CONTENTS
Welcome to Geography, ENVIRONMENT and Earth Sciences ........................................1
   Important dates 2015 ...............................................................................................4
   Timetable .................................................................................................................4
   Staff contacts ........................................................................................................5
Qualifications available ..............................................................................................11
   Doctor of Philosophy ............................................................................................13
Geology ......................................................................................................................14
Geophysics ...............................................................................................................18
Petroleum Geoscience ............................................................................................23
Development Studies ...............................................................................................25
Environmental Studies ............................................................................................28
Geographic Information Science .............................................................................31
Human Geography ....................................................................................................33
Physical Geography ..................................................................................................38
Planning a programme ............................................................................................41
   400/500-level Geography courses .....................................................................41
   400-level Geographic Information Science courses .....................................47
   400/500-level Physical Geography courses ....................................................52
   400/500-level Geology courses .......................................................................57
   400/500-level Petroleum Geoscience courses ...............................................63
   400/500-level Geophysics courses ................................................................64
   500-level Development Studies courses .........................................................69
   500-level Environmental Studies courses .......................................................74
Academics—Research areas ....................................................................................78
Master of Advanced Technology Enterprise .........................................................81
General information .................................................................................................83
Who to contact .........................................................................................................84
   Student and Academic Services—Faculty of Science .....................................84
   Te Rōpū Āwhina .................................................................................................84

Victoria University of Wellington
WELCOME TO GEOGRAPHY, ENVIRONMENT AND EARTH SCIENCES

Nau mai, haere mai, hoki mai. Welcome to all first time and returning students to the School of Geography, Environment and Earth Sciences (SGEES). We are delighted that you have chosen to join or return to our School and to benefit from and contribute to the top-ranked research School in Earth Sciences and Geography in New Zealand. We offer Honours, Postgraduate Certificates, Diplomas, Master’s and PhD programmes in Geography, Geology, Geophysics, Physical Geography, and a specialised Master’s, Postgraduate Diploma and PhD programme in Petroleum Geosciences taught with the Crown research institute GNS Science. We also offer professional Master’s Programmes, and PhDs, in Development Studies, Environmental Studies and Geographic Information Science. With New Zealand MetService we teach a Postgraduate Diploma in Meteorology and a Master of Meteorology which is unique in New Zealand. In addition, we have a generic diploma that allows you to pick up a new discipline if you have graduated in a different area.

Our students are the lifeblood of the School and all the School’s staff will be supportive of your study and keen for you to succeed in your chosen programme. We aim to challenge, to inspire and above all, to offer our students a special opportunity to develop as people, as scholars, and as productive members of society.

We hope you have no difficulties or concerns, but if these do arise please contact as soon as possible the Coordinator of the course at issue, or the Director of your degree programme, or Prof Rewi Newnham, Head of School.

HOW TO USE THIS PROSPECTUS

There are five parts to this prospectus. First, it provides essential general information for incoming and returning postgraduate students about the structure, organisation and staff of the School of Geography, Environment and Earth Sciences. Second, it details essential information about each of the postgraduate degree courses offered by the School: the subject material they cover, entry requirements and the career aspirations they serve. Our courses cover an extremely wide range of subjects across various levels of postgraduate study. There is much overlap in generic content but also much that is subject-specific. Some inevitable repetition is necessary because this prospectus caters both for students who know what degree programme they want to do—and can use the Table of Contents to go straight to the relevant sections—and for those who want to browse through the range of degree programmes on offer.

Having provided an overview of degree programmes, the third part of this prospectus is designed to help you plan your programme. It provides details on individual taught courses for each of the degree programmes. Please note that we occasionally have to withdraw a course from the programme for a particular year, so you will see a few listed as not available this year. The fourth part describes the very broad range of research interests covered by the School’s staff, aligned to the various degree programmes. If you are thinking about undertaking research for your postgraduate degree (e.g. a Master’s thesis) then use this section, along with the staff details at the beginning of the prospectus, to check that the subject area(s) that interest you are able to be covered within the School. Additional detail is available on our website at www.victoria.ac.nz/sgees. Finally, you will find some general information about
postgraduate study provided by the University and the Faculty of Science, in which the School is based.

**BEING A GRADUATE STUDENT**

**Graduate orientation**

A School graduate orientation day will be held in the first week of Trimester 1 for all students taking graduate courses administered by the School and its associated Boards of Studies. You are advised to participate in this orientation as key matters to do with accommodation, facilities and course organisation will be covered. It is also a valuable opportunity to meet other students and staff.

**Postgraduate coordinators**

The following list shows the individual postgraduate co-ordinators who have responsibility for the areas shown. Please consult these people at any stage during your graduate study, along with your supervisor or a course coordinator depending upon the nature of your question or problem.

<table>
<thead>
<tr>
<th>Area</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Studies</td>
<td>John Overton</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>Ralph Chapman</td>
</tr>
<tr>
<td>Geographic Information Science</td>
<td>Mairéad de Róiste</td>
</tr>
<tr>
<td>Geography</td>
<td>Philip Morrison</td>
</tr>
<tr>
<td>Earth Sciences</td>
<td>Brent Alloway</td>
</tr>
<tr>
<td>Petroleum Geoscience</td>
<td>James Crampton</td>
</tr>
<tr>
<td>Physical Geography</td>
<td>Kevin Norton</td>
</tr>
</tbody>
</table>

Alternatively, you can talk to the Head of School by making an appointment with Monika Hanson, Manager School Administration.

**Staff-student seminars**

Weekly research seminars are held in both Earth Science and Geography groups during Trimesters 1 and 2 and all students are strongly encouraged to attend. In addition to staff and student presentations a range of speakers from academia, the public service and other organisations in New Zealand and overseas present and discuss their research.

