduce the quality of the egg and may contribute to infertility.”

Kelly graduated with a PhD in Biomedical Science in 2014. At the time, her area of research was relatively understudied and that was what made it exciting. “Even though my research provided answers to our initial questions, it opened up many more questions that needed to be answered, which is the great thing about research—there are always new questions.”

After graduating, Kelly spent three years in the United States as a postdoctoral fellow, working at two different institutes—Middlebury College in Vermont and the University of Tennessee—where she has learnt new research techniques, mentored students, taught classes and attended conferences.

“My experience at Victoria University and, particularly, the supervisors I worked with, were instrumental in me being able to secure postdoctoral positions overseas. My undergraduate studies in Biomedical Science gave me a really good base of knowledge in a range of different areas and studying for a PhD further built on that knowledge.”

Kelly is back in New Zealand and in a role at AuramerBio, a biotech company that arose out of research done at Victoria University. AuramerBio develops sensing technologies and diagnostic tests using aptamers, an antibody alternative. Kelly’s advice for future students is to “consider the career that you want after you’ve finished your PhD and try to get experience that will help you get there. There are always opportunities to get experience teaching or mentoring that will give you a leg up when applying for jobs.”
Why study with us?

Both Chemistry and Physics at Victoria University were ranked first in New Zealand for research quality in the latest Performance-Based Research Fund evaluation.

Our alumni and faculty members are often awarded prestigious national and international science awards. Most notably, alumnus Professor Alan MacDiarmid was awarded the Nobel Prize in Chemistry in 2000.

A Master's degree in Physics or Chemistry opens up a range of possibilities for a research-based career or prepares you for taking the next step in your academic study to complete a PhD.

The calibre of scientists in the School attracts significant external and internal funding. This means support can be received through scholarships for applied study or from research grants, and funding is available for students to attend international conferences, go on research visits or undertake field work and access the facilities needed to make a big discovery.

A postgraduate degree in the School is the next step for students wanting to become experts in the fields of chemistry and physics. Postgraduate students at the School create their own knowledge and contribute to the international effort by chemists and physicists to understand how things work.
High-profile connections
The School interacts closely with a number of the nation's leading research institutes such as Callaghan Innovation, Ferrier Research Institute, GNS Science, NIWA and the Robinson Research Institute. We have excellent links with the School of Biological Sciences, the Centre for Biodiscovery and the Malaghan Institute of Medical Research, with joint research programmes in the discovery and evaluation of new bioactive compounds for the treatment of disease.

Our resources
The School is housed in the Laby building on Kelburn campus and also occupies specialised new laboratories in the adjoining Alan MacDiarmid building.

You'll have access to state-of-the-art research equipment, including nuclear magnetic-resonance and Raman spectrometers, X-ray-diffraction and ultra-fast-laser facilities, an electron microscope suite and a palaeomagnetism laboratory.

Your study options
The nature of our disciplines provides a learning environment where chemists and physicists enable each other to find solutions for things that matter. You might take your passion for biology and chemistry and undertake a one-year course-based Master’s degree in drug discovery and development, or take your skills in physics and chemistry to research renewable energy generation.

You should contact a programme director to discuss your potential research projects. Most of our postgraduate students join their supervisor’s research project so they can collaborate on a larger project with proper guidance, a greater range of resources and greater opportunities from the attached funding.

“I am working on synthesising a range of organic compounds that could be used in redox flow batteries—a relatively new type of energy storage. If I am able to find compounds that work well, my research could have direct applications for future energy storage.”

—Matthew Brett, Student, Bachelor of Science with Honours in Chemistry

Programme coordinators
Chemistry

<table>
<thead>
<tr>
<th>Honours</th>
<th>Professor John Spencer</th>
<th><a href="mailto:john.spencer@vuw.ac.nz">john.spencer@vuw.ac.nz</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Master’s/PhD</td>
<td>Associate Professor Mattie Timmer</td>
<td><a href="mailto:mattie.timmer@vuw.ac.nz">mattie.timmer@vuw.ac.nz</a></td>
</tr>
</tbody>
</table>

Physics

<table>
<thead>
<tr>
<th>Honours</th>
<th>Professor Michele Governale</th>
<th><a href="mailto:michele.governale@vuw.ac.nz">michele.governale@vuw.ac.nz</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Master’s/PhD</td>
<td>Associate Professor Petrik Galvosas</td>
<td><a href="mailto:petrik.galvosas@vuw.ac.nz">petrik.galvosas@vuw.ac.nz</a></td>
</tr>
</tbody>
</table>
Career opportunities
For a career as a physicist or chemist, a postgraduate degree is crucial in a range of different fields, such as food processing, medical physics, new product development, patent law, research and teaching and technology.

Our Chemistry graduates have gained employment as scientists in areas such as analytics and production monitoring, biomedicine and biotechnology, the energy sector, environmental protection, government departments, pharmaceutical industries, teaching and a range of manufacturing, from agriculture-based industries to advanced materials and nanotechnology.

Our Physics graduates are employed in technology-focused companies (in management or in research and development), government laboratories, hospitals (as medical physicists), traffic and aviation engineering and teaching, and they also move into related fields such as environmental or earth science, meteorology, computing and more.

Research connections
MacDiarmid Institute for Advanced Materials and Nanotechnology
Hosted at Victoria University’s Kelburn campus, the MacDiarmid Institute for Advanced Materials and Nanotechnology is a national network of leading scientists who create high-tech solutions to problems such as climate change.

The Institute creates materials and devices from atoms and molecules and studies their properties and develops and applies cutting-edge techniques in physics, chemistry and engineering. Since the Institute was founded in 2002, it has instigated 14 new companies and delivered graduates to others, including New Zealand’s aerospace laboratory, Rocket Lab.

“The MacDiarmid Institute undertakes collaborative, interdisciplinary materials science research that could deliver solutions to some of our biggest problems,” says Associate Professor Justin Hodgkiss, co-director of the MacDiarmid Institute and a Victoria University researcher. “I’m very proud of what the Institute has achieved so far, and we’re just getting started.”

Ferrier Research Institute
The Ferrier Research Institute consists of a team of internationally recognised carbohydrate chemistry experts and analysts working to bring better drugs, materials and technology to the world. For more information on the Ferrier Research Institute and the Master of Drug Discovery and Development, see page 26.

Robinson Research Institute
The multidisciplinary Robinson Research Institute melds innovative engineering and applied physics to build advanced technologies for businesses worldwide.

Master’s and PhD students can apply to study with the Robinson Research Institute. For more information, contact Jeannie Redman at rri-admin@vuw.ac.nz

www.macdiarmid.ac.nz

www.victoria.ac.nz/ferrier

www.victoria.ac.nz/robinson
With a passion for understanding how the world works, Harry Warring began a PhD in Physics and his research took him to new and exciting areas that hadn’t been studied extensively before.

“My PhD research was focused on a group of magnetic semiconductors known as rare earth nitrides. The materials have very strange properties and my project involved leveraging these properties to create new types of electronic devices. It was exciting because everything was new and hadn’t been done before. There was also the potential for this type of research to lead into technical advances in computing, which would bring wider benefits to society.”

Harry’s supervisors were very supportive during his research and had a lot of wisdom to impart. He really enjoyed drawing on their breadth of experience and expanding his theoretical and technical skill sets.

“My degree gave me the skills to work through problems systematically and this has been indispensable to my career. I am now working in an engineering role with a strong research and development focus. Being able to get to the root cause of issues quickly is very important.”

Since completing his PhD in 2016, Harry joined the start-up company, Rocket Lab, which recently launched the first orbital rocket from their launch site in Mahia, Hawke’s Bay.

“I am a test engineer at Rocket Lab and am responsible for ensuring flight readiness of our launch vehicles. We have flown two missions in the past two years. Our latest flight put several satellites into orbit.”

Both the programme and the University lived up to Harry’s expectations. His advice for future students is to make the most of all the opportunities that university has to offer.

“You’ll have to work hard, but the end results are worth it.”
CLEANING UP OUR WATERWAYS

Combining iron with natural silicates can create a safer, easier method for removing nitrate pollution from waterways, PhD graduate Putri Fraser has discovered.

“Previous research shows that nano-sized iron can remove pollutants from soil and waterways, but it’s not a perfect solution,” Putri says. “The iron is magnetic, so these nano-sized particles can clump up, reducing their reactivity and also making them difficult to work with. This clumping can also occur if they are ingested by fish, potentially harming wildlife.”

Putri needed to find a way of making the nano-sized iron less likely to clump, but still maintain its reactivity towards pollutants. She tested several different products, but the solution came in the form of a micro-silicate product she first encountered while working as a Summer Research Scholar at Callaghan Innovation in 2012.

