2024

Pūtaiao me te Ahunui Pūkaha—
Wellington Faculties of Science
and Engineering

VICTORIA UNIVERSITY OF
WELLINGTON
TE HERENGA WAKA

# POSTGRADUATE SCIENCE AND ENGINEERING

CAPITAL THINKING.
GLOBALLY MINDED.
MAI I TE IHO KI TE PAE

# CONTENTS



At the time of printing this publication, the University was working through a change process that may impact some of our academic programmes and course offerings. Note that the majority of our courses will not be affected. You are encouraged to discuss your study options with one of our Future Students advisers and they will be able to provide you with up-to-date information and advice.
To set up an appointment, phone 0800 04 04 04 or email future-students@vuw.ac.nz

OUTSTANDING

Te Herenga Waka—Victoria University of Wellington has been awarded an overall five-stars-plus rating in the QS Stars university rating system, one of only 17 universities worldwide to do so. The University gained a total score of 966 out of a possible 1,000 points across eight audited categories, including maximum points for the employability and inclusiveness categories. Maximum points were awarded for 25 of the more than 30 indicators, including overall student satisfaction; further study; graduate employment rate; international diversity, support, and collaborations; academic reputation; satisfaction with teaching; campus facilities; accreditations; art and cultural investment and facilities; disabled access; scholarships and bursaries; low-income outreach; and student cohort diversity.



# POSTGRADUATE QUALIFICATIONS

Postgraduate study at the Wellington Faculties of Science and Engineering 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.

## GRADUATE DIPLOMA

A graduate diploma (GDip) enables you to transition to employment or postgraduate study in a new area, or to learn about new developments in your original discipline.

| | |
|---|---|
| POINTS | 120 |
| DURATION | Two trimesters full time or up to four years part time |
| ENTRY REQUIREMENTS | Bachelor's degree in any discipline |

## POSTGRADUATE CERTIFICATE

A postgraduate certificate (PGCert) is designed to deepen your knowledge in an area of expertise or provide professional development options.

| | |
|---|---|
| POINTS | 60 |
| DURATION | One trimester full time or up to two years part time |
| ENTRY REQUIREMENTS | Bachelor's degree in a relevant subject area* |

## POSTGRADUATE DIPLOMA

A postgraduate diploma (PGDip) provides an alternative to Honours for graduates who wish to extend their subject expertise. It does not require a research project, although a project may be included in some programmes.

| | |
|---|---|
| POINTS | 120 |
| DURATION | Two trimesters full time or up to four years part time |
| ENTRY REQUIREMENTS | Bachelor's degree in a relevant subject area* |

*You may also qualify for entry if you have appropriate experience, as approved by the associate dean (students).

## BACHELOR'S DEGREE WITH HONOURS

An Honours degree is a two-trimester full-time programme of coursework following a Bachelor's degree†. 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.

| | |
|---|---|
| POINTS | 120 |
| DURATION | Two trimesters full time or two years part time (with permission from the head of school) |
| ENTRY REQUIREMENTS | Bachelor's degree in a relevant subject area |

†An exception is the Bachelor of Engineering with Honours which has Honours integrated into the undergraduate degree.

## MASTER'S DEGREE BY COURSEWORK

In a 180-point Master's degree by coursework, you'll gain an internationally recognised qualification in one year of full-time study, or you can study part time.

You'll take some core courses and choose from a range of elective courses, so you can tailor your programme to your interests and career aspirations.

With small class sizes, you'll learn through seminar-style discussions with leading researchers and academics.

You may have the opportunity to undertake a trimester-long research project, or practical placement, where you'll apply what you've learnt.

Admission to these programmes is at the discretion of the programme coordinators.

| | |
|---|---|
| POINTS | 180 |
| DURATION | Three trimesters full time or equivalent part time |
| ENTRY REQUIREMENTS | Bachelor's degree in a relevant subject area |

# MASTER'S DEGREE BY THESIS

The Master's degree by thesis will take you up to one year to complete. You'll carry out in-depth supervised research and write a thesis. During your studies, you might also author publications for peer-reviewed journals.

| | |
|---|---|
| POINTS | 120 |
| DURATION | One year full time |
| ENTRY REQUIREMENTS | Honours degree or postgraduate diploma with an average grade of at least a B+ in the relevant subject area. You may also qualify for entry if you have extensive appropriate experience, as approved by the associate dean (postgraduate research). |

# MASTER'S DEGREE BY COURSEWORK AND THESIS

In a Master's degree by coursework and thesis, you'll complete two trimesters of coursework, followed by a 120-point thesis where you'll work under the supervision of an academic staff member. If you already have a postgraduate diploma or an Honours degree in a relevant subject area, you may be permitted to advance to the thesis year without completing the coursework.

A Master's degree 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.

| | |
|---|---|
| POINTS | 240 |
| DURATION | Two trimesters of coursework and one year full time for the thesis (or equivalent part time) |
| ENTRY REQUIREMENTS | Bachelor's degree in a relevant subject area |

# 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 a PhD, you 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 Wellington Faculties of Science and Engineering.

| | |
|---|---|
| DURATION | The PhD programme normally requires at least three years of full-time study. A PhD may also be undertaken part time. |
| ENTRY REQUIREMENTS | You'll 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. |

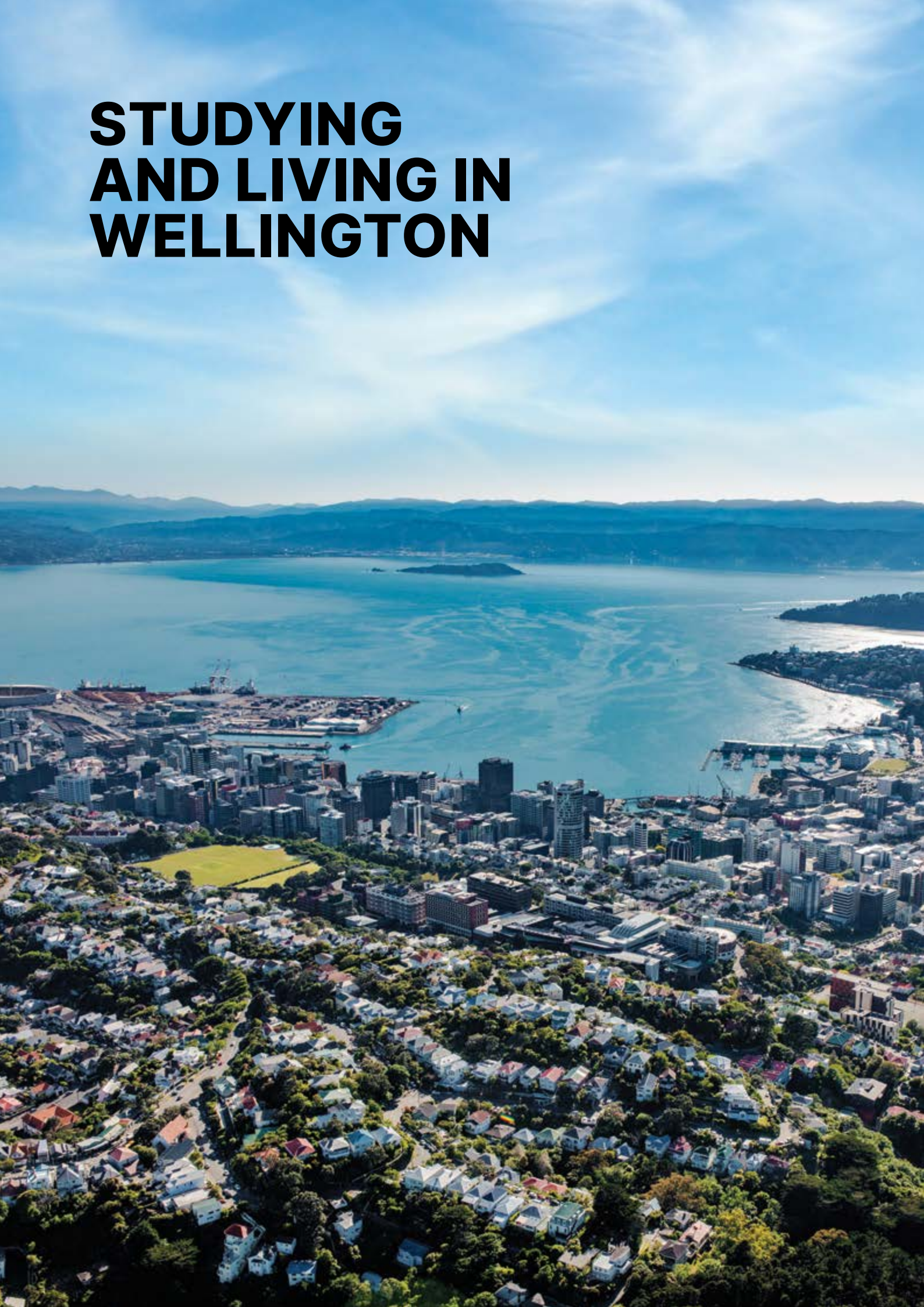
## Enrolment

The Wellington Faculty of Graduate Research is the first point of contact 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 pg-research@vuw.ac.nz

# STUDYING AND LIVING IN WELLINGTON



## LEADING RESEARCH

Te Herenga Waka—Victoria University of Wellington is ranked number one in Aotearoa New Zealand for intensity of high-quality research* and is in the top 1 percent of the world's more than 18,000 universities for 15 subjects and in the top 2 percent for 28 subjects in the 2023 QS World University Rankings.

*Performance-Based Research Fund 2019.

## LIFE ON CAMPUS

The University has three city campuses—Kelburn, Pipitea, and Te Aro—as well as two off-campus research centres in Lower Hutt. The Kelburn campus is the centre of student experience, with social spaces in the Hub where you can catch up with study, grab a coffee, or hang out with friends. Everything you need is on campus—there's a choice of cafés, a bookshop, a pharmacy, and the Adam Art Gallery, an award-winning building housing a changing programme of exhibitions.

Image: *Jeff McEwan*

## THE BUSTLING CAPITAL LIFESTYLE

Wellington is a beautiful city that makes the most of its natural surroundings. It's compact and easy to get around—you can walk just about anywhere or use our excellent public transport system. The city has 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 within 15 minutes' travel from the centre of the city.

## MAKING CONNECTIONS

Come and experience the benefits of the University's strong connections with government, business, and the country's top scientific, cultural, technological, and creative organisations. As the capital city, Wellington is home to many national organisations and treasures, including the National Library, the New Zealand Film Archive, Parliament, Te Papa Tongarewa, and Zealandia Te Māra a Tāne, as well as the highest concentration of science organisations in Aotearoa. Our connections mean students have excellent opportunities for part-time work, volunteering, and internships, as well as networking for jobs once they graduate.

## AWARD-WINNING EDUCATORS

Teaching staff who care about your future will help make your time at the University a success. Most courses include tutoring in small groups, where you can discuss your ideas, ask questions, and get individual help. A number of our staff have won awards for innovative teaching.