**Graduate representation**

Each year, one student representative is nominated and/or elected to represent all graduate students in the School at the monthly Executive Committee meetings. One student from the Earth Sciences contributes to the Earth Sciences Board of Studies meetings, and one from Geography contributes to the Geography Board of Studies. These positions are important for staff-student relationships and help to ensure that your perspectives and concerns are heard. The School is genuinely interested in hearing the views of our students and in particular how we can improve what we do. For example, if you feel this prospectus could be improved in any way, please forward your views to the current graduate representative or to Kate King in the School Office. If you think you might like to serve as a student rep., don’t hesitate to discuss the role further with Kate King in the School Office.
STRUCTURE OF THE SCHOOL

The School of Geography, Environment and Earth Sciences was formed in 1997 as an amalgamation of the previous Departments of Geography, Geology, Geophysics and the Research School of Earth Sciences. Through this amalgamation, the School brought together staff with a wide range of interests in the science of the deep Earth, the Earth’s surface and atmosphere, human-environment relationships, geographical and spatial aspects of cultural life, as well as economic and social development. It also brought together the teaching programmes and the graduate research in these disciplines. The main groups in the school, other than those described below, are now:

- the Earth Sciences group (comprising Geology, Geophysics, Petroleum Geoscience)
- the Geography group (comprising Human Geography, Physical Geography, Environmental Studies, Development Studies, Geographic Information Science).

From page 14 onwards you will find descriptions of the wide-ranging fields of inquiry encompassed by these two broad groups, followed by lists of the various postgraduate degree programmes that they offer.

The School is administered by the Head of School with support from an Executive Committee of advisors (professors and key staff from various programmes, as well as a postgraduate representative) and a management team (including administrative and technical managers).

In addition, the School includes two research institutes—the Institute of Geophysics and the New Zealand Climate Change Research Institute—and is intimately linked with the Antarctic Research Centre. These three research clusters offer additional opportunities for our postgraduate students as outlined in the brief summaries that follow.

Institute of Geophysics

The Institute of Geophysics provides a focus for teaching and research in geophysics at Victoria. It includes members of several Schools who have an interest in the physics of the solid and fluid Earth. The Institute also has associated members from the region’s research institutions who are collaborating with Victoria staff or otherwise contributing to Victoria’s programmes. Particular interests and strengths include meteorology, geomagnetism and palaeomagnetism, seismology and seismic hazard assessment, tectonics and lithospheric structure. These strengths are maintained through vigorous programmes of research, including research by graduate students, in New Zealand and Antarctica. These make use of a wide range of field and laboratory equipment that includes broad-band and multi-channel seismographs, gravity meters, and a fully equipped palaeomagnetic laboratory with cryogenic magnetometer, equipment for geomagnetic and geoelectrical exploration and laboratories for processing satellite imagery and reflection and refraction seismics.

New Zealand Climate Change Research Institute

The New Zealand Climate Change Research Institute was set up in 2008 to carry out interdisciplinary policy-relevant work on climate change issues. Staff in the Institute are currently undertaking climate change research on issues relevant to New Zealand, especially on community vulnerability and resilience, and increasing public awareness of the local and global implications of climate change. In the next year we will be working with colleagues in the School’s undergraduate and postgraduate Environmental Studies programmes to enhance teaching with advanced knowledge and skills relevant to climate change issues as they evolve.
Antarctic Research Centre

The Antarctic Research Centre supports externally-funded research on Antarctic climate history and provides advice and expertise for University research in Antarctica. It contains a library of maps, as well as a range of purpose-built equipment for polar marine studies, such as winches, corers, oceanographic instruments and GPS surveying equipment. Staff and students from Victoria University have gone to the ice each year since 1957 to carry out field studies for a variety of research projects. Normally three or four projects are carried out each year. Results are reported in student theses and scientific papers. Proposals for new research should be discussed with Centre staff.

### IMPORTANT DATES 2015

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>University re-opens for Trimester 3 and Summer School</td>
<td>5 January</td>
</tr>
<tr>
<td>Wellington Anniversary</td>
<td>19 January</td>
</tr>
<tr>
<td>Enrolment closes for 2015 courses</td>
<td>10 February</td>
</tr>
<tr>
<td>Trimester 3 and Summer School Examinations</td>
<td>16–21 February</td>
</tr>
<tr>
<td>Trimester 1 begins</td>
<td>2 March</td>
</tr>
<tr>
<td>Easter/Mid-trimester break</td>
<td>3 April–19 May</td>
</tr>
<tr>
<td>Anzac Day</td>
<td>25 April (public holiday 27 April)</td>
</tr>
<tr>
<td>Graduation</td>
<td>12–14 May</td>
</tr>
<tr>
<td>Queen’s Birthday</td>
<td>1 June</td>
</tr>
<tr>
<td>Examinations</td>
<td>12 June–1 July</td>
</tr>
<tr>
<td>Mid-year break</td>
<td>2 July–12 July</td>
</tr>
<tr>
<td>Trimester 2 begins</td>
<td>13 July</td>
</tr>
<tr>
<td>Mid-trimester break</td>
<td>24 August–6 September</td>
</tr>
<tr>
<td>Examinations</td>
<td>23 October–14 November</td>
</tr>
<tr>
<td>Labour Day</td>
<td>26 October</td>
</tr>
<tr>
<td>Trimester 3 begins</td>
<td>16 November</td>
</tr>
<tr>
<td>Graduation</td>
<td>9–10 December</td>
</tr>
<tr>
<td>Christmas break</td>
<td>22 December–2 January 2016</td>
</tr>
</tbody>
</table>

### TIMETABLE

The timetable is online at [www.victoria.ac.nz/timetables](http://www.victoria.ac.nz/timetables)
School of Geography, Environment and Earth Sciences  
Te Kura Tātai Aro Whenua

Location: Administration Office: Cotton Building, Room 311  
Phone: 04-463 6108 (for all postgraduate matters)  
Fax: 04-463 5186  
Email: geo-enquires@vuw.ac.nz  
Website: www.victoria.ac.nz/sgees

Email: all staff can be reached at the address firstname.lastname@vuw.ac.nz where first name and last name are as in the list below.