“This micro-silicate product is cheap to produce and is a by-product of thermal power generation,” Putri says. “My supervisor, Dr Robin Fulton, and I thought it was very fitting to use another waste product to deal with nitrate waste.”

Putri says they were able to coat the micro-silicate with the nano-sized iron, effectively increasing the size of the nano-iron while maintaining its reactivity.

“Coating the silicate with the iron makes it easier to distribute the iron in a solution, so the soil gets better coverage,” Putri says. “Also, as the silicate-coated nanoparticles can’t clump, we don’t have to worry about any potential negative interactions with fish.”

“Putri’s research is significant,” says Dr Fulton, “as not only has she made new materials for removing nitrate from waterways, but she has also discovered that the ability of the nano-sized iron to remove nitrates is strongly influenced by the minerals around it. This discovery has implications for determining the best strategies for using nano-sized iron to address many environmental pollution issues.”

Using chemistry to remediate environmental pollutants was what excited Putri about her research. She is currently assisting her secondary supervisor, Professor Jim Johnston, in a research project on enhancing geothermal energy recovery through nano-technology. “In the future, I would like to take my PhD project to completion and apply it to real-world solutions.”
Measuring the chemical content of cloudy liquids such as wine, beer and milk can be difficult, but researchers at MaramaLabs, a spin-off company from the MacDiarmid Institute, are coming up with a solution.

“During my PhD at Victoria University, I was involved with inventing a new type of spectrophometer, CloudSpec,” says Dr Brendan Darby who, along with Dr Matthias Meyer, is a lead researcher and engineer at MaramaLabs.

“Cloudy solutions strongly scatter light and this hinders being able to use light to measure their chemical content and colour. CloudSpec allows the full absorption spectrum to be measured without the need to remove the cloudiness through filtration. It is simple to use and could sit on the bench of any lab, as part of the existing suite of analytical instruments.

“CloudSpec has the potential to improve many processes in the food and beverage industry. It could be used to measure a range of solutions from protein in milk to algae concentration in lake water,” Brendan explains. “MaramaLabs was created to commercialise this invention.”

Both Brendan and Matthias graduated with doctorates and are now employed by Viclink. Professor Eric Le Ru, Brendan’s former supervisor, is the senior science adviser for MaramaLabs and Viclink is the commercial mentor. The project has received funding from KiwiNet.

“I have always had a passion for optics and spectroscopy, and the field of my PhD was an exciting mix of both topics along with having direct applications in analytical chemistry,” says Brendan. “Now, working at the University on a similar project has helped me build on a strong network of connections in the New Zealand science community.

“I am the commercialisation and business manager of MaramaLabs; I look after the business-facing aspects of the project, from dealing with industries to negotiating with investors and product development, but I try to get back to the lab whenever I can.”
Postgraduate study with the Institute offers you the opportunity to work alongside internationally recognised leaders in carbohydrate and organic chemistry, solving real challenges in synthetic chemistry and structure elucidation. You’ll also benefit from the Institute’s close links with business that span a range of commercial industries—from pharmaceuticals to paint and pesticides. This exposure to commercial work means you’ll often spend time in industry labs. This is a unique opportunity not normally available in the traditional university environment, and is particularly valuable experience if you plan to work on, or with, commercial enterprises after you graduate.

If you’re interested in a structured programme of study around drug design, you should consider the Master of Drug Discovery and Development (see next page).

Master’s by thesis and PhD students often undertake a funded project based around existing applied and fundamental research projects in which they do real drug discovery work and make fundamental advances to science—and many will see their products commercialised.

There is also flexibility for applicants who wish to pursue their own research interests. If you’re considering this, you should contact the Institute as early as possible to discuss your proposed topic and confirm appropriate supervision is available.

☎ 04-463 0047
✉ ferrier@vuw.ac.nz
🌐 www.victoria.ac.nz/ferrier
Master of Drug Discovery and Development

Research into drug discovery and development operates on the interface between the fields of chemistry and biology and provides students from both disciplines with the skills to identify new drug targets, develop them into therapeutics and progress them through the drug development pipeline.

The 180-point Master of Drug Discovery and Development (MDDD) is an intensive one-year full-time programme. Coursework of lectures, tutorials, interactive seminars and guided study is combined with a research element, in which students can focus on their interests in the field. This involves a substantial element of practical, laboratory-based research, equipping students with the practical skills to excel in the workplace or a research environment. Graduates have continued to research, manufacturing and regulatory roles, as well as into PhD study.

You’ll undertake a programme of study tailored to your personal skills and interests and complete research projects in a range of topics.

In Part 1, you’ll take:

- DRGD 401 Chemical Biology and Drug Discovery
- DRGD 402 Drug Design or CHEM 421 Organic Chemistry and Bio-organic Chemistry
- a further 60 points from BMSC 400–441, BTEC 435–441, CHEM 400–441, CLNR 401–405, DRGD 402–403, MBIO 434–440, BIOL 430–440 (excepting BIOL 436)
- DRGD 580 Research Preparation.

In Part 2, you’ll undertake a 60-point research project (DRGD 561 or DRGD 590). The option of a 90-point thesis is also available.

Why study with us?

Victoria University is ranked number one in New Zealand for research quality and is also ranked number one in New Zealand for research quality in Biomedical Science, Chemistry and Physics subject areas.

The Drug Discovery and Development programme is taught by the Ferrier Research Institute, the Schools of Chemical and Physical Sciences and Biological Sciences and the Centre for Biodiscovery. The expertise of the staff in these groups is highly sought after by companies around the world to overcome difficult synthetic and analytical problems.

Programme coordinator
Dr Simon Hinkley
simon.hinkley@vuw.ac.nz

Entry requirement
Undergraduate degree in relevant subject area with a B+ average or higher

Key dates
Start in Trimester One, standard trimester closing dates

HEDLEY STIRRAT

Graduate, Master of Drug Discovery and Development

Metabolomics Technician, AgResearch

Just three days after submitting his Master’s research project, Hedley Stirrat stepped into the role of metabolomics technician at AgResearch, where he analyses the mass of molecules in produce.

“AgResearch adds value to the agriculture industry through science. I’m a technician in the metabolomics team, which is part of the food, nutrition and health team. I work mainly with mass spectrometers — analytical instruments that determine the mass of certain molecules.

“We might look at whether the composition of certain molecules in milk changes depending on what cows are fed, or whether we can distinguish between produce from New Zealand and overseas by the composition. From this, we can advise our agricultural industry about producing more valuable products in a more efficient and environmentally friendly way.”

The opportunity to learn from both industry experts and academics is what drew Hedley to the Master of Drug Discovery and Development programme. It ensured he gained a mix of practical and theoretical knowledge.

“I have a comprehensive understanding of the current state of drug development and how it’s carried out in industries.”

Hedley values his qualification, not only because of what he learnt about the subject, but also because of the other skills he developed in that time, including time management and science communication.
We believe that to become experts in their field, students must consider a number of disciplinary takes on a subject. Our School covers the spectrum of earth and environmental studies from fundamental sciences to present processes and issues and the impact these processes have on people.

Unearth your passion
Our postgraduate programmes bring staff and students together as collaborators to investigate the changing nature of the Earth through time and the processes that constantly reshape it. We examine how the planet works and how people interact with, and modify, it and its resources. We are one of New Zealand’s leading voices in the race to understand and address climate change and environmental hazards such as earthquakes and volcanoes.

Why study with us?
Victoria University is ranked first among New Zealand universities for research quality in the School’s two core disciplines, Earth Sciences and Geography. Our Earth Sciences, Development Studies and Geography programmes were ranked in the top 100 in the 2018 QS World Rankings.

Our position in Wellington places students at the heart of research in geosciences and geography. We have strong, long-standing links with key national science organisations based in Wellington, such as GNS Science, MetService and NIWA, and with local and national governmental and non-governmental organisations, including the Ministry for the Environment, the Ministry of Foreign Affairs and Trade, NZAID and the Earthquake Commission. These connections facilitate research projects and provide a pathway for transferring our research findings into practice. In 2017, the Victoria–GNS Science collaboration ranked ninth worldwide in the prestigious annual Nature Index.

Field work is central to much of the School’s teaching and research. Our students experience first-hand a fascinating range of urban, rural and remote environments. We are situated within easy access of the volcanic plateau to the north, glaciated landscapes to the south and many other unique geological, geographic and climatic features throughout New Zealand. Our field activities take students across the globe, visiting the Pacific, Latin America, Antarctica and beyond. Funding is available for students to conduct field and laboratory work and to attend conferences in New Zealand and abroad, providing them with opportunities to share their findings with the research community and to learn from world experts.
Our resources
The School has a state-of-the-art geochemistry laboratory and electron microprobe facility, luminescence and cosmogenic dating labs for geochronological research, sedimentological and groundwater analytical equipment and sophisticated geophysical field instruments. It also houses dedicated facilities for geophysical computation and geographic information science research and teaching.