## CAREER OPPORTUNITIES

The opportunity to make lasting connections opens doors for our graduates. Our students have gone on to work in exciting careers as data scientists, environmental scientists, marine biologists, policy analysts, software developers, video game designers, and much more. Many of our students also move into academia.

# PROGRAMMES OVERVIEW

www.wgtn.ac.nz/study/programmes-courses/postgraduate

## BIOLOGICAL SCIENCES

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD |
|---|---|---|---|---|---|---|---|---|
| Biology | ✓ | | | | | | | |
| Biomedical Sciences | | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Biotechnology | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Cell and Molecular Bioscience | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Clinical Immunology | | | | | ✓ | | | ✓ |
| Clinical Research | | | ✓ | | | ✓ | | ✓ |
| Conservation Biology | | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| Ecological Restoration | | ✓ | ✓ | | | ✓ | ✓ | ✓ |
| Ecology and Biodiversity | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Marine Biology | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Marine Conservation | | ✓ | | | ✓ | | | ✓ |
| Molecular Microbiology | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |

## CHEMICAL AND PHYSICAL SCIENCES

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD |
|---|---|---|---|---|---|---|---|---|
| Chemistry | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Drug Discovery and Development | | ✓ | ✓ | | ✓ | | | ✓ |
| Physics | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |

## ENGINEERING AND COMPUTER SCIENCE

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD |
|---|---|---|---|---|---|---|---|---|
| Artificial Intelligence | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Computer Graphics | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Computer Science | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cybersecurity Engineering | | | | ✓ | | | | |
| Electronic and Computer Systems | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Electronical and Electronic Engineering | | | | ✓ | | | | |
| Engineering Practice | | | | | ✓ | | | |
| Renewable Energy | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Software Development | | | | | ✓ | | | |
| Software Engineering | | | | ✓ | | ✓ | ✓ | ✓ |

## GEOGRAPHY, ENVIRONMENT AND EARTH SCIENCES

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD |
|---|---|---|---|---|---|---|---|---|
| Climate Change Science and Policy | | ✓ | ✓ | | ✓ | | | ✓ |
| Development Studies | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Environmental Science | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Environmental Studies | ✓ | | ✓ | | | | ✓ | ✓ |
| Geographic Information Science† | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Geography | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Geology | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Geophysics | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Meteorology‡ | | | ✓ | | ✓ | | | ✓ |
| Physical Geography† | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |

†Taught programmes may not be available in 2024. Master's by thesis and PhD are available.

‡Not available in 2024. Teaching expected to resume in 2025.

## MATHEMATICS AND STATISTICS

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD |
|---|---|---|---|---|---|---|---|---|
| Applied Statistics | | | | | ✓ | | | ✓ |
| Data Science | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Mathematics | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Statistics | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |

## PSYCHOLOGY

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD |
|---|---|---|---|---|---|---|---|---|
| Clinical Psychology[§] | | | ✔ | | | | | |
| Cognitive and Behavioural Neuroscience | | ✔ | ✔ | | | ✔ | ✔ | ✔ |
| Cross-Cultural Psychology | | ✔ | ✔ | | | ✔ | ✔ | ✔ |
| Forensic Psychology | | ✔ | ✔ | | | ✔ | ✔ | ✔ |
| Psychology | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ |

[§]The PGDip in Clinical Psychology must be taken concurrently with a thesis (either in the Master of Arts, Master of Science, or PhD).

## SCIENCE IN SOCIETY

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD |
|---|---|---|---|---|---|---|---|---|
| Science Communication specialisation | ✔ | | | | ✔ | | | |
| Science in Society | | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ |

# BIOLOGICAL SCIENCES

Our postgraduate programmes in Biological Sciences span molecules to ecosystems. From high-tech labs to exotic field studies, you'll have opportunities to explore the science that underpins issues such as conservation and the environment, health and disease, biodiscovery, biotechnology, and much more.

## OUR STRENGTHS

Our academics are passionate about their research and teaching, providing a culture that embraces intellectual curiosity and crosses a range of fields. An ecologist with an interest in native plants may well use many of the tools and techniques required by a molecular geneticist. This integrative approach provides the freedom to explore questions that transcend traditional disciplinary boundaries.

## RESEARCH LINKS

We have close ties with a number of external organisations, including the Malaghan Institute of Medical Research, the National Institute of Water and Atmospheric Research (NIWA), Zealandia Te Māra a Tāne, and many more. We also take advantage of being in the capital city, with many of our researchers forming connections with local and national government agencies to undertake research that has direct links to policy.

In addition, we have excellent links within the University. Our staff collaborate with researchers across several other schools, including the School of Chemical and Physical Sciences, the School of Geography, Environment and Earth Sciences, and the School of Psychology. We also work with Te Kāuru—the Ferrier Research Institute, and Te Kawa a Māui—the School of Māori Studies.

## OUR STUDY ENVIRONMENT

We have world-class, award-winning research facilities, including our Te Toki a Rata building that has state-of-the-art teaching and research laboratories as well as dedicated spaces for postgraduate students to work and study. Our Te Toka Tū Moana—Wellington University Coastal Ecology Laboratory overlooks the spectacular exposed rocky reef systems of the Taputeranga Marine Reserve.

## YOUR STUDY OPTIONS

For information on a particular programme, contact the appropriate programme coordinator.

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD | Programme coordinator |
|---|---|---|---|---|---|---|---|---|---|
| Biology | ✓ | | | | | | | | Associate Professor Monica Gerth monica.gerth@vuw.ac.nz |
| Biomedical Sciences | | | ✓ | ✓ | | ✓ | ✓ | ✓ | Associate Professor Davide Comoletti davide.comoletti@vuw.ac.nz |
| Biotechnology | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | Professor David Ackerley david.ackerley@vuw.ac.nz |
| Cell and Molecular Bioscience | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | Associate Professor Bronwyn Kivell bronwyn.kivell@vuw.ac.nz |
| Clinical Immunology | | | | | ✓ | | | ✓ | Professor Anne La Flamme anne.laflamme@vuw.ac.nz |
| Clinical Research | | | ✓ | | | ✓ | | ✓ | Professor Elaine Dennison elaine.dennison@vuw.ac.nz |
| Conservation Biology | | ✓ | ✓ | ✓ | ✓ | | | ✓ | Professor Nicola Nelson nicola.nelson@vuw.ac.nz |
| Ecological Restoration | | ✓ | ✓ | | | ✓ | ✓ | ✓ | Dr Nicola Day nicola.day@vuw.ac.nz |
| Ecology and Biodiversity | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | Professor Phil Lester phil.lester@vuw.ac.nz |
| Marine Biology | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | Professor James Bell james.bell@vuw.ac.nz |
| Marine Conservation | | ✓ | | | ✓ | | | ✓ | Professor James Bell james.bell@vuw.ac.nz |
| Molecular Microbiology | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | Dr Joanna Mackichan joanna.mackichan@vuw.ac.nz |

# MASTER'S BY COURSEWORK

## 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. This Master's degree will equip you with the skills required to assess, analyse, and undertake clinical research in immunology. You'll be trained in clinical trial design, biostatistics, and advanced immunological theory and techniques. In addition to coursework, you'll have the opportunity to do a research project or take part in work experience in clinical research.

We have close ties to the Malaghan Institute of Medical Research, the Medical Research Institute of New Zealand, Wellington Regional Hospital, and the Wellington School of Medicine, University of Otago. Clinicians and researchers from these organisations contribute to this programme by delivering lectures, sharing their expertise, and leading research.

To apply for this programme, you'll need a biomedical science degree majoring in molecular pathology or an equivalent qualification.

www.wgtn.ac.nz/master-clinical-immunology

## Master of Conservation Biology

With 13 national parks, a diverse dramatic coastline, and breathtaking native bush, New Zealand's natural living space is a biological scientist's dream. Study Conservation Biology to make a valuable contribution to the preservation of native species in their natural environments in New Zealand and abroad.

In this programme, you'll take three core courses, including a four-week field course (two weeks away from Wellington) to key conservation sites throughout New Zealand, and choose further relevant electives that suit your interests. You'll learn from internationally respected scientists whose work informs the management of New Zealand's unique biota and conservation.

To apply, you'll need an undergraduate degree in a relevant subject area, or to be accepted by the programme coordinator.

www.wgtn.ac.nz/conservation-biology

### Master of Marine Conservation

With the increasing pressures on the marine environment, experts in the conservation and management of marine organisms and ecosystems are in demand.

In this programme, you'll examine marine conservation issues and practices using examples from New Zealand, Australia, the South Pacific, and the wider Indo–Pacific region. Two of the three core courses are field-based, and you'll visit several world-renowned marine conservation sites in New Zealand and overseas.

You'll be prepared for a career in a range of marine conservation areas worldwide, including the conservation and management of marine organisms and ecosystems.

To apply for this programme, you'll need an undergraduate degree in a relevant subject area with at least a B+ average.

www.wgtn.ac.nz/master-marine-conservation

## CAREER OPPORTUNITIES

Upon graduation, our students are poised to succeed in a variety of careers including conservation, education, laboratory and technical services, policy development, and research.

## RESEARCH CENTRES

You can find out more on page 37.

Centre for Biodiscovery
www.wgtn.ac.nz/biodiscovery

Centre for Biodiversity and Restoration Ecology
www.wgtn.ac.nz/biodiversity

## SCHOOL OF BIOLOGICAL SCIENCES

Te Toki a Rata Building, Kelburn Campus
04 463 5339 or 0800 22 77 55
biosci@vuw.ac.nz
www.wgtn.ac.nz/sbs

# FROM SKIES TO SEA

Master of Science student Lisa Wolf might have taken the long route in pursuit of her marine biology passion, but she has followed her dream around the globe—from a career as a flight attendant, to beginning her Master's degree online from her home in Munich, to snorkelling on Wellington's south coast.

After her lifelong fascination with marine biology was discouraged by an unsupportive secondary school biology teacher, Lisa started university lacking in confidence. Instead of pursuing her passion, she opted instead for a degree in sports science—something she felt was more within her comfort zone.

"I'm a very outdoorsy person, and I love sports. But once I started studying sports science, I realised, 'Oh no, this is not where my passion is, and I should really follow my dreams.' I knew sports science wasn't the right thing for me."

Having decided that pursuing a degree in biology was her goal, she then had a large gap before she was able to start her studies the next academic year.

"Now I have a half year, what am I going to do? And my dad said, 'You should become a flight attendant, make some money, and see the world.' So I did, and I ended up flying for one year. It was a really, really good time, and I saw a lot. I'm so happy that I got that opportunity, but I knew studying biology was the path for me."

Although Lisa knew she really wanted to pursue marine biology in particular, the subject wasn't offered as an undergraduate major at her university. She was, however, able to take two marine biology papers that were offered at undergraduate level.

"Munich is at the very southern point of Germany, which means that the closest sea is actually in Italy. So, if you want to drive up to the Baltic Sea, it's much further than just going to Italy—it's actually really far away. But still they offered marine biology courses, with field trips to France, Slovenia, and to the Baltic Sea."