### STAFF CONTACTS

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Room</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of School</td>
<td>Prof Rewi Newnham</td>
<td>309</td>
<td>463 5279</td>
</tr>
<tr>
<td>Deputy Head of School</td>
<td>A/Prof John Townend</td>
<td>519</td>
<td>463 5961</td>
</tr>
<tr>
<td>PROGRAMME DIRECTORS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>A/Prof Sara Kindon</td>
<td>213</td>
<td>463 6194</td>
</tr>
<tr>
<td>(GEOG, PHYG, ENVI, DEVE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earth Sciences</td>
<td>A/Prof Mike Hannah</td>
<td></td>
<td>463 5112</td>
</tr>
<tr>
<td>(GEOL, GPHS, PGeo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRADUATE COORDINATORS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development Studies</td>
<td>Prof John Overton</td>
<td>209</td>
<td>463 5281</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>A/Prof Ralph Chapman</td>
<td>212</td>
<td>463 6153</td>
</tr>
<tr>
<td>Human Geography</td>
<td>Prof Philip Morrison</td>
<td>210</td>
<td>463 5645</td>
</tr>
<tr>
<td>Geographic Information Science</td>
<td>Dr Mairéad de Róiste</td>
<td>215</td>
<td>463 6431</td>
</tr>
<tr>
<td>Earth Sciences</td>
<td>A/Prof Brent Alloway</td>
<td>200</td>
<td>463 5844</td>
</tr>
<tr>
<td>Petroleum Geoscience</td>
<td>A/Prof James Crampton</td>
<td>214</td>
<td>463 9636</td>
</tr>
<tr>
<td>Physical Geography</td>
<td>Dr Kevin Norton</td>
<td>202</td>
<td>463 6993</td>
</tr>
</tbody>
</table>

### SCHOOL ADMINISTRATORS

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Room</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Manager</td>
<td>Monika Hanson</td>
<td>310</td>
<td>463 5345</td>
</tr>
<tr>
<td>Administrator -</td>
<td>Kate King</td>
<td>311</td>
<td>463 6108</td>
</tr>
<tr>
<td>Graduate Programmes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrator</td>
<td>Alan Ball</td>
<td>311</td>
<td>463 5346</td>
</tr>
<tr>
<td>Administrator</td>
<td>Cheryl Johansen</td>
<td>311</td>
<td>463 5337</td>
</tr>
<tr>
<td>Administrator Information Services</td>
<td>Sandra Fogliani</td>
<td>421a</td>
<td>463 6158</td>
</tr>
</tbody>
</table>
## ACADEMIC STAFF