Our study environment
Our students benefit from a shared teaching and learning experience. Students collaborate with academics on major international projects such as the Deep Fault Drilling Project, International Ocean Discovery Program expeditions and research coordinated by the Victoria Institute for Links with Latin America.

Field work is at the core of our teaching and we support students to get outdoors, collect data with their own hands, meet with communities worldwide and discuss, collaborate and gain practical skills to prepare for a career in science.

Students often have two supervisors, one from the University and another from an external science organisation. These relationships provide opportunities to work on large-scale projects and, by maintaining ties with partner organisations, students may receive further paid research or job opportunities.

Programme coordinators

<table>
<thead>
<tr>
<th>Programme</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change Science and Policy</td>
<td>Professor James Renwick</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:james.renwick@vuw.ac.nz">james.renwick@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Development Studies</td>
<td>Professor John Overton</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:john.overton@vuw.ac.nz">john.overton@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Earth Sciences*</td>
<td>Professor Colin Wilson</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:colin.wilson@vuw.ac.nz">colin.wilson@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Environmental Science</td>
<td>Dr Lynda Petherick</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:lynda.petherick@vuw.ac.nz">lynda.petherick@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>Associate Professor Ralph Chapman</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:ralph.chapman@vuw.ac.nz">ralph.chapman@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Geographical Information Science</td>
<td>Dr Mairead de Róiste</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:mairead.eroiste@vuw.ac.nz">mairead.eroiste@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Geography</td>
<td>Associate Professor Sara Kindon</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:sara.kindon@vuw.ac.nz">sara.kindon@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Physical Geography</td>
<td>Associate Professor Bethanna Jackson</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:bethanna.jackson@vuw.ac.nz">bethanna.jackson@vuw.ac.nz</a></td>
</tr>
</tbody>
</table>

* Geology, Geophysics and Meteorology.

Career opportunities
Although an undergraduate degree will have given students an introduction to research in Earth Sciences and Geography, a postgraduate degree will enable them to become an expert in a particular area.

Equipped with a specialist set of hands-on skills, our graduates work in a variety of exciting careers in areas such as aid and development, foreign affairs, conservation, geospatial analysis, hydrology and land management, resource and urban planning, policy analysis, hazard and resilience planning, the petroleum and mining sectors and fundamental research.

Research centres

Institute Of Geophysics
The Institute of Geophysics, established in 1971, coordinates research in geophysics, meteorology and tectonics, including studies of earthquakes and earth structure, within the School of Geography, Environment and Earth Sciences and in collaboration with other schools within the Faculty of Science.

New Zealand Climate Change Research Institute
The New Zealand Climate Change Research Institute develops interdisciplinary climate change research, with particular emphasis on work that spans the natural and social sciences. Our aim is to produce high-quality and decision-relevant climate change research for private and public sector decision-makers.

To do this, we draw on the skills and experience of our staff and postgraduate students to produce leading collaborative research that is relevant to policy-makers.

Career opportunities

Although an undergraduate degree will have given students an introduction to research in Earth Sciences and Geography, a postgraduate degree will enable them to become an expert in a particular area.

Equipped with a specialist set of hands-on skills, our graduates work in a variety of exciting careers in areas such as aid and development, foreign affairs, conservation, geospatial analysis, hydrology and land management, resource and urban planning, policy analysis, hazard and resilience planning, the petroleum and mining sectors and fundamental research.

Research centres

Institute Of Geophysics
The Institute of Geophysics, established in 1971, coordinates research in geophysics, meteorology and tectonics, including studies of earthquakes and earth structure, within the School of Geography, Environment and Earth Sciences and in collaboration with other schools within the Faculty of Science.

New Zealand Climate Change Research Institute
The New Zealand Climate Change Research Institute develops interdisciplinary climate change research, with particular emphasis on work that spans the natural and social sciences. Our aim is to produce high-quality and decision-relevant climate change research for private and public sector decision-makers.

To do this, we draw on the skills and experience of our staff and postgraduate students to produce leading collaborative research that is relevant to policy-makers.

Career opportunities

Although an undergraduate degree will have given students an introduction to research in Earth Sciences and Geography, a postgraduate degree will enable them to become an expert in a particular area.

Equipped with a specialist set of hands-on skills, our graduates work in a variety of exciting careers in areas such as aid and development, foreign affairs, conservation, geospatial analysis, hydrology and land management, resource and urban planning, policy analysis, hazard and resilience planning, the petroleum and mining sectors and fundamental research.

Research centres

Institute Of Geophysics
The Institute of Geophysics, established in 1971, coordinates research in geophysics, meteorology and tectonics, including studies of earthquakes and earth structure, within the School of Geography, Environment and Earth Sciences and in collaboration with other schools within the Faculty of Science.

New Zealand Climate Change Research Institute
The New Zealand Climate Change Research Institute develops interdisciplinary climate change research, with particular emphasis on work that spans the natural and social sciences. Our aim is to produce high-quality and decision-relevant climate change research for private and public sector decision-makers.

To do this, we draw on the skills and experience of our staff and postgraduate students to produce leading collaborative research that is relevant to policy-makers.

Career opportunities

Although an undergraduate degree will have given students an introduction to research in Earth Sciences and Geography, a postgraduate degree will enable them to become an expert in a particular area.

Equipped with a specialist set of hands-on skills, our graduates work in a variety of exciting careers in areas such as aid and development, foreign affairs, conservation, geospatial analysis, hydrology and land management, resource and urban planning, policy analysis, hazard and resilience planning, the petroleum and mining sectors and fundamental research.

Research centres

Institute Of Geophysics
The Institute of Geophysics, established in 1971, coordinates research in geophysics, meteorology and tectonics, including studies of earthquakes and earth structure, within the School of Geography, Environment and Earth Sciences and in collaboration with other schools within the Faculty of Science.

New Zealand Climate Change Research Institute
The New Zealand Climate Change Research Institute develops interdisciplinary climate change research, with particular emphasis on work that spans the natural and social sciences. Our aim is to produce high-quality and decision-relevant climate change research for private and public sector decision-makers.

To do this, we draw on the skills and experience of our staff and postgraduate students to produce leading collaborative research that is relevant to policy-makers.
Master of Climate Change Science and Policy

Climate change is, without a doubt, the biggest environmental challenge our world faces.

How we go about reducing our emissions and how we adapt to changes that have already happened require scientists and policy-makers with a broad understanding of both the physical science and human systems that are involved.

The Master of Climate Change Science and Policy (MCCSP) is a one-year full-time (or up to three years part time) cross-disciplinary Master’s, which aims to give students the necessary combination of policy and science knowledge to address the real-world problems of climate change.

The MCCSP consists of two components: coursework and practical training.

Part 1 is a flexible, taught programme that consists of seven or eight courses (totalling 120 points) including:

- CCSP 401 Physical Basis of Climate Change
- CCSP 402 Climate Change Impacts and Adaptation
- CCSP 403 International Climate Change Policy
- CCSP 404 Climate Change Mitigation

and 60 points related to your area of focus.

Part 2 will give you the opportunity to apply what you’ve learnt in Part 1 to a major research project or work placement. You’ll complete either CCSP 510 Research Essay or CCSP 511 Practicum Placement and Project.

Why study with us?

The programme is taught by world-renowned experts in climate change and we have close relationships with government bodies, research institutes and other key agencies in Wellington and in New Zealand. You’ll be exposed to expertise from across the University and from visiting experts.

---

Master of Development Studies

Study Development Studies to better understand the disparity of living standards across the globe, and use this knowledge to help improve the lives of some of the world’s most vulnerable people.

The Master of Development Studies (MDevStud) programme examines the theories and practices associated with inequalities in world development. The two-year full-time programme is based on one year of coursework and a one-year thesis, and is open to students from a range of disciplines. Those with work experience in community and international development are strongly encouraged to apply.

The first year comprises the following taught courses:

- DEVE 511 Development Theory
- DEVE 512 Development Practice
- DEVE 513 Development Policy
- DEVE 514 Development Research

and a further 60 points from approved 400–500-level courses; refer to the University’s Calendar or website for a list of courses.

In the second year, you’ll complete a thesis. This gives you the chance to apply what you’ve learnt in the first year of study to a subject you’re passionate about, and often includes international field work.

Why study with us?

Development Studies at Victoria University ranked in the top 100 in the 2018 QS World University Rankings.

Students are encouraged to spend some time overseas in a developing country as part of their postgraduate study, and Master’s students usually complete a research thesis based on work in a developing country, although research in New Zealand is also possible. Our students have undertaken research in places as diverse as Chile, Cambodia, East Timor, Ethiopia, Peru, Samoa, Rapa Nui and Vanuatu.