Unfortunately, due to the pandemic, she was able to go on only one field trip during her undergraduate studies. This field trip introduced her to a professor with a connection to the Bavarian State Collection of Zoology.

"That led to me working there, in a section called Arthropoda, and researching pycnogonids—sea spiders. The professor, who I was working with on one of these field trips, saw my interest in marine biology, and in pycnogonids especially, and offered me a job working in the collection and identifying species."

Her research into sea spiders inspired her to research the field of symbiosis—an interaction between two different organisms living in close physical association, typically to the advantage of both—which is what led her to her Master's supervisor, Professor Simon Davy, a renowned expert in the field and one of the reasons she chose to study in Wellington.

"My Master's research looks into the unexplored symbiosis between brown macroalgae (seaweed) and a particular species of sea anemone."

There's been very little formal research done on this relationship. The National Institute of Water and Atmospheric Research has reported the two species coexisting, but there is no information on what exactly each organism is gaining from the relationship.

"We don't know if the sea anemones prefer one particular seaweed, or which kind of nutrients they're sharing. If it's a nutritional symbiosis, it would include the exchange of nutrients between partners."

If this symbiotic relationship is proven, its contribution to the health of both organisms could be assisting with the response of the seaweed and sea anemones to different stressors, including marine heatwaves caused by climate change.

"Seaweeds are very important for many reasons, including biodiversity and absorption of carbon. They serve as both a nursery and habitat for fish, and are therefore important for fisheries and communities. I mean, if there was no seaweed, biodiversity would be hugely decreased. Everything would be changed. It's a foundation species within this ecosystem."

After two back-to-back winters, Lisa's excited for some warmer weather and to get into the ocean for some snorkelling.

"Being close to the ocean is something I love about Wellington and, obviously, I'm looking forward to snorkelling. I'm also so excited about doing lab work—focusing on one specific question and discovering answers. My research might have the potential to have such a big impact, or not—we just don't know yet. When it comes to biology, every little step on the journey is important."

Lisa enjoys undertaking her research at Te Kura Mātauranga Koiora—the School of Biological Sciences (SBS), where she shares office space with other postgraduate students and gets to learn all about their specialties.

"I'm loving being in this environment. Most of the time, I'm sitting in SBS surrounded by so many biologists from different fields, and you have nice, interesting conversations and you can make friends really easily.

"My supervisor and I get along very well. I don't feel stressed. He's helping me in the perfect way. He gives me guidance, but he also wants me to do most of the work. Well, all of the work!"

Lisa says her advice for people considering postgraduate study would be to consider what your true passions are and follow them.

"My work as a flight attendant allowed me to see the world, and got me inspired and motivated. It really showed me that people can do so many amazing things—especially looking back at my insecurity with following my passion. Sometimes, I wish that I had followed it right away. But on the other hand, it was meant to be. I was meant to have this period of growth before I started what I really wanted to do, and I'm really glad, actually. I learnt a lot about the role I could play in the world."

# CHEMICAL AND PHYSICAL SCIENCES

Physics and chemistry are the disciplines that form the basis of our technological society. If your intellectually curious and innovative mind is seeking challenge and inspiration, join us at the cutting edge of science in New Zealand.

## OUR STRENGTHS

Chemistry and physics help us to understand the natural world and our place within it, and they underpin almost all human technologies. Discoveries in chemistry and physics inspire generations, and these discoveries belong to all of humankind. Our scientists work on problems that address the future needs of society. This includes developing technologies like next-generation solar cells or creating materials to enable new forms of energy-efficient supercomputing. We are harnessing nature's laboratory to isolate new pharmaceuticals from natural products, and we are looking to the stars to understand the cosmos on the broadest scale.

Our alumni and faculty members are often awarded prestigious national and international science awards. Notably, alumnus Professor Alan MacDiarmid was awarded the Nobel Prize in Chemistry in 2000, and alumnus Professor Sir Paul Callaghan gave his name to New Zealand's central innovation agency.

## RESEARCH LINKS

Our researchers have extensive international connections, and we interact closely with the nation's leading research institutes such as Callaghan Innovation, GNS Science, NIWA, and the University's Paihau—Robinson Research Institute and Te Kāuru—Ferrier Research Institute.

In addition, we have excellent links with the Centre for Biodiscovery and the Malaghan Institute of Medical Research, with joint programmes in the discovery and evaluation of new bioactive compounds for the treatment of disease.

## OUR STUDY ENVIRONMENT

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 clean-room facility.

Our postgraduate student workshop series is a popular ongoing event and will allow you to better your communication and research skills.

We often conduct research at the intersections of biology and chemistry, psychology, or earth sciences.

# YOUR STUDY OPTIONS

For information on a particular programme, contact the appropriate programme coordinator.

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD | Programme coordinator |
|---|---|---|---|---|---|---|---|---|---|
| Chemistry | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | **Honours coordinator**<br>Dr Kim McKelvey<br>kim.mckelvey@vuw.ac.nz<br>**Master's and PhD coordinator**<br>Professor Patricia Hunt<br>patricia.hunt@vuw.ac.nz |
| Drug Discovery and Development | | ✓ | ✓ | | ✓ | | | ✓ | Dr Simon Hinkley<br>simon.hinkley@vuw.ac.nz |
| Physics | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | **Honours/MSc (Part 1) coordinator**<br>Dr Stephen Curran<br>stephen.curran@vuw.ac.nz<br>**PhD/MSc (Part 2) coordinator**<br>Professor Uli Zuelicke<br>uli.zuelicke@vuw.ac.nz |

# MASTER'S BY COURSEWORK

## Master of Drug Discovery and Development

Human quality of life and longevity has improved immensely because of modern medicinal chemistry. This course introduces how we discover, develop, produce, and commercialise new therapeutics. You'll learn about drug discovery, the chemistry of drug delivery systems, and scaled-up syntheses. The course also introduces how we protect drug-candidate intellectual property and aspects of clinical trial processes. The programme is tuned to provide the practical and theoretical skills required for further postgraduate research or entry into a range of career opportunities.

The programme is taught by Te Kāuru—Ferrier Research Institute and partners with the School of Chemical and Physical Sciences, the Centre for Biodiscovery, and the School of Biological Science. Graduates from the programme have enjoyed success with pharma-company drug development, veterinary therapeutics, further research undertaking PhD studies, patent assessment, and activities with government, research, and commercial organisations.

To apply for this programme, you'll need an undergraduate degree in a relevant subject area, or you must complete some prerequisite papers, in consultation with the programme director.

www.wgtn.ac.nz/master-drug-discovery

# CAREER OPPORTUNITIES

Your chemistry skills will be in demand in industries ranging from food and wine production to cosmetics companies and Crown research institutes. Our graduates are employed in analytics and production monitoring, biotechnology, the energy sector, environmental protection, government departments, and pharmaceutical industries.

The principles of chemistry and physics are essential in many applied disciplines and, with a postgraduate degree, you'll have diverse career options, from fundamental research to analyst and consultant roles. Our graduates work for technology companies, government laboratories, hospitals, traffic and aviation engineering, and in related fields such as environmental and earth science.

# RESEARCH CENTRES

You can find out more on page 37.

Centre for Biodiscovery
www.wgtn.ac.nz/biodiscovery

MacDiarmid Institute for Advanced Materials and Nanotechnology
www.macdiarmid.ac.nz

Paihau—Robinson Research Institute
www.wgtn.ac.nz/robinson

Te Kāuru—Ferrier Research Institute
www.wgtn.ac.nz/ferrier


## SCHOOL OF CHEMICAL AND PHYSICAL SCIENCES

Laby Building, Kelburn Campus
04 463 5335
scps@vuw.ac.nz
www.wgtn.ac.nz/scps

# PHYSICS LAUNCHES CAREER IN ROCKET SCIENCE

Breaking apart household appliances to figure out how they worked was a pretty clear indicator to Harry Warring's frustrated (but supportive) parents that he was destined for a career that was going places. Little did anyone realise then that those places would include the furthest reaches of space.

Harry is a development engineer at New Zealand-based space company Rocket Lab. For him, studying Physics at Victoria University of Wellington was a natural choice.

"If you're interested in the world around you, Physics provides a really good framework for tinkering with anything in the universe and understanding what makes it tick."

During his undergraduate and Honours years, Harry got an internship working in Physics lecturer Dr Ben Ruck's novel materials laboratory, where he helped maintain the equipment and prepare samples for other people.

"That's what led to me doing my PhD—it evolved into directing my own research over the course of a couple of summer projects. Getting hands-on with research really made me want to continue further."

Under Dr Ruck's supervision, Harry's PhD focused on producing thin films of various nitrides.

"I was trying to produce those in a structured way so that they could be used for different types of new electronic devices. We'd prepare the raw materials and pattern them into device structures, then study those devices in extreme conditions such as high magnetic fields and really low temperatures to understand how they worked. There was some interesting fundamental physics at play," Harry explains.

As he was finishing up his PhD thesis, Harry applied for a job at Rocket Lab, which delivers launch services, spacecraft, and satellite components. Within a week of being interviewed, he was hired.

"They were really keen to get me on board—I submitted my thesis on a Thursday and the following Monday I moved up to Auckland," he says. "Officially, my job is a development engineer, but it is rocket science. We're the leading edge of developing new hardware and testing it so that we fully understand it before we put it on the rocket."

Harry says that, growing up, he could never have dreamt he'd be able to do world-leading work building rockets in New Zealand.

"Rocket Lab has a couple of new exciting projects at the moment—we've got a mission to the Moon coming up for NASA where we're sending up a very small rocket. It's the early stages of NASA's Artemis project—they're building a massive rocket as well with the aim of eventually setting up a lunar base that will serve as a kind of stepping stone to Mars."

He says space travel is a very important tool for humanity to have up its sleeve.

"There are a few ways venturing out can benefit humanity directly," Harry explains. "Obviously, if we can establish a sustainable off-world colony, then it protects us as a species from cataclysmic events like an asteroid colliding with Earth. Also, if we can figure out how to efficiently mine asteroids and collect resources from them, that means we don't need to screw up our own planet by mining terrestrially."

They're huge issues to be thinking about, but Harry says his grounding in physics at the University has set him up well to attempt to tackle them.

"There's a lot of specific knowledge to do with the physics of material that has been directly useful to what I do now," he says. "But probably more useful are the transferable skills you get—you can have any kind of hard problem thrown at you, and you know you're able to break it down into solvable chunks and figure it out. Having that ability to develop the framework for how you're going to tackle figuring a problem out is invaluable."

Harry says Physics graduates will be instrumental to solving the world's most pressing problems.

"These big issues we're collectively facing all involve some pretty hard technological problems—things like climate change, medicine, computer technology, and space flight all rely on physics to come up with solutions to them," he says. "A lot of technological progress is only facilitated by having breakthroughs in the hard physics and materials science developments, so it's really important we have our brightest minds working on these things."

Image: *NASA*

# Stand on the edge of discovery

"These big issues we're collectively facing all involve some pretty hard technological problems—things like climate change, medicine, computer technology, and space flight all rely on physics to come up with solutions to them."