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Role</th>
<th>Research Focus</th>
<th>Phone</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Wokje Abrahamse</td>
<td>Environmental studies, human dimensions of environmental issues, behaviour change, urban sustainability</td>
<td>204 463 5217</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A/Prof Brent Alloway</td>
<td>Quaternary science and paleo environmental reconstruction, volcaniclastic stratigraphy and geochemistry, tephrochronology and geochronology</td>
<td>200 463 5844</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Kelli Archie</td>
<td>Climate change adaptation</td>
<td>130 463 5058</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Cliff Atkins</td>
<td>Sedimentary processes and environments, Antarctic glacial geology</td>
<td>302c 463 6143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A/Prof Ralph Chapman</td>
<td>Environmental studies, climate change, energy, transport, housing, urban, design, environmental health</td>
<td>212 463 6153</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A/Prof James Crampton</td>
<td>Biodiversity history, mollusc taxonomy, morphometrics, traditional and quantitative biostratigraphy, cretaceous stratigraphy, basin evolution and history of New Zealand</td>
<td>214 463 8396</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Máiréad de Roiste</td>
<td>Usability, GIS, fear of crime, transport modelling, e-democracy</td>
<td>215 463 6431</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof John Gamble</td>
<td>Igneous petrology and geochemistry, magma petrogenesis in the crust and mantle</td>
<td>419 463 5253</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Alan Gamlen</td>
<td>Migration, diasporas and transnationalism</td>
<td>201 463 6117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Michael Gavin</td>
<td>Natural resource use and management, urban greenspace environmental justice</td>
<td>off campus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Bethany Haalboom</td>
<td>Environmental studies, politics of conservation</td>
<td>207 463 6353</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Monica Handler</td>
<td>Geochemistry</td>
<td>417 463 5391</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A/Prof Michael Hannah</td>
<td>Biostratigraphy, marine biostratigraphy, dinoflagellates; cretaceous/tertiary</td>
<td>130 463 5494</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Huw Horgan</td>
<td>Research Fellow</td>
<td>547 463 9592</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A/Prof Sara Kindon</td>
<td>Social and development geography, participatory research, visual methods, gender, refugee resettlement</td>
<td>213 463 6194</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A/Prof Simon Lamb</td>
<td>Structural geology and tectonics</td>
<td>517 463 6428</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof Tim Little</td>
<td>Tectonics, structural geology, deformational processes</td>
<td>410 463 6198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A/Prof Andrew Mackintosh</td>
<td>Glaciology, palaeoclimate, geomorphology</td>
<td>511 463 6193</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Title</td>
<td>Research Areas</td>
<td>Office</td>
<td>Phone</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------</td>
<td>-----------</td>
</tr>
<tr>
<td>A/Prof Andrew McGregor</td>
<td>Development geography, political ecology, cultural geography</td>
<td>off campus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Jim McGregor</td>
<td>Meteorology</td>
<td></td>
<td>523</td>
<td>463 5278</td>
</tr>
<tr>
<td>Prof Philip Morrison</td>
<td>Economic geography, labour market geography, urban growth and development</td>
<td>210</td>
<td>463 5645</td>
<td></td>
</tr>
<tr>
<td>Prof Warwick Murray</td>
<td>Social and economic geography of development, globalisation, Latin America, Oceania, Asia-Pacific</td>
<td>211</td>
<td>463 5029</td>
<td></td>
</tr>
<tr>
<td>Prof Rewi Newnham</td>
<td>Quaternary climate and environmental change, palynology and vegetation history</td>
<td>309</td>
<td>463 5279</td>
<td></td>
</tr>
<tr>
<td>Dr Kevin Norton</td>
<td>Geomorphology, surface age dating</td>
<td></td>
<td>202</td>
<td>463 6993</td>
</tr>
<tr>
<td>Prof John Overton</td>
<td>Development studies, theories of development, land tenure, rural transformations</td>
<td>209</td>
<td>463 5281</td>
<td></td>
</tr>
<tr>
<td>Dr Marcela Palomino-Schalscha</td>
<td>Social and cultural geography, post-development and postcolonial approaches, diverse and solidarity economies, tourism and its connections to development and environmental issues, political ecology, Latin America, Indigenous knowledges and rights</td>
<td>204</td>
<td>463 5899</td>
<td></td>
</tr>
<tr>
<td>Prof James Renwick</td>
<td>Climate; climate variability, climate change, climate modelling, climate prediction, New Zealand climate, El Niño-Southern Oscillation (ENSO), teleconnections, atmospheric blocking, Antarctic sea ice, multivariate statistical analysis</td>
<td>206</td>
<td>463 4719</td>
<td></td>
</tr>
<tr>
<td>Prof Martha Savage</td>
<td>Seismology and its relation to tectonics, volcanoes, earthquake hazards and geothermal energy</td>
<td>518</td>
<td>463 5961</td>
<td></td>
</tr>
<tr>
<td>Prof Diane Seward</td>
<td>Low temperature thermochronology, Fission-track analysis, (U-Th-Sm)/He analysis with applications in tectonics, structural geology, basin analysis, landscape evolution</td>
<td>416</td>
<td>463 5814</td>
<td></td>
</tr>
<tr>
<td>Prof Terry Seward</td>
<td>Chemistry and geochemistry of aqueous fluids elevated temperatures and pressures at conditions relevant to those found in the earth's crust</td>
<td>416</td>
<td>463 5814</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Position</td>
<td>Areas of Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Dan Sinclair</td>
<td>Environmental geochemistry, palaeoclimatology, palaeoceanography, rapid climate change during the last glacial, geochemistry of carbonates, speleothems and corals; biomineralization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof Tim Stern</td>
<td>Exploration geophysics and tectonics, crust and mantle structure of the earth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A/Prof Rupert Sutherland</td>
<td>Global-scale tectonic process and crustal-scale tectonic processes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A/Prof John Townend</td>
<td>Fault mechanics and tectonophysics.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Julie Vry</td>
<td>Metamorphic petrology, geochemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof Colin Wilson</td>
<td>Field, chemical and physical volcanology, super volcanoes, pyroclastic deposits, volcanotectonics, and geothermal geology</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ANTARCTIC RESEARCH CENTRE

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Areas of Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Brian Anderson</td>
<td>Research Fellow</td>
<td></td>
</tr>
<tr>
<td>Prof Peter Barrett</td>
<td>Emeritus Professor</td>
<td></td>
</tr>
<tr>
<td>Dr Nancy Bertler</td>
<td>Senior Research Fellow</td>
<td></td>
</tr>
<tr>
<td>Prof Lionel Carter</td>
<td>Prof of Marine Geology</td>
<td></td>
</tr>
<tr>
<td>Dr Ruzica Dadic</td>
<td>Research Fellow</td>
<td></td>
</tr>
<tr>
<td>Dr Warren Dickinson</td>
<td>Senior Research Fellow</td>
<td></td>
</tr>
<tr>
<td>Ms Michelle Dow</td>
<td>Centre Manager</td>
<td></td>
</tr>
<tr>
<td>Dr Gavin Dunbar</td>
<td>Senior Research Fellow</td>
<td></td>
</tr>
<tr>
<td>Dr Nick Golledge</td>
<td>Senior Research Fellow</td>
<td></td>
</tr>
<tr>
<td>Dr Huw Horgan</td>
<td>Research Fellow</td>
<td></td>
</tr>
<tr>
<td>Dr Andrew Mackintosh</td>
<td>Senior Lecturer</td>
<td></td>
</tr>
<tr>
<td>Mr Darcy Mandeno</td>
<td>Field and Operations Engineer</td>
<td></td>
</tr>
<tr>
<td>Dr Rob McKay</td>
<td>Lecturer</td>
<td></td>
</tr>
<tr>
<td>Prof Tim Naish</td>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Mr Alex Pyne</td>
<td>Projects Manager</td>
<td></td>
</tr>
<tr>
<td>Dr Dan Zwartz</td>
<td>Research Fellow</td>
<td></td>
</tr>
</tbody>
</table>
## Climate Change Research Institute

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
<th>Cellphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr</td>
<td>Kelli Archie</td>
<td>Climate change adaptation</td>
<td>130</td>
<td>463 5058</td>
</tr>
<tr>
<td>Dr</td>
<td>Stephen Flood</td>
<td>Post Doctoral Fellow in Climate Change</td>
<td>128</td>
<td>463 5642</td>
</tr>
<tr>
<td>Prof</td>
<td>Dave Frame</td>
<td>Director</td>
<td>127</td>
<td>463 6790</td>
</tr>
<tr>
<td>Prof</td>
<td>Judy Lawrence</td>
<td>Adjunct Research Associate</td>
<td>129</td>
<td>463 9601</td>
</tr>
<tr>
<td>Dr</td>
<td>Martin Manning</td>
<td></td>
<td>129</td>
<td>463 5474</td>
</tr>
<tr>
<td>Dr</td>
<td>Rhian Salmon</td>
<td>Contemporary issues in science and society, Antarctic and climate science outreach</td>
<td>131</td>
<td>463 7134</td>
</tr>
</tbody>
</table>