---

<table>
<thead>
<tr>
<th>Programme coordinator</th>
<th>Professor James Renwick</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><a href="mailto:james.renwick@vuw.ac.nz">james.renwick@vuw.ac.nz</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Entry requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>An undergraduate degree with a B average (or equivalent). Students with equivalent international qualifications or extensive and relevant practical, professional or scholarly experience are encouraged to apply, although admission to the programme is at the discretion of the programme coordinator.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start in Trimester One, standard trimester closing dates</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Programme coordinator</th>
<th>Professor John Overton</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><a href="mailto:john.overton@vuw.ac.nz">john.overton@vuw.ac.nz</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Entry requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Bachelor’s degree with an average grade of B+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start in Trimester One, standard trimester closing dates</td>
</tr>
</tbody>
</table>

---

[www.victoria.ac.nz/postgraduate-development-studies](http://www.victoria.ac.nz/postgraduate-development-studies)
Master of Environmental Science

The state of the planet is one of the biggest issues facing humankind today. Environmental Science is about how humans connect with, and change, the natural environment and is taught through a range of scientific disciplines such as biology, chemistry, geography, mathematics and physics.

From 2019, the University offers a 180-point, 12-month Master of Environmental Science (MEnvSci). The programme can also be studied part time for up to three years.

In Part 1, you’ll complete:
- ENSC 401 Advanced Topics in Environmental Science
- ENSC 402 Perspectives on Environmental Science in Aotearoa New Zealand
- ENSC 485 Environmental Science Research Essay

In Part 2, you’ll complete either ENSC 510 Environmental Science Research Project (60 points) or ENSC 511 Environmental Science Project and Placement (60 points). This will allow you to put into practice what you have learnt in Part 1, in an applied setting.

There is also the option of pursuing a 240-point, two-year Master of Science (MSc) in Environmental Science.

Why study with us?

Wellington is the ideal place for students to see how environmental science ranges from the field to policy-making. The region has active city and regional councils as well as the Zealandia eco-sanctuary, MetService, GNS Science and NIWA, all of which are involved in the programme. Collaboration between the University and GNS Science was ranked ninth worldwide in the 2017 Nature Index review of corporate–academic collaborations. The broad expertise of environmental science staff is supplemented by colleagues from the Schools of Biological Sciences, Mathematics and Statistics and Physical and Chemical Sciences.

The programme will provide you with access to some of New Zealand’s top researchers as well as excellent opportunities to develop professional links and networks, providing a pathway to both employment and further research.

Master of Environmental Studies

Study the interaction between humanity and the environment while looking at topics such as Antarctica, climate change and urban green spaces, and develop the skills that will position you to be a leader in the response to our global environmental crisis.

The Master of Environmental Studies (MEnvStud) is completed over two years of full-time study and consists of two parts.

The first year is a taught programme made up of the following two mandatory courses:
- ENVI 520 Environmental Management
- ENVI 521 Research Methods for Environmental Studies.

You’ll also need a further 90 points from ENVI 501–511, ENVI 513–530; up to 30 of these points may be replaced by approved 400–500-level courses; refer to the University’s Calendar or website for a list of courses.

In your second year, you’ll complete either a thesis worth 120 points or undertake a practicum and complete a shorter 90-point thesis. These options give you the chance to apply what you’ve learnt in the first year of study to a subject you’re passionate about.

Why study with us?

Our lecturers are experts in their fields and guest lecturers work in areas as diverse as economics, environmental planning, ethics, indigenous development, law, management, non-governmental organisations, policy and politics.

Our capital city location facilitates work with government departments such as the Ministry for the Environment, as well as international agencies, industries, regional and local government, iwi and environmental organisations. The School has particularly strong links to environmental policy agencies based in Wellington and close links with the New Zealand Climate Change Research Institute.

Programme coordinator
Associate Professor Ralph Chapman
ralph.chapman@vuw.ac.nz

Entry requirement
Undergraduate degree (B level or better) in relevant subject area or extensive practical experience

Key dates
Start in Trimester One, standard trimester closing dates

www.victoria.ac.nz/environmental-studies
Master of Geographic Information Science

Geographic information science (GIS) relates to the concepts behind the creation and use of computer-based systems that allow you to explore, store, manipulate, analyse and visualise data with a spatial or geographic component.

The Master of Geographic Information Science (MGIS) is a one-year full-time programme.

In Part 1, you’ll study:
- GISC 421 Geographic Information Science Applications and Impact
- STAT 483 Special Topic: Data Management, Programming and Applications
- GEOG 580 Research Preparation
- two courses from GISC 422–424
- up to three further courses from GISC 422–429, PHYG 413, PHYG 420, SCIE 410 or relevant electives approved by the programme coordinator.

In Part 2, you’ll complete either GISC 511 Research Project in Geographic Information Science or GISC 512 Placement and Applied Research Project. This allows you to apply what you’ve learnt in Part 1 to an area you’re passionate about.

The programme is very relevant to recent graduates, and to those already in the workforce who want to upskill their knowledge and expertise.

A two-trimester Postgraduate Diploma in Geographic Information Science and a two-year Master of Science in Geographic Information Science are also possible.

Why study with us?

Wellington is a key employment market for GIS professionals and we have close ties to government agencies at both central and local levels, Crown research institutes and private companies. These close ties facilitate internships, applied research, guest lectures and field trips.

Programme coordinator
Dr Mairéad de Róiste
mairead.deroiste@vuw.ac.nz

Entry requirement
A Bachelor’s degree with an average grade of B or better and two undergraduate GIS courses or extensive relevant industry experience. Entry will be at the approval of the programme coordinator.

Key dates
Start in Trimester One, standard trimester closing dates

www.victoria.ac.nz/geographic-information-science

Master of Meteorology

Be part of New Zealand’s first Master’s degree in Meteorology and become an expert in studying and predicting weather and climate and the relationship these patterns have with other environmental processes and humanity.

Completed over one year of full-time study, the Master of Meteorology (MMet) includes courses on mid-latitude weather systems, radiation, thermodynamics, cloud physics, satellites, climatology and numerical weather prediction, as well as a project and professional training.

The Master’s degree consists of eight taught courses and a research project.

You’ll undertake:
- GPHS 420 Introduction to Dynamic Meteorology
- GPHS 421 Mid-latitude Weather Systems
- GPHS 422 Radiation and Thermodynamics for Meteorology
- GPHS 423 Cloud Physics and Boundary Layer Meteorology
- GPHS 425 Numerical Weather Prediction
- GPHS 426 Climatology and Remote Sensing
- GPHS 520 Professional Weather Observing, Analysis and Synoptic Diagnosis
- GPHS 521 Professional Weather Diagnosis and Forecasting
- GPHS 589 Project.

Why study with us?

The programme is recognised throughout the world and complies with the World Meteorological Organization standards.

The MMet is taught by Victoria University scientists Dr Jim McGregor and Professor James Renwick and four adjunct lecturers from MetService.

The MMet is taught in partnership with New Zealand’s official weather forecaster, MetService, which provides students in the programme with practical work experience. This practical work is formally recognised as part of the qualification, preparing graduates for a role in industry.

MetService is a global leader in providing innovative weather information services and is located only 10 minutes’ walk from the University’s Kelburn campus.

Programme coordinator
Dr Jim McGregor
jim.mcgregor@vuw.ac.nz

Entry requirement
Undergraduate degree in Geophysics, Mathematics, Physics or similar subject with at least a B+ average

Key dates
Start in Trimester One, standard trimester closing dates

www.victoria.ac.nz/meteorology
Not only is Antarctica the most extreme weather place on Earth, being the coldest, driest and windiest, but also its drivers of weather and climate in this region are some of the most poorly understood on the planet, says PhD alumnus Kyle Clem.

This is, ultimately, what drew him to pursue a PhD researching Antarctic climate variability and change.

“Antarctica is such a vast continent and it consists of grounded ice sheets that control weather patterns throughout the Southern Hemisphere. Locked in its ice sheets are tens of metres of potential global sea level rise and many of its glaciers are rapidly retreating due to changes in ocean and atmospheric temperatures.”

But, despite this, Kyle emphasises that relatively little is known about drivers of climate variability in Antarctica because of a lack of long-term observations and because climate models do a poor job representing and predicting Antarctica’s climate. “There is so much still to learn about this highly significant and rapidly changing part of our planet and that’s why I chose this path, first as a PhD student and now as a postdoctoral researcher.

“My PhD looked at how thunderstorm activity in the tropics causes weather patterns around Antarctica to intensify and shift location. Part of my research identified that an increase in thunderstorm activity north of New Zealand was causing warming of West Antarctica and the Antarctic Peninsula during the spring season.”

In September 2017, Kyle began a postdoctoral fellowship at Rutgers University in New Jersey where he is learning how to compile and run climate models to further understand the physical linkage between tropical thunderstorm activity and Antarctic climate.