**Dr Harry Warring**
Graduate, Doctor of Philosophy in Physics

# ENGINEERING AND COMPUTER SCIENCE

If you want to take the next steps in your professional career in the high-tech industry and research community, you'll find a warm welcome and a supportive and stimulating environment in the School of Engineering and Computer Science at Victoria University of Wellington.

Our focus on digital technology will provide you with all the skills and experience you will need in the modern workplace and research labs.

## OUR STRENGTHS

Our highly experienced, international staff have wide networks in research and industry and are actively engaged in internationally recognised, ground-breaking research.

Not only are our researchers constantly extending the boundaries of modern engineering and computing sciences, but they are also passionate about supporting students to follow their curiosity into new areas of study and research.

## RESEARCH LINKS

As New Zealand's capital city university, we enjoy the benefits of a wonderful landscape and lifestyle, contacts and collaborations with government, national research funders, and world-class industry. We pride ourselves on our collegiality and multidisciplinary collaborations with many international and local top-ranked research clusters.

Our research groups provide a collaborative and encouraging support network, and our postgraduate students regularly present their work at prestigious conferences.

## OUR STUDY ENVIRONMENT

Our postgraduate students have access to state-of-the-art equipment and laboratories, situated in the Alan MacDiarmid, Cotton, and Maru buildings on the University's picturesque Kelburn campus, with enviable views over the city and Wellington Harbour.

## MASTER'S BY COURSEWORK

### Master of Artificial Intelligence

Our Master of Artificial Intelligence is the first of its kind to be offered in New Zealand. Study with our artificial intelligence (AI) research group of more than 50 researchers and students, whose pioneering work is at the cutting edge of AI knowledge and development.

You'll be able to demonstrate advanced knowledge of concepts and techniques behind AI. You'll also acquire skills to build AI tools with a range of applications and the potential to solve real-world problems across sectors such as business, education, logistics, and the web.

The Master of Artificial Intelligence is a two-part qualification with components of both coursework and research.

To be accepted into this programme you will need a Bachelor's degree in computer science or a related subject with at least a B average in the relevant final–year courses, and to be accepted by the head of school as capable of proceeding with the proposed course of study.

Part of the Industry Alliance Programme—see page 36.

www.wgtn.ac.nz/master-ai

### Master of Computer Science

Study emerging technology, explore concepts that will form the foundations of future innovations, and enhance your career with a Master of Computer Science.

This flexible coursework- and project-based programme will put you at the forefront of innovation in a rapidly developing industry.

You'll gain specialist knowledge of computer science theories, methods, and strategy and build on your skills in computing architecture, construction, engineering, and design.

Examine networks, software, tools, and packages, and learn more about programming languages and computer-based systems.

To be accepted into this programme, you will need a Bachelor's degree in computer science or equivalent, with at least a B average, or extensive professional experience, and approval from the head of school.

www.wgtn.ac.nz/mcompsc

### Master of Engineering Practice

Employers need ICT professionals and engineers who have the skills to work effectively in the New Zealand workplace. These skills include good communication and teamwork and an understanding of the professional environment, alongside strong technical knowledge.

Gain skills in communication, problem-solving, and enterprise to complement your technical knowledge and fast-track your career in this rapidly growing industry with the one-year Master of Engineering Practice.

To be accepted into this programme, you'll need a Bachelor's degree in Engineering or equivalent, with at least a B+ average, and approval from the head of school.

www.wgtn.ac.nz/mep

# YOUR STUDY OPTIONS

For information on a particular programme, contact the appropriate programme coordinator.

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD | Programme coordinator |
|---|---|---|---|---|---|---|---|---|---|
| Artificial Intelligence | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Professor Bing Xue<br>bing.xue@vuw.ac.nz |
| Computer Graphics | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | Dr Karsten Lundqvist<br>karsten.lundqvist@vuw.ac.nz<br>Professor Bing Xue<br>bing.xue@vuw.ac.nz |
| Computer Science | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Dr Karsten Lundqvist<br>karsten.lundqvist@vuw.ac.nz<br>Professor Bing Xue<br>bing.xue@vuw.ac.nz |
| Cybersecurity Engineering | | | | ✔ | | | | | Associate Professor<br>Ian Welch<br>ian.welch@vuw.ac.nz |
| Electronic and Computer Systems | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | Dr Ramesh Rayudu<br>ramesh.rayudu@vuw.ac.nz |
| Electronical and Electronic Engineering | | | | ✔ | | | | | Dr Ramesh Rayudu<br>ramesh.rayudu@vuw.ac.nz |
| Engineering Practice | | | | | ✔ | | | | Dr Ramesh Rayudu<br>ramesh.rayudu@vuw.ac.nz |
| Renewable Energy | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Professor Alan Brent<br>alan.brent@vuw.ac.nz |
| Software Development | | | | ✔ | | | | | Dr Ali Ahmed<br>ali.ahmed@vuw.ac.nz |
| Software Engineering | | | | ✔ | | ✔ | ✔ | ✔ | Dr Karsten Lundqvist<br>karsten.lundqvist@vuw.ac.nz |

If you have a general query about completing a Master's by thesis or PhD, contact one of the people listed below.

| | |
|---|---|
| For Artificial Intelligence, Computer Graphics, Computer Science, Electronic and Computer Systems | Dr Yi Mei<br>yi.mei@vuw.ac.nz |
| For Cybersecurity Engineering, Electrical and Electronic Engineering, Software Engineering | Dr Paul Teal<br>paul.teal@vuw.ac.nz |

## Master of Renewable Energy

Making the shift to affordable, secure, and sustainable energy systems is a global priority. The Master of Renewable Energy, the only degree of its kind in New Zealand, will give you expertise in energy generation, conversion, storage, transmission, distribution, and usage technologies, with a strong focus on renewable and sustainable energy technologies.

Choose to focus on Renewable Energy Systems Engineering and learn to design, analyse, create, and commission a range of renewable energy technical systems. Or you could focus on Renewable Energy Systems Analysis and gain the skill set to inform decision- and policymaking related to the transition of the energy sector.

To apply, you will need a Bachelor's degree with at least a B+ average in a relevant subject such as Architecture, Building Science, Chemistry, Climate Change Science, Computer Science, Design Innovation, Electronics and Computer Engineering, Environmental Sciences, or Physics.

www.wgtn.ac.nz/mre

## Master of Software Development

Get the technical skills you need to work as a software developer.

If you have a Bachelor's degree (with at least a B average) in any stream other than computer science and are keen on exploring a career in IT, this is the path to your new career. Recent graduates, as well as experienced candidates who want to broaden their career opportunities, are welcome.

The Master of Software Development is designed to equip people from technical and non-technical backgrounds with a strong, industry-focused qualification. Gain skills in programming and software development that will enable you to develop software-based solutions for a variety of industries.

The programme is made up of four courses that are a combination of practical taught courses and a research and development project to give you practical knowledge and experience.

Designed for people who don't have much software development knowledge, this programme helps you explore opportunities in the thriving ICT industry.

It is preferable, though not compulsory, for students to have a basic level of experience with programming.

Part of the Industry Alliance Programme—see page 36.

www.wgtn.ac.nz/mswdev

# CAREER OPPORTUNITIES

Wellington is a city buzzing with development in the ICT and technology sectors, driving an industry that is constantly changing. The Wellington Faculty of Engineering has established links with leading businesses and sought-after professionals locally and internationally, including Google, Wētā FX, and Xero. Whether academia or industry is your goal, we have the connections to help you get there. Our alumni pursue amazing careers all over the world.

# RESEARCH CENTRES

You can find out more on page 37.

Computational Media Innovation Centre
www.wgtn.ac.nz/cmic

Paihau—Robinson Research Institute
www.wgtn.ac.nz/robinson

## SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

Cotton Building, Kelburn Campus
04 463 5341
office@ecs.vuw.ac.nz
www.wgtn.ac.nz/engineering

# Stand up and lead the way

"During the research process, you'll come across many practical problems, and you'll solve them by yourself, which gives you a real feeling of achievement and confidence. I think that's the reason I still do the research—you can always extend your knowledge. Every day you will have new things to learn, and every day is a different experience."

**Dr Yueming Sun**
Graduate, Doctor of Philosophy in Engineering

# LAYING WASTE TO ENERGY WASTE

After learning about superconductivity during her Master's degree at Beijing Jiaotong University (BJTU), Yueming Sun wasn't prepared to stop exploring, and decided to continue with PhD study.

A collaboration between her BJTU supervisor and researchers at the Paihau—Robinson Research Institute (RRI) gave her the opportunity to be the first student to take up a new dual PhD programme, meaning Yueming submitted a PhD thesis at both BJTU and Victoria University of Wellington.

Her research is on high-temperature superconductors (HTS), which have been employed in numerous applications around the reduction of energy waste and have the potential to make energy systems more compact, economical, and efficient and reduce carbon emissions.

"Superconductivity is usually defined as a series of physical characteristics of a certain material and, generally, these characteristics are having zero electrical resistance and an ability to expel magnetic fields. When the material is operated at a very, very low temperature—for example, at liquid nitrogen (–196°C) or liquid helium (–268.93°C) temperature—the material enters a superconducting state."

Yueming says the superconductive material can transport current as high as 1,000 times the current of copper and has much lower power dissipation compared with the copper used in New Zealand's current power grid system.

"This means there's the potential to save a lot of money and save a lot of power for large-scale power applications. It's quite amazing.

"Although superconductors show zero electrical resistance in direct-current operations, power dissipation still occurs under specific conditions, such as when they are carrying alternating currents or are exposed to time-varying magnetic fields," Yueming says.

Her research looks specifically at these power dissipations, known as alternating current (AC) loss. This is one of the challenges of superconductors—the AC loss produces heat, requiring the system to be cooled, and this refrigeration process has implications for efficiency and cost-effectiveness.

"If the parametric heat from AC loss isn't removed quickly enough, it can lead to the destruction of superconducting devices. So AC loss directly determines the cost and reliability of superconductor-based applications and can limit its commercialisation.

"I predict the loss using simulations and develop measurement systems to quantify the loss. Getting accurate measurements of AC loss is quite demanding, which is why there's a lot of work to do in this area."

Yueming says she values the support and world-leading instruments and resources provided by the University for her to complete her research.

"I've had enough resources to complete my project—the world-leading experimental platforms, and the positive research environment. But I think the thing that's made me happiest here is that my voice and ideas are valued. In RRI, we communicate openly with each other and everyone in the team is professional and friendly. Honestly, I'm so honoured and lucky to have been selected to complete my PhD here."

Yueming's two supervisors at RRI were institute director Professor Nick Long and principal scientist Dr Zhenan Jiang, who won the Royal Society Te Apārangi's Scott Medal in 2021 for his work on measuring and modelling the response of superconductors.

"I'm really honoured. Not only is Dr Jiang completing world-leading AC-loss research, but he's a great supervisor. He's always given me very prompt, constructive, and patient feedback, and I can call him any time. Professor Long is approachable and has a good knowledge of superconductivity. Together, they've given the perfect amount of direction and structure to my project and career plan."