## Senior Teaching Fellow

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
<th>Cellphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr</td>
<td>John Collen</td>
<td>Hydrocarbons, micropaleontology, Pacific Island geology and sedimentology</td>
<td>411</td>
<td>463 5071</td>
</tr>
</tbody>
</table>

## Emeritus Professors

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
<th>Cellphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>E/Prof</td>
<td>Michael Crozier</td>
<td>Physical geography</td>
<td>224</td>
<td>463 5713</td>
</tr>
<tr>
<td>E/Prof</td>
<td>S Harvey Franklin</td>
<td>European peasantry, consumer economics</td>
<td>off campus</td>
<td></td>
</tr>
<tr>
<td>E/Prof</td>
<td>John Harper</td>
<td>Fluid mechanics</td>
<td>430</td>
<td>463 6780</td>
</tr>
<tr>
<td>E/Prof</td>
<td>Euan Smith</td>
<td>Seismology, earthquake occurrence, earthquake mechanics, earth deformation, seismic hazard</td>
<td>517</td>
<td>463 6422</td>
</tr>
<tr>
<td>E/Prof</td>
<td>Dick Walcott</td>
<td>Global tectonics, continental deformation</td>
<td>off campus</td>
<td></td>
</tr>
<tr>
<td>E/Prof</td>
<td>Ray Watters</td>
<td>Latin America, Uplands of China</td>
<td>off campus</td>
<td></td>
</tr>
</tbody>
</table>

## Senior Research Fellows

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
<th>Cellphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr</td>
<td>Warren Dickinson</td>
<td>Sedimentary geochemistry</td>
<td>506</td>
<td>463 6199</td>
</tr>
<tr>
<td>Dr</td>
<td>Gavin Dunbar</td>
<td>Sedimentology</td>
<td>505a</td>
<td>463 6123</td>
</tr>
</tbody>
</table>

## Research Fellows

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
<th>Cellphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr</td>
<td>Stephen Flood</td>
<td>Post Doctoral Fellow in Climate Change</td>
<td>128</td>
<td>463 5642</td>
</tr>
<tr>
<td>Dr</td>
<td>Andrew Rees</td>
<td>Post Doctoral Fellow in Paleocology</td>
<td>214</td>
<td>463 9396</td>
</tr>
<tr>
<td>Dr</td>
<td>Ian Schipper</td>
<td>Postdoctoral Fellow in Igneous Petrology and Volcanology</td>
<td>415</td>
<td>463 5233</td>
</tr>
</tbody>
</table>
### TECHNICAL STAFF

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Office</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Aleksandr Beliaev</td>
<td>UNIX Systems Administrator</td>
<td>521</td>
<td>463 6470</td>
</tr>
<tr>
<td>Mr Adrian Benson</td>
<td>Technician – Geophysics</td>
<td>521</td>
<td>463 6470</td>
</tr>
<tr>
<td>Mr Stewart Bush</td>
<td>Technician Petrology</td>
<td>313</td>
<td>463 5492</td>
</tr>
<tr>
<td>Mr Dene Carroll</td>
<td>Technician – Collections/ First Year Lab Coordinator</td>
<td>319</td>
<td>463 6192</td>
</tr>
<tr>
<td>Miss Jane Chewings</td>
<td>Technician – Laboratory</td>
<td>319</td>
<td>463 6192</td>
</tr>
<tr>
<td>Miss Sabrina Lange</td>
<td>Technician – Geochem</td>
<td>319</td>
<td>463 6192</td>
</tr>
<tr>
<td>Mr Andrew Rae</td>
<td>Technician – GIS Support</td>
<td>318</td>
<td>463 6512</td>
</tr>
<tr>
<td>Mr Kosta Tashkoff</td>
<td>Manager Technical Services</td>
<td>307</td>
<td>463 6013</td>
</tr>
<tr>
<td>Mr Dez Tessler</td>
<td>Field Technician</td>
<td>318</td>
<td>463 6192</td>
</tr>
<tr>
<td>Ms Ningsheng Wang</td>
<td>Senior Technical Officer - Luminescence Lab Coordinator</td>
<td>414</td>
<td>463 6127</td>
</tr>
</tbody>
</table>

### HONORARY RESEARCH ASSOCIATES

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof Michael Abramson</td>
<td></td>
</tr>
<tr>
<td>Dr Ershad Ali</td>
<td></td>
</tr>
<tr>
<td>Dr Stephen Bannister</td>
<td></td>
</tr>
<tr>
<td>Dr David Bennett</td>
<td></td>
</tr>
<tr>
<td>Dr Greg Bignall</td>
<td></td>
</tr>
<tr>
<td>Dr Paul Blaschke</td>
<td></td>
</tr>
<tr>
<td>Dr Helen Bostock</td>
<td></td>
</tr>
<tr>
<td>Dr Judith Davey</td>
<td></td>
</tr>
<tr>
<td>Dr Sam Dean</td>
<td></td>
</tr>
<tr>
<td>Dr Susan Ellis</td>
<td></td>
</tr>
<tr>
<td>Dr Bill Fry</td>
<td></td>
</tr>
<tr>
<td>Dr Michael Gavin</td>
<td></td>
</tr>
<tr>
<td>Dr Stuart Henrys</td>
<td></td>
</tr>
<tr>
<td>Prof Barry Kohn</td>
<td></td>
</tr>
<tr>
<td>Dr Graham Leonard</td>
<td></td>
</tr>
<tr>
<td>Dr Motagan Mahdi</td>
<td></td>
</tr>
<tr>
<td>Dr John McKinnon</td>
<td></td>
</tr>
<tr>
<td>Dr Uwe Morgenstem</td>
<td></td>
</tr>
<tr>
<td>Dr Bruce Mountain</td>
<td></td>
</tr>
<tr>
<td>Dr Roderick Sewell</td>
<td></td>
</tr>
<tr>
<td>Dr Kate Sinclair</td>
<td></td>
</tr>
<tr>
<td>Dr Christian Timm</td>
<td></td>
</tr>
<tr>
<td>Dr Dougal Townsend</td>
<td></td>
</tr>
<tr>
<td>Dr Marcus Vandergoes</td>
<td></td>
</tr>
<tr>
<td>A/Prof Charles Williams</td>
<td></td>
</tr>
<tr>
<td>Dr Michael Williams</td>
<td></td>
</tr>
<tr>
<td>Mr Richard Willis</td>
<td></td>
</tr>
<tr>
<td>Dr Richard Wysoczanski</td>
<td></td>
</tr>
</tbody>
</table>
The diagram below represents the structure of postgraduate study in science.