Interested in studying Antarctica?

The Antarctic Research Centre, hosted by Victoria University, seeks to improve understanding of Antarctic climate history and processes and their influence on the global climate system. This field provides exciting opportunities and challenges for postgraduate researchers and they will gain insight that is the basis for international debate and policy development on global climate change issues.

Our recent research has had a particular focus on paleoclimate reconstructions, glaciology and glacier and climate modelling.  

www.victoria.ac.nz/antarctic
“One of the reasons wineries were so hesitant to invest in adaptation strategies is a lack of specific regional data on climate change. Wineries have to invest a lot of time and money in adapting. They don’t want to do this blindly.”

Most adaptation techniques involve significant investment in new equipment, locations and vines. A single frost fan to help melt the frost on vines can cost upwards of $40,000 to purchase, not including the associated running and maintenance costs. Many wineries are experimenting with new wine varietals that will stand up to warmer temperatures, but new vines take up to 10 years to grow, so this is a slow solution.

Alyssa’s goal is to make sure New Zealand wineries have access to the data they need. She will be making her Master’s research available to the wineries that took part in her research and plans to continue to a PhD to complete specific regional climate modelling for the wine industry.

“Alyssa’s goal is to make sure New Zealand wineries have access to the data they need. She will be making her Master’s research available to the wineries that took part in her research and plans to continue to a PhD to complete specific regional climate modelling for the wine industry. "I want to bridge the gap between the wineries and science research and make sure the wineries have the data they need to make informed business decisions.”
SCHOOL OF
MATHEMATICS
AND STATISTICS
TE KURA MĀTAI TATAURANGA

Solve the world’s problems
Mathematics is renowned for its precision, subtlety
and beauty, while at the same time providing the
powerful tools that underpin technological advances
in the physical and life sciences, engineering,
computing and the social sciences.

Why study with us?
The School is home to leading international and early-career
researchers who are forging new directions in a range of
theoretical and applied disciplines.

Postgraduate students in our School are welcomed into a
close-knit team where they are supported academically and
socially by their peers and supervisors. We provide guidance
in the development of professional skills. Staff advisers can
provide additional support for students with disabilities,
women and Māori, Pasifika and international students.

As junior colleagues, postgraduate students are a crucial
part of our School’s academic body and will be given the
opportunity to develop teaching skills as a tutor. Our PhD
students may also have the opportunity to put their research
into practice or lead lectures for undergraduate students.

A number of prizes and scholarships are awarded annually to
postgraduate students.

We have active partnerships with a range of government,
business and public and private research organisations. Often,
these relationships provide extra funding or scholarships for
postgraduate students and the chance to apply knowledge to
solve industry problems. These organisations include Accident
Compensation Corporation; Contact Energy; Department of
Conservation; GNS Science; Ministry of Business, Innovation
and Employment; Ministry of Health; NIWA; and Statistics
New Zealand, as well as smaller consultancies and businesses.
Resources
Our PhD and Master’s students have access to shared office and computing facilities, which provide them with a range of mathematical and statistical software, including SAS, R, Matlab, Maple and Mathematica.

Study options
The Master of Applied Statistics (MAppStat) has a practical work placement element in which students are placed in an organisation for 200 hours to work on a project. After gaining this invaluable work experience, some students have gained employment through industry contacts made during their placement.

Master’s by thesis and PhD students undertake research on academic or externally funded projects with our academic supervisors. While a student’s thesis topic is often linked to broader academic research, thesis topics are flexible with room for students to set their own course if it is related to the research expertise of one of our academics.

Programme coordinators

<table>
<thead>
<tr>
<th>Field</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Statistics</td>
<td>Associate Professor Ivy (I-Ming) Liu</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:ivy.liu@vuw.ac.nz">ivy.liu@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Mathematics</td>
<td>Professor Noam Greenberg</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:noam.greenberg@vuw.ac.nz">noam.greenberg@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Statistics</td>
<td>Dr Nokuthaba Sibanda</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:nokuthaba.sibanda@vuw.ac.nz">nokuthaba.sibanda@vuw.ac.nz</a></td>
</tr>
</tbody>
</table>

Career opportunities
A recent study by QS Digital Solutions showed that graduates with degrees in mathematics and statistics are recognised as earning the third-best salaries in the United Kingdom, and in an annual survey run by the United States company CareerCast, the mathematics-related occupations of data scientist, statistician, mathematician and actuary have been ranked among the top 10 careers over several years.

More and more employers, in New Zealand and abroad, are seeking employees with postgraduate degrees in mathematics and statistics, both applied and theoretical, to make sense of big data and to develop analytics tools to improve performance or to invent new ways to model, analyse and explain the world around us.

The scope for careers in mathematics and statistics is constantly expanding as new research and ideas are discovered. Our recent graduates are working in roles that include research, analysis, policy and management in education, finance, government, IT and science sectors. More specifically, graduates have taken on roles as actuaries, meteorologists, risk analysts, statisticians, in computer-generated imagery development, fisheries management, digital games and a range of creative and research organisations.

“I love problem-solving and finding practical solutions. The skills I’ve developed through this programme will be very useful in future employment. One day, I hope to work to improve sustainable resource use.”

—Grace Clendon, Student, Master of Applied Statistics
Master of Applied Statistics

There is growing national and international demand for people qualified in statistics and quantitative analysis, which are required for interpretation of the great variety and quantity of data generated in the information age.

The Master of Applied Statistics (MAppStat) is a one-year full-time Master’s programme designed to train students in a range of advanced techniques and to provide them with an appreciation of the variety of work undertaken by professional statisticians and consultants.

The MAppStat consists of two components: coursework and practical training.

Part 1 is a taught programme that consists of six to eight courses (totalling 120 points) in advanced statistics including:

- STAT 487 Project
- and 105 points from an approved combination of MATH 477; STAT 431–489; and other approved courses; refer to our website or contact the programme director for the list of approved courses.

Part 2 is made up of practical and research training. You’ll take three courses and develop skills in research and consultancy. You then apply what you have learnt in a work placement in a relevant government department or business during the summer trimester. The research project STAT 487 in Part 1 is often related to the placement. The three courses are:

- STAT 480 Research Methods
- STAT 501 Statistical Consulting
- STAT 581 Statistical Practicum.

Why study with us?

The unique practical component, which combines work placement in a relevant government department or business with consultancy training, makes this a world-leading applied statistics Master’s programme.

| Programme coordinator | Associate Professor Ivy (I-Ming) Liu
<table>
<thead>
<tr>
<th></th>
<th><a href="mailto:ivy.liu@vuw.ac.nz">ivy.liu@vuw.ac.nz</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry requirement</td>
<td>Undergraduate degree in relevant subject area</td>
</tr>
<tr>
<td>Key dates</td>
<td>Start in Trimester One or Two, standard trimester closing dates</td>
</tr>
</tbody>
</table>

www.victoria.ac.nz/applied-statistics

MADDIE WHITE

Graduate, Master of Applied Statistics
Assistant Research Fellow, Department of Public Health, University of Otago, Wellington

Taking a compulsory, 100-level Statistics course led to Maddie White discovering her interest in statistics and realising that it would enable her to pursue her passion in public health research.

“During my Master’s, I did a practicum and research project at the Ministry of Health. My supervisor was very supportive of me trying to make the most out of that opportunity because he knew I wanted to keep doing health research after graduating. I can draw a lot of links from what I did during my Master’s to the work I do now as a researcher.”

A big part of Maddie’s current role involves working with other researchers and community organisations to collect, analyse and report data on the outcomes of housing-related interventions.

“As a Master’s student, you get real experience working through a research project from start to finish and all of the exciting (and frustrating) complexities that this involves. Without this experience, I don’t think I would have had the skills to start work as a researcher straight out of university, and I most definitely wouldn’t have had the confidence.

“I love my role in the public health department; I’m surrounded by people and research groups that are passionate about the work they are doing to address public health issues. I feel I have something positive to contribute because of the knowledge and skills I developed throughout my study.”
COMBINING FISHERY SCIENCE WITH STATISTICS

With a passion for fishing and the outdoors, Darcy Webber gravitated towards a related career, only to discover that statistics is applicable to almost any field.

With that in mind, he chose to pursue a PhD in Statistics, with a thesis focused on fisheries science. This ensured he gained a set of essential skills for his career. “Learning statistical methods and general programming has been incredibly useful to me. I use all the skills I learnt on a daily basis.

“During my PhD study, I had a clear career path in mind, so working towards this was very exciting. Furthermore, I had the chance to work on some new ideas and make some contributions to the literature and fisheries science in general.”

While studying, Darcy set up an independent consultancy business, Quantifish. This allowed him to go directly into work after submitting his thesis. Since then, he has upgraded to a company business structure and completed projects for a variety of clients. Through this work, Darcy has had the opportunity to travel to the United States, Indonesia and Spain.