While her research may be intense in nature, Yueming is quick to point out that the international environment at the institute has been very welcoming and open, with students from all around the globe, including China, Germany, India, Iran, Japan, Korea, the Philippines, and the United Kingdom.

"We have a good community of postgraduate students at Robinson. We organise morning teas, and there's a journal club to share academic topics."

The occasional chance to make liquid nitrogen ice cream doesn't hurt either.

"Before I knew anything about superconductivity, I ate liquid nitrogen ice cream and thought, 'If I work in this lab, maybe I can make ice cream every day!' But, seriously, I think my favourite part of my research is that you can always find something new," she says.

"During the research process, you'll come across many practical problems, and you'll solve them by yourself, which gives you a real feeling of achievement and confidence. I think that's the reason I still do the research—you can always extend your knowledge. Every day you will have new things to learn, and every day is a different experience."

# GEOGRAPHY, ENVIRONMENT AND EARTH SCIENCES

To become a leading exponent in your field requires specific skills and expertise as well as an ability to consider multiple disciplinary takes on a subject and, increasingly, different world views. The postgraduate programmes in the School of Geography, Environment and Earth Sciences provide these multidimensional perspectives on the major issues of today and the future. They embrace the spectrum of earth and environmental studies from fundamental sciences to present-day processes and issues, the impact these have on people, and how we respond to them. 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.

## OUR STRENGTHS

Our diverse postgraduate programmes are founded upon our world-class research staff and facilities. Earth Sciences at Victoria University of Wellington was ranked first among New Zealand universities for research quality in the two most recent Performance-Based Research Fund quality evaluations.

Development Studies at the University was ranked in the top 50, while Earth and Marine Sciences and Geology were ranked in the top 150 in the most recent QS rankings.

We cover all aspects of the environment and related societal concerns, addressing critical issues impacting our collective futures. Our internationally recognised research works to enable action on real-world issues of climate change, environmental degradation, geohazards, resource sustainability, social inequities, and uneven development.

## RESEARCH LINKS

We have strong, longstanding links with key national science organisations such as GNS Science, MetService, and NIWA, and with governmental and non-governmental organisations including the Earthquake Commission, the Ministry for the Environment, the Ministry of Foreign Affairs and Trade, and NZAID.

## OUR STUDY ENVIRONMENT

We are situated within easy access of the volcanic plateau to the north, glaciated landscapes to the south, and many other distinctive geological and geographic features throughout New Zealand. Your research could even take you around the globe, to the Pacific, Latin America, Antarctica, and beyond.

Based in Wellington, we are a short walk from key agencies in environmental policy. Our students and graduates have ready access to policymakers at all levels of government. We have state-of-the-art laboratories and facilities, and you'll experience first-hand a fascinating range of urban, rural, and remote environments through fieldwork, which is at the core of our teaching.

Our 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.

# YOUR STUDY OPTIONS

For information on a particular programme, contact the appropriate programme coordinator.

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD | Programme coordinator |
|---|---|---|---|---|---|---|---|---|---|
| Climate Change Science and Policy | | ✓ | ✓ | | ✓ | | | ✓ | Dr Alex Lo<br>alex.lo@vuw.ac.nz |
| Development Studies | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | Professor Sara Kindon<br>sara.kindon@vuw.ac.nz |
| Environmental Science | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | Dr Andrew Rees<br>andrew.rees@vuw.ac.nz |
| Environmental Studies | ✓ | | ✓ | | | | ✓ | ✓ | Dr Amanda Thomas<br>amanda.thomas@vuw.ac.nz |
| Geographic Information Science† | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | Dr Mairéad de Róiste<br>mairead.deroiste@vuw.ac.nz |
| Geography | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | Professor Sara Kindon<br>sara.kindon@vuw.ac.nz<br>Dr Mirjam Schindler<br>mirjam.schindler@vuw.ac.nz |
| Geology | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | Professor Colin Wilson<br>colin.wilson@vuw.ac.nz |
| Geophysics | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | Professor Martha Savage<br>martha.savage@vuw.ac.nz |
| Meteorology‡ | | | ✓ | | ✓ | | | ✓ | Professor James Renwick<br>james.renwick@vuw.ac.nz |
| Physical Geography† | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | Dr Shaun Eaves<br>shaun.eaves@vuw.ac.nz |

†Taught programmes may not be available in 2024. Master's by thesis and PhD are available.

‡Not available in 2024. Teaching expected to resume in 2025.

# MASTER'S BY COURSEWORK

## Master of Climate Change Science and Policy

Globally, we are already seeing some of the consequences of climate change.

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

This programme will give you the necessary combination of policy and science knowledge to address the real-world problems of climate change. It 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 elsewhere in New Zealand.

Part of the Industry Alliance Programme—see page 36.

To apply for this programme, you'll need an undergraduate degree with at least a B average (or equivalent) or extensive and relevant practical, professional, or scholarly experience.

www.wgtn.ac.nz/master-climate-change-science-policy

## Master of Development Studies

Are you wanting to contribute positively to our volatile, uncertain, complex, and ambiguous world? To lead transformative, equitable, and sustainable change? To make a difference by connecting critical theories and applied practice at a range of scales?

The Master of Development Studies programme equips you with skills in socio-spatial analysis, Indigenous and community-based engagement, and social action to facilitate more just and regenerative futures. Joining this programme at Victoria University of Wellington puts you at the heart of connections between development policy and practice through our relationships with key ministries and non-governmental organisations. You'll also join a programme ranked in the top 50 internationally.

To apply, you'll need a relevant undergraduate degree with at least a B average, or extensive and relevant practical, professional, or scholarly experience. Postgraduate certificate, diploma, and Master's with research options are also available.

www.wgtn.ac.nz/development-studies

## Master of Environmental Science

Environmental science is about how humans connect with, and change, the natural environment and is taught through scientific disciplines such as biology, chemistry, geography, mathematics, and physics.

Wellington is the ideal place for students to see how environmental science ranges from the field to policymaking. The region has active city and regional councils as well as GNS Science, NIWA, and the Zealandia eco-sanctuary, all of which are involved in the programme.

To be accepted into this programme, you'll need an undergraduate degree in biology, chemistry, earth sciences, environmental science, mathematics, physical geography, or physics with at least a B average.

Part of the Industry Alliance Programme—see page 36.

www.wgtn.ac.nz/master-environmental-science

## 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. These skills are in high demand.

In this programme, you'll learn to harness data to enable a better understanding of what happens on Earth for both the physical environment and human populations. Postgraduate certificate and diploma options are also available.

Part of the Industry Alliance Programme—see page 36.

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.

To apply, you'll need an undergraduate degree with at least a B average and two undergraduate GIS courses or extensive relevant industry experience.

*Taught programme may not be available in 2024. Master's by thesis and PhD are available.

www.wgtn.ac.nz/master-geographical-information-science

## Master of Meteorology†

Study for New Zealand's only Master's degree in Meteorology and become an expert in studying and predicting weather and climate, and the relationship they have with other environmental processes and humanity.

The programme is recognised throughout the world and complies with World Meteorological Organization standards. It is taught in partnership with New Zealand's official weather forecaster, MetService, which will provide you with practical work experience. This practical work is formally recognised as part of the qualification, preparing you for a role in the industry.

To apply for this programme, you'll need an undergraduate degree in mathematics or physics—other majors will be considered providing you have completed relevant maths and physics courses during your undergraduate degree.

†Not available in 2024. Teaching expected to resume in 2025.

www.wgtn.ac.nz/master-meteorology

# CAREER OPPORTUNITIES

Our graduates are in demand from employers across all sectors concerned with the environment or society. As these roles are constantly evolving and individuals will enjoy multiple careers during their working lives, our aim is to equip our postgraduate students with the skills and expertise that will enable them to adapt in an ever-changing world. For students with a focus on society, the key skills will be in analysis, critical thinking, and communication, supporting a range of career opportunities in education and knowledge communication, marketing, policy analysis, and various community and societal development roles.

Students focusing on the physical sciences may work in these areas as well as in more scientific, technical, or analytically focused roles. Currently, these skills are in demand in climate, supply chain, and transport logistics, engineering geology, environmental modelling, environmental specialisms and consultancies, geotechnical analysis, land management, meteorology, resource consent planning, soil and water resources, and urban planning.

# RESEARCH CENTRES

You can find out more on page 37.

Te Puna Pātiotio—Antarctic Research Centre
www.wgtn.ac.nz/antarctic

Institute of Geophysics
www.wgtn.ac.nz/institute-geophysics

New Zealand Climate Change Research Institute
www.wgtn.ac.nz/nzccri

## SCHOOL OF GEOGRAPHY, ENVIRONMENT AND EARTH SCIENCES

Cotton Building, Kelburn Campus
04 463 5337 or 04 463 6108
geo-enquiries@vuw.ac.nz
www.wgtn.ac.nz/sgees

# Chantal Mawer

## Graduate, Master of Environmental Studies

Chantal Mawer, a researcher and analyst for the Waitangi Tribunal, says her Master of Environmental Studies opened doors to many job opportunities.

Chantal has always been interested in how people interact with the natural and built environments around them. After studying for a Bachelor of Arts majoring in Anthropology, International Relations, and Development Studies, she felt the Master of Environmental Studies at Victoria University of Wellington offered a variety of courses that could help her develop her knowledge further.

"The Master of Environmental Studies programme gave me an opportunity to learn about the challenges facing our planet and the different ways to respond to these. It also gave me a greater awareness of the interconnectedness between people and place."

Chantal's thesis focused on community and the spaces that allow for this. It examined the role that suburban shopping malls in Aotearoa can, and do, play as community spaces.

"My thesis assessed decision-making mechanisms, questioning how communities can participate in the development of what they perceive of as their community spaces. I was excited about the unexpected spaces where community could be found, the ways it could be supported/strengthened, and how, as a society, we need to acknowledge community spaces in their myriad forms, whether they be privately or publicly owned.

"My Master's degree gave me the fundamental tools and connections to enter the workforce and provided crucial critical-thinking skills. My study also provided me with an opportunity to work alongside some of the top scholars in my field and build long-lasting relationships. If you're looking for a broad understanding of the environment and the world we live in, this is a great Master's for you."