- **BSc/BBmedSc**: 3-year course
- **1-year Hons/PGDip/PGDip Sc**: Degree after coursework
- **1-year Master’s Part 1**: Research degree
- **2 year MSc**: Master’s Part 2
- **3-year PhD**: Ph.D.

- **1 year MMET**: Degree after coursework
- **2 year MSc**: Master’s Part 1
- **MSc Part 1**: Master’s Part 2
- **PhD**: Degree after research

**Undergraduate**
- Postgraduate - coursework and research (Hons/Master’s Part 1, taught Master’s – MConBio/MMarCon)
- Graduate (enables transfer to undergraduate study in another subject)
- Postgraduate - research
The following qualifications are available within the School’s programmes and detailed information about each is available under the corresponding group (e.g. Earth Sciences or Geography) and programme area (e.g. Physical Geography):

- Postgraduate Certificate in Science (PGCertSc)
- Postgraduate Diploma in Arts (PGDipArts)
- Postgraduate Diploma in Science (PGDipSc) (in Geography, Geology, Geophysics, Petroleum Geoscience or Physical Geography)
- Postgraduate Diploma in Meteorology (PGDipMet)
- Postgraduate Diploma in Development Studies (PGDipDevStud)
- Postgraduate Diploma in Environmental Studies (PGDipEnvStud)
- Postgraduate Diploma in Geographic Information Science (PGDipGIS)

- BA with Honours in Geography
- BSc with Honours in Geography, Physical Geography, Geology or Geophysics

- Master of Development Studies (MDevStud)
- Master of Environmental Studies (MEnvStud)
- Master of Geographic Information Science (MGIS)
- Master of Meteorology (MMET)

- MSc with Honours in Geology, Geophysics, Geography or Physical Geography (Parts 1 and 2)
- MA by thesis in Geography (Part 2 only)
- MSc by thesis in Geology, Geophysics, Geography or Physical Geography (Part 2 only)

- PhD in Geology, Geophysics, Geography, Physical Geography, Environmental Studies, Development Studies, Geographic Information Science or Petroleum Geoscience
DOCTOR OF PHILOSOPHY

The PhD is the highest degree offered by the School of Geography, Environment and Earth Sciences and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities.

Formal assessment of the PhD degree is by means of a thesis and an oral examination, but progress reports and seminars are also required during the course. Students must have a BSc(Hons), Masters, or equivalent degree, and must have the agreement of a supervisor to be admitted to the PhD programme. This will usually entail evidence of excellent performance at previous levels.

The Faculty of Graduate Research (FGR) provides a first port of call for all students interested in enrolling in a PhD at Victoria. The FGR website www.victoria.ac.nz/phd provides application forms, details of available funding, application dates, and answers to a host of questions. The FGR continues to provide support to PhD students throughout their studies at Victoria. PhD students are encouraged to apply for a range of scholarships offered by the University and other providers. Details can be found on the scholarships web page.

There are three deadlines for PhD applications to be considered. These are 1 March, 1 July and 1 November. Students may complete an application form and speak with prospective supervisors prior to the deadline, but their application must be submitted through the FGR and formal acceptance or not into the programme will be made after the deadline.

Candidates seeking admission to this course should consult the Course Statute for the Degree of Doctor of Philosophy in the Victoria University of Wellington Calendar.
GEOLGY

Geology is the study of the physical processes and history of the Earth and includes the Earth’s internal structure, plate tectonics, earthquakes, mountain building, volcanic eruptions, the origin and evolution of life, the extinction of the dinosaurs, the formation of sedimentary basins, climate and sea level change, glaciation and landscape evolution, and the origin and conservation of the Earth’s natural resources minerals, fossil fuels, soils and water.

Nowhere on Earth are active geological processes more obvious and accessible than in New Zealand. Wellington, the capital city of New Zealand, sits beside a spectacular harbour between two active faults on a major plate boundary. The city is located in a tectonically active landscape where the southern tip of the North Island enters Cook Strait, within view of the South Island’s snow-covered Kaikoura Ranges. It is only a few hours’ drive from the North Island’s active volcanoes, and a breathtaking ferry ride away from Marlborough Sounds and the South Island. As a natural laboratory in which to study earth movements, faulting, earthquakes, landscape development and many other active geological processes, the Wellington region is justifiably famous internationally.

Wellington is also the hub of Earth Science research in New Zealand, as in addition to Victoria University, the city is the home of GNS Science, Te Papa Tongarewa (National Museum of New Zealand), and the National Institute of Water and Atmospheric Research (NIWA). In the 2012 national PBRF (Performance-Based Research Fund) round, Earth Sciences at Victoria was ranked as the top department in New Zealand for research quality. Internationally, Earth Sciences at Victoria ranks in the top 150 across the world’s (several thousand) universities.