“I’ve recently completed contracts for Victoria University, NIWA, the University of Washington in Seattle, the United States Government and the Commission for the Conservation of Southern Bluefin Tuna. I work on a range of projects, including the development of stock assessment models, international fisheries assessments and modelling processes such as growth of fish and crustaceans.

“If you want to be useful in almost any field, than I highly recommend studying statistics. Fisheries science in particular has so many jobs available. Working with statistics is an awesome career that can take you around the world.”
New Zealand has amazing birdlife: nocturnal parrots, birds that can’t fly and birds that turn up after 50 years of being thought extinct. Unfortunately, many native species require wildlife management programmes, and they’re hard to monitor as the birds are often well-camouflaged or nocturnal.

“The aim of this project is to take recordings of birds collected in the field by automatic sound recordings and identify all the birds that are calling using mathematical and computational methods such as machine learning,” says Professor Stephen Marsland, from the School of Mathematics and Statistics, who is one of the project leaders.

The project includes mathematicians, ecologists, statisticians, electronic specialists, engineers and iwi from across New Zealand and involves collaboration between researchers at Victoria University as well as Massey University, the University of Auckland and the Cornell Lab of Ornithology in the United States. It has received funding from Marsden grants, the Technological Innovation National Science Challenge, the Department of Conservation, Kiwis for Kiwi and Te Pūnaha Matatini.

“Our focus is unique as it uses automatic field recordings, which have a lot of background noise, and the birds can vary from five to 500 metres from the microphone. Sometimes they sing together, and sometimes there’s a lot of species all at once. If you have a small number of species and high-quality recordings, then the problem is reasonably simple, but this isn’t necessarily realistic. We’re interested in the real-world version where you have a lot of species and noisy recordings.

“We will then use knowledge of the different species and statistical methods to turn the call rates into estimates of the numbers of birds present. The software that we are writing will be freely available to everybody who wants to use it, from community groups through to the Department of Conservation and researchers.

“Not only are we developing new mathematics techniques, but we also get to try them in the field, and see the difference they make.”

(Above) Professor Stephen Marsland from Victoria University and Associate Professor Isabel Castro from Massey University with Blandy the kiwi.

NUMBERS FOR CONSERVATION

Researchers at Victoria University are part of a large, interdisciplinary project that is utilising mathematics, data science and new technology to help New Zealand birds survive.
With a career path firmly set in teaching, PhD candidate Meenu Mariya Jose realised that to be a great teacher she first had to be a great student.

“I always knew that teaching was my passion and Victoria University has allowed me to pursue this. I really value the opportunities I’ve had to tutor undergraduate students and to interact with school students.”

Meenu found that the more mathematics she did as an undergraduate and Master’s student, the more she enjoyed it. A PhD was a perfect gateway for her to explore new ideas and to discuss these ideas with others.

Her current research involves an area of discrete mathematics called matroid theory. “It requires thinking about the structure of objects that are arrangements of finite points in space. We observe these structures, investigate special properties they possess and try to find out what makes them unique. My supervisor, Dr Dillon Mayhew, is very knowledgeable in this area.

“There is a big debate as to whether the mathematical universe was created by mathematicians or merely discovered by them. I am of the latter opinion, and every time I understand one more property or get an insight into the behaviour of these structures I’m amazed.”

Throughout her study, Meenu embraced other activities that have enriched her experience. As well as being involved with tutoring and outreach programmes, she helped organise an annual mathematics postgraduate conference. “The people I have met in the University, the various backgrounds they come from and beliefs they hold have all led to very interesting conversations and friendships.”

After she graduates, Meenu would like to continue researching and go on to lecture or teach. “I’m not sure where at the moment. The future, as they say, is uncertain and I think that’s exciting.”
Explore the mind

The human mind presents some of science’s greatest challenges, and an understanding of behaviour is the key to solving some of humanity’s most pressing problems. As a postgraduate student in Psychology, you will have the opportunity to deepen your understanding of the human condition and join a research community in which postgraduate students are junior colleagues who collaborate with active scholars across all fields of psychology.

The University offers a range of Psychology programmes, including New Zealand’s only programme in forensic psychology and one of the only programmes in cross-cultural psychology worldwide.

Research funding is available for postgraduate students, and many students access funding to attend conferences in New Zealand and overseas, allowing them to share their research and connect to experts in their field.

Within the School, the Colloquium Lecture Series brings in national and international scholars who share their recent research findings.

Your study options

The School provides a range of programmes. For those who want to independently design their own programme and have the freedom to explore several areas of psychology, an Honours degree or a Master of Science in Psychology might be suitable. Alternatively, those who prefer a structured programme in one specific area of psychology might choose to undertake one of our specialised Master’s degrees in Cognitive and Behavioural Neuroscience, Cross-cultural Psychology or Forensic Psychology.

Beyond the Honours or Master’s degrees, PhD students have the opportunity to pursue a research question in depth. Students can also apply to complete the Postgraduate Diploma in Clinical Psychology alongside either a Master’s degree or a PhD. The Postgraduate Diploma in Clinical Psychology provides the training to apply psychology in clinical settings and, with the research degree, qualifies students to become registered as clinical psychologists.

Easterfield Building, Kelburn Parade

04-463 5373
psyc@vuw.ac.nz
www.victoria.ac.nz/psyc

Why study with us?

Psychology at Victoria University was ranked first in New Zealand for research quality by the Performance-Based Research Fund and was ranked in the top 100 in the 2018 QS World Rankings.

Our research is not restrained by disciplinary boundaries. Research groups are made up of psychological scientists from all traditional core areas of psychology: behavioural, cognitive, developmental, neuroscience and social. Working across disciplines, postgraduate students can study behaviour from multiple perspectives and collaborate with researchers across the University to bring a psychological perspective to other fields of study.
Many of our postgraduate students contribute to larger research projects and often this gives students the chance to draw on relationships with well-established government and industry connections. These include links with Capital and Coast District Health Board, the Department of Conservation, the Department of Corrections, Oranga Tamariki and the New Zealand Police.

**Our facilities**

We have laboratories that focus on animal behaviour, cognitive neuroscience and social, developmental, cross-cultural and clinical psychology. These laboratories include eye-tracking equipment, a brain stimulation lab, an EEG-recording suite and an infant observation lab.

[www.victoria.ac.nz/psychology-research-labs](http://www.victoria.ac.nz/psychology-research-labs)

“*My supervisors are excellent. They allow me to exercise my own rangatiratanga (self-determination), while providing guidance, direction and, most importantly, support. The most important thing for me is to know that they always have my best interests at heart.*

“*I’m interested in the complex nature of human behaviour, particularly in regard to cross-cultural differences. Being embedded within Māori culture, I have always noticed cross-cultural differences between Māori and Pākehā. Some of these differences are salient, while others are subtle. I want to understand these differences and whether they can be reconciled.*

“*My research looks to elucidate how Māori cultural values, beliefs and practices manifest themselves in behaviour, and how embeddedness within Māori culture can help to develop a secure identity.*”

— *Ririwai Fox, Candidate, Doctor of Philosophy in Psychology*

**Research areas**

Our students and academic staff address a range of questions about human behaviour: Why do only some drug users develop addiction? How reliable is eyewitness memory? How can we treat, and prevent, depression? How does your culture influence business negotiations? How can we change human attitudes to climate change?

Funding agencies supporting our research have included the Department of Corrections; the Health Research Council; the Ministry of Business, Innovation, and Employment; the Neurological Foundation; the Oakley Foundation; the Royal Society of New Zealand; the Social Policy Evaluation and Research Unit; the Wellington City Council; and Te Rau Matatini Ltd.

[www.victoria.ac.nz/psychology-research-areas](http://www.victoria.ac.nz/psychology-research-areas)

**Research centres**

**Centre for Applied Cross-cultural Research**

Research in cross-cultural psychology is undertaken within the Centre for Applied Cross-cultural Research. The Centre links cross-cultural and social scientists who are interested in culture, including disciplines such as cultural anthropology, developmental studies, international business, linguistics and sociology.

The Centre has links to community groups, government and international associations. Staff at the Centre are internationally recognised scholars engaged in researching issues of managing cultural diversity in New Zealand, and using psychological science to tackle international issues.

[www.victoria.ac.nz/cacr](http://www.victoria.ac.nz/cacr)

**Victoria Psychology Clinic**

The Victoria Psychology Clinic provides a training-based facility for the School’s Clinical Psychology programme. It offers a range of psychological services to members of the public who work with trainees in the programme and their supervisors. Both clinical psychology and clinical neuropsychology services are offered.