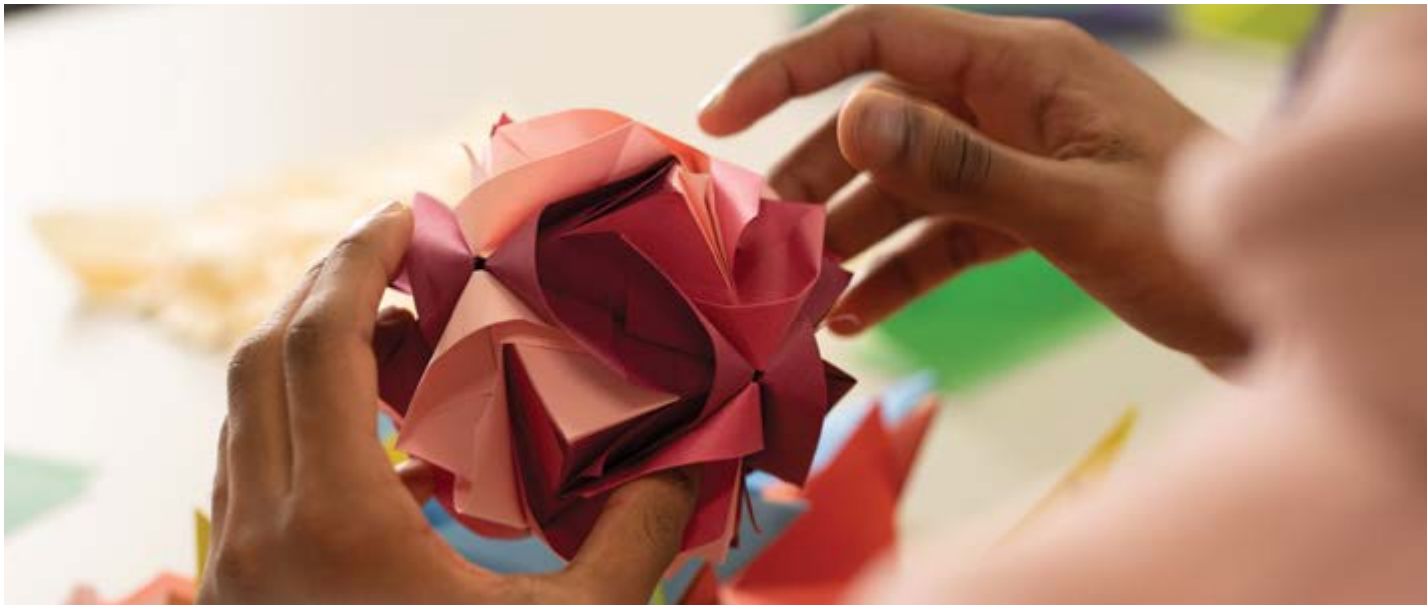
Between graduation and her current role at the Waitangi Tribunal, Chantal worked in an analyst role at Te Arawhiti, the Office for Māori Crown Relations, working in the Takutai Moana and Treaty settlement space.

"Having a Master's degree provided me with many job opportunities, and because the Master of Environmental Studies is so broad, you have a range of fields that you can choose to work in."

Originally from Taupō, Chantal didn't think city life was for her but quickly changed her mind after moving to Te Whanganui-a-Tara Wellington.

"I love living here, despite not being a 'city person'. I really enjoy the compactness of the city, the ability to bike and walk everywhere, and the opportunities for adventures right on your doorstep. There are so many things to do and be involved with and I have been really lucky to find an amazing community here."

# MATHEMATICS AND STATISTICS



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. Statistics and the new subject of Data Science provide powerful tools for gaining insight from data of all kinds.

## OUR STRENGTHS

We have leading international and early-career researchers who are forging new directions in a range of theoretical and applied disciplines.

We are ranked in the top three universities nationally in Pure and Applied Mathematics in the most recent Performance-Based Research Fund quality evaluation.

## RESEARCH LINKS

We have active partnerships with government, business, and public and private research organisations, including the Accident Compensation Corporation, Contact Energy, the Department of Conservation, GNS Science, the Ministry of Business, Innovation and Employment, the Ministry of Health, NIWA, and Statistics New Zealand.

## YOUR STUDY OPTIONS

For information on a particular programme, contact the appropriate programme coordinator.

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD | Programme coordinator |
|---|---|---|---|---|---|---|---|---|---|
| Applied Statistics | | | | | ✓ | | | ✓ | Dr Ivy Liu<br>ivy.liu@vuw.ac.nz |
| Data Science | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Dr Ryan Admiraal<br>ryan.admiraal@vuw.ac.nz |
| Mathematics | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | **Thesis coordinator**<br>Professor Stephen Marsland<br>stephen.marsland@vuw.ac.nz<br>**Coursework coordinator**<br>Dr Hung Pham<br>hung.pham@vuw.ac.nz |
| Statistics | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | **Thesis coordinator**<br>Dr Yuichi Hirose<br>yuichi.hirose@vuw.ac.nz<br>**Coursework coordinator**<br>Dr Ivy Liu<br>ivy.liu@vuw.ac.nz |

# OUR STUDY ENVIRONMENT

A degree in mathematics, statistics, or data science will help you develop skills in finding patterns, drawing conclusions, dealing with abstract concepts, analysing large quantities of data, and approaching problems in an analytical and rigorous way.

You might research the sustainability of fisheries, the analysis of native birdsong, fundamental advances in the theory of computation, the structure of matroids, or high-dimensional statistical analysis.

Our approachable staff undertake research at an international level. When you study with us, you'll experience a collegial learning environment.

# MASTER'S BY COURSEWORK

## Master of Applied Statistics

Statisticians are in demand. The huge variety and quantity of data generated today means more people are needed who can analyse and make sense of it.

This programme is designed to train you in a range of advanced techniques and to provide you with an appreciation of the variety of work undertaken by professional statisticians and consultants. It is made up of both coursework and practical training, allowing you to develop skills in research and consultancy. You'll then apply these skills in a work placement in a relevant government department or business.

For this programme, you'll need an undergraduate degree in a relevant subject area with at least a B+ average.

Part of the Industry Alliance Programme—see page 36.

www.wgtn.ac.nz/applied-statistics

## Master of Data Science

Fifteen years ago, the role of data scientist was unheard of. Today, it's an established role in business and government departments around the world. The nature of the role is constantly shifting as data sources, software tools, and techniques change. Equip yourself with the skills and knowledge to move and adapt to these changes.

Our graduates will leave with an advanced understanding of techniques in data science, including machine learning and statistical methods, and their uses in the world of big data. They'll be able to critically analyse the data requirements and sources relevant in a variety of areas of application from business, government, the humanities, sciences, or social sciences.

To do this Master's degree in one year, you must have completed a Bachelor's degree in data science or a double major in computer science and statistics with an average grade of B+ or higher.

Part of the Industry Alliance Programme—see page 36.

www.wgtn.ac.nz/master-data-science

# CAREER OPPORTUNITIES

There is a growing demand for expertise in mathematics, statistics, and data science due to the increasing volume of data worldwide, and an appreciation of how this can inform better decision-making.

The scope for careers in mathematics, statistics, and data science is constantly expanding as new research and ideas are discovered.

Our recent graduates work in research, analysis, policy, and management in education, finance, government, IT, and science sectors, or continue into academia. More specifically, graduates have taken on roles as actuaries, data scientists, meteorologists, risk analysts, and statisticians, in computer-generated imagery development, digital games, fisheries management, and in creative and research organisations.

## SCHOOL OF MATHEMATICS AND STATISTICS

Cotton Building, Kelburn Campus

04 463 5341

sms-office@vuw.ac.nz

www.wgtn.ac.nz/sms

# Sam Vennell

## Graduate, Master of Data Science

### Research and data analyst, Ministry of Business, Innovation and Employment

Looking to consolidate the skills he was learning as a data professional, Sam Vennell became Victoria University of Wellington's first graduate of the Master of Data Science programme.

"I'm a bit of a maths geek at heart, so I enjoy understanding the mathematics that underpin the algorithms we use to make sense of data and guide decision-making."

Studying for a Master of Data Science while employed as a research and data analyst at the Ministry of Business, Innovation and Employment (MBIE) gave Sam an increased sense of confidence in working with data. His research focused on constructing topic models to classify scientific journal articles through the use of cloud machine-learning platforms.

"Journal articles are often complex and technical, and for this reason may be difficult to classify through algorithmic means. Such classification is very useful to help map out New Zealand's contribution across diverse areas of specialised scientific research.

"Using machine-learning platforms such as AzureML was a great challenge for me and gave me a set of skills that are often not emphasised in university Data Science or Statistics programmes, but which are very much valued in many sectors of the professional world."

Sam is grateful for his supervisor, Professor Richard Arnold, for both his wealth of knowledge and his practical and pragmatic approach.

"I had the sense that he had guided many students through their research degrees and was able to keep the process as simple as possible for me. He was also very personable and approachable."

Sam also appreciated the flexibility offered by the University through part-time study options, allowing him to balance his work commitments with the programme.

He credits the facilities available on campus for helping him stay sane and perform to his best.

"For me, wellbeing clubs such as the yoga lounge were a lifesaver—cheap food and a great opportunity to relax and stay balanced amid study pressures!"

Since completing his Master's degree, Sam's expanded knowledge of his discipline has enriched his role at MBIE.

"My work involves using data about the science sector and academic publications to generate quantitative insight into New Zealand's research landscape. This kind of analysis supports government science policy and investment decisions, contributing to positive social, economic, and environmental outcomes for New Zealanders."

# PSYCHOLOGY

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'll have the opportunity to deepen your understanding of the human condition and collaborate with active scholars across all fields of psychology.

## OUR STRENGTHS

You'll study at a Psychology school ranked among the top 150 in the world in the 2023 QS World Rankings. We have been in the top 150 for several years, demonstrating a consistent record of excellence.

We have important strengths in clinical psychology, cognitive and behavioural neuroscience, forensic psychology, and the study of psychology and culture. We offer a variety of Psychology programmes, including training in clinical psychology, New Zealand's only programme in forensic psychology, and one of the only programmes in cross-cultural psychology worldwide.

## RESEARCH LINKS

We have links with the Department of Conservation, the Department of Corrections, the Ministry of Justice, the New Zealand Police, Oranga Tamariki, and Te Whatu Ora Health New Zealand, among others.

## OUR STUDY ENVIRONMENT

We address a range of questions about human behaviour. You might look at why only some drug users develop addiction, why some people are violent and how we can prevent this, how we can treat, and prevent, depression and other mental health problems, how culture influences business negotiations, or how emotions influence behaviour.

We have state-of-the-art laboratories with eye-tracking equipment, a brain stimulation lab, an EEG-recording suite, and an infant observation lab, among other key facilities.

## YOUR STUDY OPTIONS

For information on a particular programme, contact the appropriate programme coordinator.

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD | Programme coordinator |
|---|---|---|---|---|---|---|---|---|---|
| Clinical Psychology* | | | ✓ | | | | | | Professor Tony Ward<br>clinicalpsychologyapplications@vuw.ac.nz |
| Cognitive And Behavioural Neuroscience | | ✓ | ✓ | | | ✓ | ✓ | ✓ | Dr Tirta Susilo<br>tirta.susilo@vuw.ac.nz |
| Cross-Cultural Psychology | | ✓ | ✓ | | | ✓ | ✓ | ✓ | Dr Rita McNamara<br>rita.mcnamara@vuw.ac.nz<br>Professor Joe Bulbulia<br>joe.bulbulia.vuw.ac.nz |
| Forensic Psychology | | ✓ | ✓ | | | ✓ | ✓ | ✓ | Dr Clare-Ann Fortune<br>Associate Professor Hedwig Eisenbarth<br>forensic-psychology@vuw.ac.nz |
| Psychology | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | **Graduate Diploma and Honours**<br>Associate Professor Mele Taumoepeau<br>mele.taumoepeau@vuw.ac.nz<br>**Master's and PhD**<br>Professor Lou Moses<br>lou.moses@vuw.ac.nz |

*The PGDip in Clinical Psychology must be taken concurrently with a thesis (either in the MA, MSc, or PhD).