Both teaching and research in Geology at Victoria University take advantage of Wellington’s dynamic setting, a strong association with the Institute of Geophysics and the Antarctic Research Centre. Victoria’s geology programme is internationally respected for its contributions to such fields as past climate change in New Zealand and Antarctica, volcanology and tectonics.

Understanding geological processes is becoming increasingly important for those concerned with the extraction and preservation of the Earth’s natural resources, the evaluation of natural hazards, anticipating the social and environmental effects of global change, and undertaking environmental and resource planning and monitoring. Geology has direct relevance for students majoring in Geology, Geophysics and Physical Geography as well as Architecture, Biology, Chemistry, Ecology, Environmental Studies, Geography and Physics.

CAREERS

The multidisciplinary nature of a degree in Geology is a valuable asset. Geology training includes fieldwork and integrates material from areas as diverse as physics, mathematics, chemistry and biological sciences. These aspects guarantee that Geology graduates are competent in the outdoors and have wide-ranging skills across a broad area of science. Add to this a postgraduate research project and you will develop skills in independent research, including field studies, modern surveying techniques (including the Global Positioning System), design and use of computer programs and databases, public speaking, computer drafting and graphical presentation, use of the internet, Geographic Information Systems (GIS) and desktop publishing.
The interdisciplinary nature of Geology means that graduates have a broad choice of future careers. These include work in fields of mineral and petroleum exploration, advanced research at Crown research institutes and universities, resource management, environmental management and protection. Teaching, banking, real estate, law, the stock market, IT and tourism are also career options.

**POSTGRADUATE CERTIFICATE IN SCIENCE**

The Postgraduate Certificate in Science is offered in all MSc subjects. It may appeal to students wanting to ‘test the waters’ with postgraduate study or seeking a postgraduate course-work qualification that does not involve a research project. The PGCertSc also provides an opportunity for those students who are not able to meet the entry requirements for the BSc(Hons) or MSc Part 1. The PGCertSc in Geology requires 60 points of postgraduate study and can be completed in one trimester or part time over two years. It can be converted into a Postgraduate Diploma in Science with a further 60 points of 400-level approved courses.

**POSTGRADUATE DIPLOMA IN SCIENCE**

The degree is made up of 120 points at 400 and 500-level and does not require a research project, although a project may be included where appropriate. The minimum entry qualification is an undergraduate degree with an average grade of B or higher in relevant 300-level courses. The PGDipSc can be completed in two trimesters or part time over four years. Good academic grades in the PGDipSc may allow direct entry into an MSc Part 2 (thesis).

The PGDipSc course of study for Geology consists of 120 points from ESCI 401-489, 580, PGEO 401

**BSC WITH HONOURS IN GEOLOGY**

An Honours degree follows an undergraduate degree such as a Bachelor of Science (BSc) and is designed to provide students with depth in a specialised field. It could also follow on from a Graduate Diploma in Science (GradDipSc) if necessary requirements have been met. A Bachelor of Science with Honours, BSc(Hons), is a stand-alone one-year full-time programme of coursework with a research project, but may be undertaken part-time with permission from the School. It generally allows students to progress directly to PhD study. Honours in Geology normally involves 90 points of coursework and a research project (GEOL 489). The minimum entry qualification is a BSc in an appropriate field with an average grade of B+ or higher in relevant 300-level courses.

A research project is an important part of the year’s work and is a good opportunity for further study in a selected topic. The project also provides practical training in research methods, an evaluation of published research and experience of the scientific process. If you are intending to undertake a research project, you should identify a topic as soon as possible and begin background reading, thinking or fieldwork as advised by a member of staff.

If you wish to enrol in BSc with Honours in Geology, please write to the Earth Sciences Graduate Coordinator stating both your desire to enrol in Honours AND the names of School staff you have approached regarding potential research projects before the end of Trimester 2, prior to the year you wish to study. You are advised to select the courses you wish to take early and begin reading over the summer prior to enrolment. Then, sample the courses offered in the first two weeks and be ready to finalise which courses you will take by the end of the second week. It is advisable to consider the assessment and structure of each course, the
timings of assignment deadlines and the overall complement of the subjects when making your decision.

The course of study for BSc Honours in Geology consists of:

- GEOL 489
- 90 points in an approved combination from ESCI 401–488 (see list below)
- P GEO 401, including at least 45 points from groups 1–4 below. With the approval of the Graduate Coordinator up to 30 points of appropriate 400-level courses from elsewhere in the Science Faculty can be included in the programme of study (e.g. CHEM, BIOL, MATH, PHYG and PHYS).

**Group 1: Paleoenvironments, palaeoclimate and paleoceanography**

- ESCI 403 Stratigraphy and Palaeoenvironments
- ESCI 412 Palaeoclimatology

**Group 2: Tectonics and Structural Geology**

- ESCI 407 Global Tectonics
- P GEO 401 Basin Analysis

**Group 3: Solid Earth Geophysics**

- ESCI 411 Advanced Exploration Geophysics
- GPHS 441 Solid Earth and Geophysics
- GPHS 445 Observational Earthquake Seismology
- GPHS 446 Advanced Seismology
- GPHS 447 Geomagnetism

**Group 4: Geochemistry, Geochronology, Volcanology and Petrology**

- ESCI 413 Geochemical Forensics of Earth’s Origins, History and Future
- ESCI 414 Physics and Chemistry of Volcanoes
- ESCI 416 Metamorphic Petrology (not offered in 2015)

**Group 5: Special Topics and Research Preparation**

- ESCI 404 Topics in Earth Sciences
- ESCI 408 Special Topic
- ESCI 441 Individual Directed Study

**MASTER OF SCIENCE IN GEOLOGY**

A Master of Science consists of two parts: Part 1 (the first year) involves coursework and a research preparation course. Part 2 (the second year) is a full-time research project, leading to a thesis. Full time enrolment is usually between four trimesters and two years. Part time study may be undertaken with permission from the Head of School.