[www.victoria.ac.nz/psychology-clinic](http://www.victoria.ac.nz/psychology-clinic)
Career opportunities

Graduates from all of our postgraduate programmes leave Victoria as psychological scientists with the skills to secure a position in a range of careers that require the ability to understand human behaviour. The value of research-based degrees is growing in industry and government positions, as is the need for graduates who can measure, analyse and change human behaviour.

Our graduates work in basic research roles, counselling and therapy, education, government policy, healthcare, human resources, information technology, law and corrections and social services.

Programme coordinators

If you want to undertake postgraduate study within the School, you must contact the relevant programme coordinator below to discuss your research plans.

<table>
<thead>
<tr>
<th>Programme</th>
<th>Coordinator</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master’s/Phd Psychology</td>
<td>Dr Matt Crawford</td>
<td><a href="mailto:matt.crawford@vuw.ac.nz">matt.crawford@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Clinical Psychology</td>
<td>Professor Karen Salmon</td>
<td><a href="mailto:karen.salmon@vuw.ac.nz">karen.salmon@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Cognitive and Behavioural Neuroscience</td>
<td>Associate Professor Gina Grimshaw</td>
<td><a href="mailto:gina.grimshaw@vuw.ac.nz">gina.grimshaw@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Cross-Cultural Psychology</td>
<td>Professor Colleen Ward</td>
<td><a href="mailto:colleen.ward@vuw.ac.nz">colleen.ward@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Forensic Psychology</td>
<td>Associate Professor Louise Dixon</td>
<td><a href="mailto:louise.dixon@vuw.ac.nz">louise.dixon@vuw.ac.nz</a></td>
</tr>
<tr>
<td>Honours/Graduate Diploma</td>
<td>Associate Professor Sue Jackson</td>
<td><a href="mailto:sue.jackson@vuw.ac.nz">sue.jackson@vuw.ac.nz</a></td>
</tr>
</tbody>
</table>

“I was extraordinarily lucky to have outstanding mentors with whom I still have a close relationship. My supervisor was committed to setting her students up for success as academics and she did so by instilling a love of science, by teaching us how to conduct meticulous, novel and useful research and to communicate that research effectively.”

—Melanie Takarangi, Graduate, PhD in Psychology; Lecturer at Flinders University, Australia
Specialised Psychology postgraduate programmes

Clinical Psychology
Clinical psychology involves the assessment, diagnosis and treatment of psychological disorders.

The School offers the highly regarded Postgraduate Diploma in Clinical Psychology.

www.victoria.ac.nz/clinical-psychology

Specialised Psychology Master’s programmes
Students wishing to undertake a Master of Science in Psychology can have their qualification named in a particular discipline within psychological science by completing a particular combination of papers to demonstrate expertise in that field.

Cognitive and Behavioural Neuroscience
There are two main research interests in this group—one looking at psychopharmacology and behaviour analysis and the other focused on cognitive psychology.

www.victoria.ac.nz/neuroscience

Cross-cultural Psychology
Cross-cultural psychology is the study of the impact of culture on individual- and group-level psychological functioning.

www.victoria.ac.nz/cross-cultural-psychology

Forensic Psychology
The forensic group has a variety of research interests such as issues of offender behaviour patterns, classification of subtypes, risk assessment, rehabilitation and public policy.

www.victoria.ac.nz/forensic-psychology

Specialised Psychology Honours programmes*
Students who complete an Honours degree (120 points) with a particular combination of courses (90 points) from either Cognitive and Behavioural Neuroscience or Forensic Psychology can have the relevant specialisation of the Bachelor of Science with Honours (BSc(Hons)) recognised on their academic transcript. Students with the Honours specialisation can apply for Master’s or PhD study in the relevant specialised programme.

* Subject to regulatory approval.

GAURANGA (RONGO) JERAM PATEL

Graduate, Postgraduate Diploma in Clinical Psychology
Clinical Psychologist at Mental Health and Addiction Services, Capital and Coast District Health Board

“Wanting to understand and explore human behaviour, Rongo Jeram Patel chose to pursue psychology, first as an undergraduate student, then as a PhD candidate and, now, as a career.”

“I work as a clinical psychologist in a district health board mental health service. This role involves one-on-one therapy work with clients, organising and running therapy groups and advising on how the services could be developed for our clients and the community.”

Rongo completed a Postgraduate Diploma in Clinical Psychology and a PhD in Psychology at Victoria University. He was motivated by the desire to better understand people in order to help them. He finds his work challenging at times, but also very rewarding. “Many clients go from the depths of their struggle with addiction and multiple problems such as poor physical health and housing concerns, to leading meaningful lives.

“The training I received at Victoria University allowed me to step straight into this role. I am able to apply my knowledge of evidence-based practice and research to my clinical practice with clients and to my role in the mental health service.”
The School of Psychology has an excellent reputation for teaching and research quality so, for Amanda Wallis, it was an easy decision to pursue her passion with a Bachelor’s degree and, eventually, an Honours degree and PhD.

“I remember delivering a speech to my high school class on social psychology when I was 14 years old. Ever since then, I have been fascinated by human behaviour and understanding why we behave in certain ways.”

For her PhD, Amanda is researching what makes people prepare for natural disasters and how this knowledge can be used to develop strategies to increase preparedness. “Disaster preparedness is a perfect example of the kind of behaviour conundrum psychologists are interested in. Why do people fail to prepare for natural disasters when they know they are at risk?”

Amanda is collaborating with a number of researchers on this topic as a student researcher on the Resilience National Science Challenge, including scientists from GNS, the Joint Centre for Disaster Research and other universities around New Zealand.

“Research shows that risk information alone is not always enough to get people to prepare, which is where my research fits in. I’m excited to explore creative strategies to increase preparedness, all in the pursuit of contributing to a more resilient New Zealand.”

As a recipient of the Fulbright–EQC Graduate Award in Natural Disaster Research, Amanda is currently studying at the Natural Hazards Centre at the University of Colorado Boulder in the United States. She is continuing her PhD research there as a visiting student researcher.

“The Fulbright–EQC Graduate Award in Natural Disaster Research is the perfect opportunity to enrich my PhD research project and allows me to work with leading international researchers in my field.

“Victoria University and the School of Psychology have ensured I’ve gained experience above and beyond just classroom learning. In addition to formal degrees, I have developed skills in critical thinking, teamwork, leadership and communication. I have been given the opportunity to travel the world while studying towards my qualifications and to work side by side with like-minded peers and academics.”
INVESTIGATING VIOLENCE

With New Zealand having a high rate of domestic violence, PhD candidate Fiona Dempsey is exploring the underlying motivation that may be behind it—control.

Fiona became interested in forensic psychology while working at Arohata and Rimutaka prisons in their drug treatment units, which led her to enrol in the MSc in Forensic Psychology. “It was a really positive experience, so a PhD in Forensic Psychology seemed a natural progression.

“One of my supervisors, Associate Professor Louise Dixon, is currently working on a qualitative project about New Zealanders’ experiences of aggression in intimate relationships. She is in the process of conducting a series of interviews and she noticed that control was a recurring theme.

“It also comes up a lot in a range of literature. From a gendered perspective through to more psychologically oriented perspectives, control seems to be a motivation for intimate partner violence. The construct is really poorly defined and measured, so we decided it warranted further attention.”

For her PhD, Fiona is conducting a mixed-method approach. First, she’ll be analysing the interviews that her supervisor has completed to see what themes start to emerge. She’ll follow this with a larger, quantitative study in the form of an online survey. “I hope these two studies will go on to inform further quantitative studies and a theoretical review paper.

“I feel incredibly lucky to work with my supervisors, not only due to their expertise in the field, but also because I greatly appreciate the mutual respect that characterises our supervisory relationship and their constant enthusiasm for my research topic. The subject can be quite distressing, but it’s also exciting to know that my research has real-world implications and the potential to affect positive social change.

“As the capital city, Wellington provides opportunities that aren’t available anywhere else in New Zealand, such as internships in the state sector. I was lucky enough to earn a place as a summer intern at the Department of Corrections.”
The many voices of science
Many of the most pressing issues facing society today—including climate change, loss of biodiversity and how to respond to new technologies—cannot be solved using traditional scientific approaches. Science in Society looks at the relationships between science, technology, environment and society and explores the way we think and talk about science.

Why study with us?
The Centre for Science in Society is a small, interdisciplinary group of academics and professionals who are leaders in the field of science communication, public engagement with science, natural and social science, the humanities and the arts.

A postgraduate degree at the Centre is perfect for students who are interested in science in its wider social context and want to investigate contemporary and historical issues in science, technology and the environment.

You’ll discover perspectives on science from the humanities and social sciences, look at the role of science and scientists in our present and in our past, develop practical skills in science communication and be exposed to a range of expertise from across the University and from visiting experts.

Career opportunities
Graduates might work as a policy analyst, researcher or science communicator at a government agency, a non-governmental organisation or a Crown research institute such as GNS Science or NIWA.