The following related subjects are also offered by other faculties.

| | GDip | PGCert | PGDip | Honours | Master's by Coursework | Master's by Thesis | PhD | For more information |
|---|---|---|---|---|---|---|---|---|
| Educational Psychology | | | ✓ | | ✓ | | | www.wgtn.ac.nz/education |
| Health Psychology | ✓ | ✓ | ✓ | | ✓ | | | www.wgtn.ac.nz/health |

# CAREER OPPORTUNITIES

Graduates from our postgraduate programmes have skills suited to a range of careers, including areas such as clinical, forensic, and rehabilitation/health psychology, consultancy, counselling, data analysis, education, media and marketing, and research, among others. 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 corrections and social services, counselling and therapy, education, government policy, healthcare, human resources, information technology, law, police, and research roles.

# RESEARCH CENTRES

You can find out more on page 37.

Centre for Applied Cross-cultural Research
www.wgtn.ac.nz/cacr

Clinical Psychology Centre
www.wgtn.ac.nz/psyc/clinical-psychology-centre

## SCHOOL OF PSYCHOLOGY

Cotton Building, Kelburn Campus
04 463 5373
psychology@vuw.ac.nz
www.wgtn.ac.nz/psyc

# Stand up for meaningful change

"My passion for working in mental health has stemmed from my own experiences and knowing that poor mental health disproportionately impacts minority communities. There is such a need for professionals who have understanding and empathy for these diverse experiences."

**Oliver Donaldson**
Student, Master of Science in Psychology

## Oliver Donaldson
### Student, Master of Science in Psychology

Oliver Donaldson is passionate about improving mental health outcomes in the LGBTQIA+ and takatāpui community, and this led him to undertake a Master of Science in Psychology.

"My passion for working in mental health has stemmed from my own experiences and knowing that poor mental health disproportionately impacts minority communities. There is such a need for professionals who have understanding and empathy for these diverse experiences."

Oliver's research explores the relationship between television and film representations and the mental health and identity experiences of transgender people in Aotearoa New Zealand.

"Diverse and representative media portrayals are extremely important for informing and maintaining societal attitudes. Past research shows that such representations are significant for providing rainbow people with comfort, pride, and self-acceptance, particularly during identity processes like sexuality realisation and coming out."

However, existing research into transgender experiences is limited. Oliver is seeking to investigate the many ways media representations have impacted transgender people throughout their experiences such as gender realisation and transitioning, and how this may affect their mental health.

To assist his research, Oliver has consulted with InsideOUT, a rainbow organisation where he is an active volunteer. He intends to consult with a variety of other rainbow and transgender groups.

"I hope this research will help emphasise the importance of mainstream media's influence and why it is so vital to have representative and relatable characters and storylines in media."

Oliver describes the teaching staff at Victoria University of Wellington, including his supervisor, Professor Marc Wilson, as supportive and passionate about sharing knowledge.

"Marc is not only passionate about the area he is in, but he also directs this passion into his students' projects. He has a genuine interest in them and values having a diverse range of projects in his lab."

Oliver has yet to decide which path he will take after completing his Master's, but he is open to the possibility of pursuing his research further and extending its scope.

"I know that, ultimately, I want to be involved in bettering mental health in the rainbow community, whether this is through academia or primary care."

# SCIENCE IN SOCIETY

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 Western scientific methods alone. The School of Science in Society looks at the relationships between science, environment, mātauranga Māori, and society and explores how we think and talk about science.

## OUR STRENGTHS

The School is a leader in the fields of science communication, public engagement with science, mātauranga Māori, and the interconnections between the natural and social sciences, the humanities, and the arts.

Our research looks at science in its wider social context, exploring it from feminist, Māori, and a variety of other perspectives, and investigates contemporary and historical issues in science, technology, and the environment.

We offer the only qualifications in Science in Society in New Zealand.

## RESEARCH LINKS

We have strong and active connections with a range of practitioners and institutions, including the Science Communicators Association of New Zealand, the Science Media Centre, and Te Pūnaha Matatini, which facilitate placements and funding.

## OUR STUDY ENVIRONMENT

You'll be taught and supervised by award-winning teachers, researchers, and practitioners.

Wellington is the centre of media, government, and policymaking in New Zealand, and has thriving scientific and cultural communities, making it an ideal city in which to learn about science in society.

## YOUR STUDY OPTIONS

If you would like to develop practical skills in science communication and critical thinking about the sciences, and develop a broader understanding of science in its social context, then the one-year Master of Science in Society could be for you.

If you want to focus more closely on communication, you might be interested in the Science Communication specialisation in the Master of Communication.

Alternatively, if you're conducting independent research on the intersection of science and society and would like to explore this from a practical, creative, and academic perspective, then consider a Master of Science or a PhD at the School of Science in Society.

| | GDip | PGCert | PGDip | Honours | Master's by coursework | Master's by thesis | Master's by coursework and thesis | PhD | Programme coordinator |
|---|---|---|---|---|---|---|---|---|---|
| Science Communication specialisation | ✔ | | | | ✔ | | | | **GDipSc**<br>Dr Sarah-Jane O'Connor<br>sarahjane.oconnor@vuw.ac.nz<br><br>**MC with specialisation**<br>Professor Aeron Davis<br>aeron.davis@vuw.ac.nz |
| Science in Society | | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | Dr Tim Corballis<br>tim.corballis@vuw.ac.nz |

# MASTER'S BY COURSEWORK

## Master of Communication (Science Communication specialisation)

The Master of Communication (MC) programme offers an optional specialisation in science communication. This features core courses run through the Media and Communication programme, and specialist courses run through the Science in Society Centre, including SCIS 410 Science Communication and SCIS 414 Science and Humanities. The programme entails a more specialised research essay or field project.

To apply for this programme, you'll need a Bachelor's degree with at least a B average (or equivalent) in a relevant subject.

www.wgtn.ac.nz/mc

## Master of Science in Society

The Master of Science in Society (MScSoc) is perfect for those with science qualifications or relevant expertise who are interested in developing skills or careers in public engagement around scientific issues, mātauranga Māori, science policy or advocacy, or research in the social aspects of scientific knowledge.

Taught by award-winning teachers, researchers, and practitioners, you'll develop critical thinking and communication skills. You'll look at the theory and practice of science communication, gain an understanding of contemporary scientific issues in their social context, and explore science from feminist, Māori, and a range of other perspectives.

To apply for this programme, you'll need an undergraduate degree with at least a B+ average (or equivalent) or extensive and relevant practical, professional, or scholarly experience.

Part of the Industry Alliance Programme—see page 36.

www.wgtn.ac.nz/master-of-science-in-society

# CAREER OPPORTUNITIES

You 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 journalism, communications, and public relations. We also offer further research study for those interested in an academic career in Science in Society.

## SCHOOL OF SCIENCE IN SOCIETY

22 Kelburn Parade, Kelburn Campus

04 463 5474

scienceinsociety@vuw.ac.nz

www.wgtn.ac.nz/science-in-society

# Stand out with creativity

"I am inherently multidisciplinary, and this has formed my approach to learning about the world. Within the Centre, I found an empathetic environment that offers the antithesis of siloed learning by welcoming disparate disciplines and allowing them to work together in the search for truths."

**Poppy McGuigan Hay (Ngāti Tūwharetoa)**
Student, Master of Science in Society

## Poppy McGuigan Hay (Ngāti Tūwharetoa)

### Student, Master of Science in Society

A summer internship with the Ministry for the Environment was instrumental in Poppy McGuigan Hay's decision to pursue a Master of Science in Society.

"As a selected representative of Ngāti Tūwharetoa, I looked at iwi perspectives on freshwater rights and interests. This role was instrumental in my decision to pursue this programme as it showed me the value of interdisciplinary research."

Since beginning the programme in 2021, Poppy has enjoyed the combination of practical and research-based elements, and the freedom to explore a diverse array of subjects within her coursework.

"Under the expert supervision of physicist and author Laurie Winkless, I wrote and illustrated a graphic treatise on the history of underwater diving equipment. I was given the freedom to formulate a science communication project that brought together my passions for art, storytelling, and science, while incorporating the theory of my coursework."

She is currently researching the contemporary discourse around the use of genetic engineering and gene drives within conservation.

"With the current environmental crises, it feels only natural to be exploring potential solutions within my coursework. I am at the stage of being able to observe the discourse without commitment to a particular position."

Poppy is grateful for the flexibility of the postgraduate programmes at Victoria University of Wellington. Having already completed a Bachelor of Arts, she has continued working towards a Bachelor of Science alongside her Master's degree.

"I am inherently multidisciplinary, and this has formed my approach to learning about the world. Within the Centre, I found an empathetic environment that offers the antithesis of siloed learning by welcoming disparate disciplines and allowing them to work together in the search for truths.

"My time at the University has both propelled and facilitated my commitment to learning, and I believe I owe this greatly to the passion of people around me, experts in diverse fields, and students also driven by the same desire to make a difference."

# INDUSTRY ALLIANCE PROGRAMME

The Industry Alliance Programme (formerly the Wellington ICT Graduate School) supports the delivery of industry-focused postgraduate degrees built on connections between the University and local industry. Our programmes have been created with input from industry professionals. They are designed to build on people's existing talents and skills and provide hands-on experience with real-world projects.

We are dedicated to developing strong working relationships with industry groups. Degrees that are part of the Industry Alliance Programme have a special focus on providing opportunities for students to engage with industry and transition into a career in their chosen field.

## WELLINGTON—THE IDEAL PLACE TO STUDY DESIGN AND TECHNOLOGY

Wellington has a creative and innovative environment with a significant digital, film, and gaming industry as well as a strong start-up culture. While the ICT industry has been growing rapidly throughout New Zealand, nowhere has this growth been more pronounced than in Wellington. With more than 16,000 ICT jobs in the Wellington region contributing significantly to the country's ICT-related GDP, Wellington is the heart of ICT in New Zealand.

## INDUSTRY PARTNERS

We partner with local businesses and organisations to provide guest lectures, workshops, mentorships, and projects for our students. Through these activities, students can gain the experience they need in real-life work environments.

Students of Master's degrees offered through the Industry Alliance Programme have had the opportunity to conduct projects, attend guest lectures, and gain mentoring from companies such as ANZ, Deloitte, FNZ, Stats NZ, Trade Me, Wētā FX, Xero, and local start-ups.

## PROGRAMMES OFFERED

### Conversion Master's degrees

Our conversion Master's programmes are designed for people from a non-ICT background and open to anyone with a Bachelor's degree. This allows people to change career directions, upskill, or reskill, without having to start from scratch:

- Master of Software Development (see page 20)
- Master of User Experience Design*

*Offered by the Wellington Faculty of Architecture and Design Innovation.