Alternatively, you might use your knowledge of scientific concepts and processes to support your career in areas such as patent law, journalism, communications and public relations.
**Master of Science in Society**

The Master of Science in Society (MScSoc) is an intensive one-year full-time programme.

It is perfect for science graduates who are interested in developing skills for effective public engagement around scientific issues or are keen to pursue a career in science policy or advocacy.

You’ll develop critical thinking and communication skills. You’ll look at the theory and practice of science communication, gain a grounding in contemporary scientific issues and explore perspectives on science from across different cultures and disciplines.

In Part 1, you’ll complete three courses from:

- SCIS 410 Science Communication
- SCIS 411 Key Themes and Readings in Science in Society
- SCIS 412 Contemporary Issues in Science, Environment and Technology—Seminar Series
- SCIS 414 Science and Humanities

and one further 400- or 500-level course approved by the programme director.

In Part 2, you’ll complete:

- SCIS 588 Research Essay
- SCIS 589 Science Communication Project and Field Trip

and one of the following:

- SCIS 587 Placement and Project
- SCIS 590 Research Project
- further 400- and 500-level courses worth 60 points approved by the programme director.

Students who complete Part 1 of the MScSoc can exit with a postgraduate certificate*. This qualification takes one trimester if studied full time.

Students who complete Part 1 of the MScSoc, plus SCIS 588 and SCIS 589, can exit with a postgraduate diploma*. This qualification takes two trimesters if studied full time.

---

**Programme coordinator**

Associate Professor Rebecca Priestley

rebecca.priestley@vuw.ac.nz

**Entry requirement**

Bachelor’s degree in a science (or other approved) subject with a B+ average or to be accepted by the programme director as capable of proceeding with the proposed course of study

**Key dates**

Start in Trimester One, standard trimester closing dates

---

* Subject to regulatory approval.

---

**ERIN MARIEKE MAESSEN**

Student, Master of Science in Society

Many of the problems that New Zealand faces, such as climate change and freshwater quality, relate not only to science, but also to the way we live our lives. This link is what drew Erin Marieke Maessen to the Master of Science in Society.

“Solving many of the issues that are facing us today will involve understanding the messy interaction of multiple disciplines and ideas. I’m interested in how to communicate difficult or controversial topics and the way in which people’s attitudes and values influence their behaviour around scientific issues.”

For the research component of the programme, Erin is looking at how climate change is represented in fiction. “When it comes to describing climate change, there is often a narrative of doom and disaster. I’m curious as to whether being exposed to so many negative visions of the future can affect our ability for action.

“The great thing about the Master’s is that it’s run by supportive, enthusiastic people. It feels like they are really invested in the programme—and in each of us individually—and they have diverse and fascinating experiences to share with us.

“Once I graduate, I’d like to do something related to science communication and science writing, but I have come across so many interesting possibilities in the programme that I could well change that. I do know that I want to work in an area where there is an interaction between science and people’s lives.”
The following is a general guideline for entry into postgraduate programmes at Victoria University. You’ll need to check the University’s website for specific information about entry criteria for your programme.

**Documentation requirements**
You may be required to supply your academic transcript to the relevant faculty before you apply. A certified copy of your official academic transcript must also be submitted to the Enrolment Office in order to complete your enrolment application.

**How to enrol**
Most students wishing to enrol for postgraduate or graduate programmes can complete an online enrolment application.

Some Master’s by research programmes require paper applications. Check with your faculty office before you apply, as you’ll also need to talk with staff first to ensure supervision capability.

- [www.victoria.ac.nz/enrol-postgrad](http://www.victoria.ac.nz/enrol-postgrad)
  All first-time international students need to apply through Victoria International.

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

**Doctoral programmes**
All doctoral students (including international students) must apply online for admission to the University through the Doctoral Admissions Office.

- [www.victoria.ac.nz/phd-apply](http://www.victoria.ac.nz/phd-apply)
  Doctoral applications are considered three times a year—the closing dates are 1 March, 1 July and 1 November. Successful applicants must enrol in person at the Faculty of Graduate Research.

**INTERNATIONAL STUDENTS**
Victoria International (VI) is the first point of contact for all international students coming to the University. The VI team takes care of enrolment procedures and admissions for all programmes except PhD programmes. The team answers enquiries about airport pickup, orientation and insurance and provides support during your time at the University.

The VI team runs an international orientation programme for new international students to introduce you to student and academic life at the University.

During your time here, the VI team is available to provide support with any academic or personal concerns, or can refer you to the appropriate support service or staff within the University.

- [www.victoria.ac.nz/international-support](http://www.victoria.ac.nz/international-support)

**FEES**
Tuition fees are charged on a per-point basis and differ for each programme. International students will need to contact Victoria International for international fees. The Fees Statute is available online.

- [www.victoria.ac.nz/fees](http://www.victoria.ac.nz/fees)
  Fees can be paid in various ways.

- [www.victoria.ac.nz/payments](http://www.victoria.ac.nz/payments)
  If you have any queries regarding fees or payments, contact a fees adviser in Student Finance.

- [student-finance@vuw.ac.nz](mailto:student-finance@vuw.ac.nz)

**Funding your study**

**Scholarships**
Victoria University’s strong research culture is reflected in its scholarships. Scholarships are available for PhD and Master’s by thesis candidates in all disciplines and graduate awards are open to graduates of any university enrolling in Honours or coursework Master’s programmes. The University’s scholarships are available for both domestic and international students.

**PhD funding**
Scholarships are awarded to those applicants applying to the PhD programme on the basis of academic merit, research ability and, if relevant, a publication record. Approximately 120 new PhD scholarships are offered each year, in three rounds. Our doctoral scholarships currently provide an annual stipend of $23,500 plus tuition fees for up to three years. Closing dates for PhD admission and scholarships are 1 March, 1 July and 1 November each year.

- [www.victoria.ac.nz/phd-apply](http://www.victoria.ac.nz/phd-apply)

**Other postgraduate scholarships**
Master’s (by thesis) Scholarships are awarded to candidates on the basis of academic merit and the suitability of the research topic. They provide a stipend of $15,000 and domestic tuition fees for one year. Students must be undertaking a thesis of at least 90 points. The closing date is 1 November each year. Graduate Awards are open to students who will be enrolled full time in an Honours or Master’s degree taken via coursework, or a combination of coursework and a thesis or research project of fewer than 90 points. The closing date is 1 November each year.

**Scholarship application process**
Information and details of how to apply are available on the Scholarships website. Although you may apply for a scholarship before the documentation for your enrolment is complete, any offer of a scholarship depends upon gaining enrolment into your programme of study and admission to the University. A full list of postgraduate scholarships and access to a range of funding, including externally funded scholarships, is on our website.

- [www.victoria.ac.nz/scholarships](http://www.victoria.ac.nz/scholarships)
WHO TO CONTACT

Faculty Student and Academic Services Office
Visit the office for help with anything from enrolment to graduation. Get help with choosing your degree, planning your courses or changing your degree programme. This office should be your first point of contact for any enquiries you have about your studies.

Room CO144, Cotton Building, Kelburn Campus

Student Recruitment and Orientation
If you are a prospective or new student, go online or contact us for course advice and to get your admission questions answered.

Te Rōpū Āwhina
Te Rōpū Āwhina is the on-campus whānau for Māori and Pasifika students in the Faculties of Science, Engineering, Architecture and Design to work collectively to share their knowledge, achieve academic success and build strong communities and leaders.

Careers and Employment
Find out what you need to know to get a job, what career options are open to you and what your ideal future might look like.

CareerHub
Get access to a range of jobs from part-time to graduate positions, resources to help with CV and interview preparation and careers and employer information sessions. You can book careers appointments, workshops and events. Use your student computing account to log in.

Disability Services
If you have a temporary or ongoing impairment, we can assist you with coaching and advice, liaison with academic staff, adaptive equipment, technology and training, sign language interpreting, note-taking assistance, mobility parking, ergonomic furniture and access to rest and study rooms.

Marae
Te Herenga Waka, the University marae on our Kelburn campus, is a multipurpose teaching, learning, research and engagement hub for all staff and students. Resources, support and activities include Te Whanake Mauri Tū Computer Suite, lunches in the wharekai from Monday to Friday and whānau housing.

Victoria International
Victoria International is responsible for international student marketing and recruitment, admissions and student support. For international students enrolled here, our student advisers can help with personal issues, academic support, cultural adjustment, connecting with other students, referral to university services, specialised scholarship support, student visa renewal, insurance claims and advocacy.

Victoria Kids
Victoria Kids has been providing excellent early childhood education for families for more than 30 years and offers a range of booking options to suit your needs.

Postgraduate Students’ Association
The Postgraduate Students’ Association (PGSA) is a students’ association providing services such as events, advocacy, support and advice for all postgraduate students.