### Specialised Master's degrees

Expand your knowledge further with one of our specialised postgraduate qualifications. These programmes require some previous knowledge or qualification in the relevant area.

- Master of Applied Statistics (see page 28)
- Master of Artificial Intelligence (see page 18)
- Master of Climate Change Science and Policy (see page 24)
- Master of Data Science (see page 28)
- Master of Environmental Science (see page 25)
- Master of Geographic Information Science (see page 25)
- Master of Science in Society (see page 34)

www.wgtn.ac.nz/iap

"I was able to leverage what we were taught on the programme to quickly pick up new concepts, languages, and tech and then apply it all to the development task at hand."

**Alexis De Meo**
Student, Master of Software Development

# RESEARCH CONNECTIONS

## Centre for Biodiscovery

The Centre for Biodiscovery facilitates cutting-edge research at the interface of biology and chemistry. Major research themes of the Centre include mātauranga-guided biodiscovery, natural products chemistry, protein engineering and directed evolution, synthetic biology, and vaccine design.

www.wgtn.ac.nz/biodiscovery

## Centre for Biodiversity and Restoration Ecology

Research in the Centre for Biodiversity and Restoration Ecology explores topics in the areas of conservation, restoration, and reconciliation ecology. Specialist topics include conservation monitoring and technology, invasive species, mammalian pest management, habitat restoration, island biology, and translocations. The Centre works in collaboration with local and regional government, the Department of Conservation, iwi, charities, and several non-governmental agencies.

www.wgtn.ac.nz/biodiversity

## Clinical Psychology Centre

Our Clinical Psychology Centre provides a training-based facility for the School of Psychology's Clinical Psychology programme. It offers psychological services to members of the public who work with trainees in the programme and their supervisors.

www.wgtn.ac.nz/psychology-clinic

## Institute of Geophysics

The Institute of Geophysics 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 in the Wellington Faculty of Science.

www.wgtn.ac.nz/institute-geophysics

## New Zealand Climate Change Research Institute

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

www.wgtn.ac.nz/nzccri

## Paihau—Robinson Research Institute

The Paihau—Robinson Research Institute is recognised worldwide as a pioneer and leader in high-temperature superconductivity research and application. The immersive environment offers our students the opportunity to learn from, and interact with, the world's leading experts and companies, making our graduates highly sought after by global industry.

Our alumni are leading figures in transnational high-technology companies. With applied superconductivity laboratories that are among the best equipped in the world, our research programme encompasses a range of projects in electromagnetic technologies and materials science and engineering that are typically supported by either government or industry investment.

www.wgtn.ac.nz/robinson

## Tāuru Ihirangi—Computational Media Innovation Centre

The Tāuru Ihirangi—Computational Media Innovation Centre (CMIC) aims to develop a next-generation research framework that combines immersive, interactive, intelligent (3i) media technologies into future media platforms.

Our vision is to be a global research hub for the digital media frontier, where we innovate a computational media ecosystem, lead 3i media technologies, and transfer research and development outcomes towards industry impact. Our current research activities and industry partners include themes related to artificial intelligence using metadata, digital twins, extended reality, live visual effects, the metaverse, and virtual teleportation.

www.wgtn.ac.nz/cmic

## Te Kāuru—Ferrier Research Institute

We are a team of organic chemists, biochemists, and analysts carrying out fundamental, applied, and commercial research together with student supervision.

We tackle a range of applied chemistry problems related to issues including our health and wellbeing and the sustainability of our environment. Our scientists have deep experience in synthetic carbohydrate and medicinal chemistry, synthetic and chemical biology, plant natural products, and polysaccharide analysis.

www.wgtn.ac.nz/ferrier

## Te Mana Tangata Whakawhanake—MacDiarmid Institute for Advanced Materials and Nanotechnology

This centre 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 through developing and applying cutting-edge techniques in physics, chemistry, and engineering.

www.macdiarmid.ac.nz

## Te Pae Rangahau Tauhōkai Ahurea—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.

www.wgtn.ac.nz/cacr

## Te Puna Pātiotio—Antarctic Research Centre

Te Puna Pātiotio—Antarctic Research Centre 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.wgtn.ac.nz/antarctic

## Te Whiri Kawe—Centre for Data Science and Artificial Intelligence

Te Whiri Kawe—Centre for Data Science and Artificial Intelligence brings together expertise and innovation in artificial intelligence, data science, and machine learning from faculties across the University.

The Centre has areas of expertise in deep learning and transfer learning, evolutionary and multi-objective learning, image, text, signal, and language processing, interpretable artificial intelligence/machine learning, modelling and statistical learning, and scheduling and combinational optimisation.

The Centre conducts a range of research projects and commercial work for clients across various application domains, as well as postgraduate teaching and supervision for Master's and PhD students.

www.wgtn.ac.nz/cdsai

# SCHOLARSHIPS

Our strong research culture is reflected in our postgraduate scholarships that are available to PhD and Master's by Thesis candidates in all disciplines, and undergraduate students from any university enrolling in Honours or coursework Master's programmes. Scholarships are available for domestic and international students, Māori and Pasifika students, and those who are facing financial hardship.

In addition to the Victoria University of Wellington scholarships mentioned here, there may be specific project funding available through the Wellington Faculty of Engineering or the Wellington Faculty of Science. Contact the faculty office or talk to your prospective supervisor to find out about these.

## PhD FUNDING

The University awards scholarships to applicants 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. Wellington Doctoral Scholarships currently provide an annual stipend of $29,500 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.

## OTHER POSTGRADUATE SCHOLARSHIPS

Wellington 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. Applicants must be undertaking a thesis of at least 90 points. The closing date is 1 November each year.

Wellington 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. These awards provide a $5,000 contribution towards tuition fees. The closing date is 1 November each year.

- www.wgtn.ac.nz/scholarships/find-scholarships
- www.wgtn.ac.nz/fgr/apply

# WHO TO CONTACT

## WELLINGTON FACULTY OF ENGINEERING

Room CO144, Cotton Building, Kelburn Campus

0800 04 04 04

info@vuw.ac.nz

www.wgtn.ac.nz/engineering

## WELLINGTON FACULTY OF SCIENCE

Room CO144, Cotton Building, Kelburn Campus

0800 04 04 04

info@vuw.ac.nz

www.wgtn.ac.nz/science

## ACCOMMODATION

Contact Te Kopanga—University Accommodation Wellington for advice on applying for halls of residence, renting, and other accommodation options.

04 463 5896

accommodation@vuw.ac.nz

www.wgtn.ac.nz/accommodation

## ADMISSION AND ENROLMENT

Prospective and current students can contact the Admissions and Enrolment team for admission and enrolment information, advice, and support.

Ground floor, Hunter Building, Kelburn Campus

0800 04 04 04

info@vuw.ac.nz

## CAREERS AND EMPLOYMENT

Te Ratonga Rapu Mahi—Wellington Careers and Employment connects you with employers and the community and prepares you for future employment. We can help you explore your work options, apply for jobs, and establish a career path by providing advice for ongoing career development.

We have services at both the Kelburn and Pipitea campuses where you can attend one-to-one appointments, help-desk sessions, and workshops on a variety of career topics, including networking and interview preparation.

Room HU120, Hunter Building, Kelburn Campus

04 463 5393

careers-service@vuw.ac.nz

www.wgtn.ac.nz/careers

### CareerHub

You also have access to our online career centre with comprehensive resources, tools, and employability modules.

CareerHub has everything you need to keep your career on track:

- search for a range of jobs, from internships, voluntary, and part-time work to graduate positions
- be the first to hear about careers expos, employer information sessions, and seminars
- find resources to assist with your job search, CV, and interview preparation
- book for career advice appointments, workshops, and events.

Develop your skills and experience and launch your career with confidence.

www.wgtn.ac.nz/careerhub

## FEES AND FINANCIAL ADVICE

Get information and advice about fees, payments, student levies, and dealing with StudyLink. Meet with a student finance adviser for all money matters and how to apply for the Hardship Fund.

www.wgtn.ac.nz/money

# INTERNATIONAL STUDENTS

The University provides support and services to international students, from enrolment and orientation through to graduation. Our international student advisers can provide personal, academic, and cultural information and advice, and they work closely with the University's student services, faculties, and academic staff to provide you with the support you need to succeed.

We can assist you to renew your student visa and make insurance claims through the University's preferred insurer, Studentsafe.

04 463 5350

international-support@vuw.ac.nz

www.wgtn.ac.nz/international-student-support

# MĀORI STUDENTS

Āwhina is the support team for Māori students. Our kaupapa (goal) is to provide academic and holistic support for Māori students enrolled in any degree or course on any of our campuses. Our experienced staff offer one-to-one advising and mentoring sessions, study tutorials and wānanga, and workshops to help you achieve your study and work goals. Our culturally inclusive environment includes whānau rooms with computer facilities, study areas, free tea and coffee, kitchenettes to prepare food, and space to meet with peers or tuākana (senior students). We can help you transition successfully from secondary education or work into tertiary education. Nau mai, haere mai—come and visit us at the Kelburn, Pipitea, and Te Aro campus spaces listed on our webpage.

awhina@vuw.ac.nz

www.wgtn.ac.nz/awhina

# PASIFIKA STUDENTS

The Pasifika Student Success team's engagement advisers and mentoring coordinators foster Pasifika learning and teaching communities in an environment that is welcoming, safe, and focused on academic excellence, personal growth, and wellbeing, with Pasifika culture at the core. Our students have access to a mentoring programme for 100-level to 300-level courses, course-specific study sessions, exam-oriented preparation, and workshops that support learning and development as well as meeting cultural needs. Our team is here to help you navigate the crossing into tertiary study and looks forward to welcoming you on board. We have Pasifika spaces at the Kelburn, Pipitea, and Te Aro campuses.

pasifika-student-success@vuw.ac.nz

www.wgtn.ac.nz/pasifika

# POSTGRADUATE STUDENTS

The Postgraduate Students' Association (PGSA) represents all postgraduate students at the University.

www.vuwpgsa.ac.nz

# RAINBOW STUDENTS

We offer a range of services and resources for students who identify with diverse sexual orientations and sex and gender identities.

www.wgtn.ac.nz/rainbow

# REFUGEE-BACKGROUND STUDENTS

We offer information, support, and advice tailored specifically to students with a refugee background.

www.wgtn.ac.nz/refugee-background-students

# SCHOLARSHIPS AND PhD ADMISSIONS OFFICE

We offer thousands of scholarships to new and current students each year. Our friendly team is here to help with your scholarship queries.

10 Kelburn Parade, Kelburn Campus

04 463 5113

General enquiries: scholarships-office@vuw.ac.nz

Doctoral enquiries: pg-research@vuw.ac.nz

www.wgtn.ac.nz/scholarships/types-of-scholarships/postgraduate

# SERVICE AND LEADERSHIP

All current students can participate in Te Tohu Rauhī—the Wellington Plus service and leadership programme offering the chance to give back to the community and gain skills that will impress employers.

www.wgtn.ac.nz/wellington-plus

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