Entry into the MSc for Geology requires completion of an undergraduate degree or relevant graduate or postgraduate diploma, including 80 points from ESCI 301–399 (including ESCI 341 and 342) or their equivalent at another University.

Study in Part 1 consists of at least 120 points from the BSc(Hons) or other schedules (see previous section). Study in Part 2 is entirely by thesis research. No coursework is required but students may be invited to sit in on courses that would aid their studies. Full details are provided in the University Calendar and students are invited to discuss their research interests with members of staff.
There is no automatic transition from Master’s Part 1 to Part 2. You will require a grade average of B+ in your Part 1 courses. If you have a lower grade average, you will need to discuss your options with the Graduate Coordinator and you may be redirected into a suitable postgraduate diploma. You may also enter Part 2 with an Honours degree or postgraduate diploma.

The MSc may be awarded with Honours if both Parts 1 and 2 of the degree are completed within two years of first enrolling for the degree. A candidate who is not eligible for Honours may be awarded the MSc with Distinction or Merit. To be eligible, a full time candidate shall complete all work for Part 2 within one year from the date of first enrolment in Part 2. The award of Honours or Merit or Distinction is based upon overall assessment of the calibre of a student’s work across all the courses taken by the Graduate Coordinator in consultation with academic course coordinators and/or supervisors.

The course of study for an MSc in Geology is as follows:

- **Part 1**: ESCI 580; plus 105 points in approved courses from (ESCI 401–488, PGEO 401) including at least 45 points from groups 1–4 above. With the approval of the Graduate Coordinator up to 30 points of appropriate 400-level courses from elsewhere in the Science Faculty can be included in the programme of study (e.g. CHEM, BIOL, MATH, PHYG and PHYS).
- **Part 2**: GEOL 591 (thesis).

**DOCTORATE OF PHILOSOPHY (PHD) IN GEOLOGY**

The PhD is the highest degree offered by the School of Geography, Environment and Earth Sciences and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities.
GEOPHYSICS

Geophysics is the study of the structure, properties and processes of the Earth using tools from physics and mathematics. Topics include:

- physical structure, properties and dynamics of the whole Earth
- deformation and earthquakes
- rock magnetism and gravity
- heat-flow processes and volcanism
- atmospheric processes.

Geophysics at Victoria is grouped into two themes—Solid Earth Geophysics and Meteorology. All postgraduate programmes include a research project (except the PGCertSc and PGDipSci). Students interested in the Geophysics programme at Victoria should select a research topic in consultation with the staff member who will supervise the project and offer suggestions about possible project topics.

Geophysics research interests include meteorology and forecasting methodologies, geomagnetism, magnetotellurics and palaeomagnetism, earthquake seismology and earthquake recurrence, fault mechanics and the state of stress in the Earth, active source seismology and tectonics, volcano geophysics, anisotropy of the crust and mantle and lithospheric structure.

To support research, the School is well equipped with:

- broadband and multi-channel seismographs
- seismic source (accelerated mass drop)
- gravity meters, resistivity meters, ground-penetrating radar
- high precision surveying and geodetic equipment (GNSS and EDM)
- a fully equipped palaeomagnetic laboratory with cryogenic magnetometer
- equipment for geomagnetic and geoelectrical exploration
- laboratories for processing satellite imagery and reflection and refraction seismics
- dedicated unix network with access to high performance computing clusters.

CAREERS

A degree in Geophysics is a passport to many careers in New Zealand and overseas. The combination of Maths, Physics, Computing and Earth Sciences provides a range of skills attractive to many employers. Recent graduates have found jobs in emergency management, oil exploration, the IT industry, weather forecasting, engineering seismology, environmental engineering and in research laboratories and academia. Those wishing a professional career in Geophysics will need a fourth year (Honours or Graduate Diploma) or fifth year (Master’s) qualification. A career as a research scientist generally requires a PhD.
STUDY OPTIONS

A prerequisite for enrolment for an Honours or Master's degree programme in Geophysics is a BSc degree including 60 points of approved courses from (ESCI, GEOL, GPHS, MATH, PHYS 301-399) or their equivalent at another University, generally with a B+ or better average in relevant coursework. A suitable level of preparation in Mathematics is essential. The undergraduate BSc major in Geophysics is ideal preparation for graduate studies in Geophysics, but other undergraduate programmes can provide suitable preparation as well.

POSTGRADUATE CERTIFICATE IN SCIENCE

The Postgraduate Certificate in Science is offered in all MSc subjects. It may appeal to students wanting to ‘test the waters’ with postgraduate study or seeking a postgraduate course-work qualification that does not involve a research project. The PGCertSc also provides an opportunity for those students who are not able to meet the entry requirements for the BSc(Hons) or MSc Part 1. The PGCertSc requires 60 points of postgraduate study and can be completed in one trimester or part time over two years. It can be converted into a Postgraduate Diploma in Science with a further 60 points of 400-level approved courses.

POSTGRADUATE DIPLOMA IN METEOROLOGY

The degree consists of six courses selected from GPHS 420-425 or 430 (listed below) plus a project (30 points). Prerequisites may apply for some courses.

- GPHS 420 Introduction to Dynamical Meteorology
- GPHS 421 Mid-latitude Weather Systems
- GPHS 422 Radiation and Thermodynamics for Meteorology
- GPHS 423 Cloud Physics and Boundary Layer Meteorology
- GPHS 424 Satellite Meteorology
- GPHS 425 Numerical Weather Prediction
- GPHS 426 Climatology and Remote Sensing
- GPHS 430/431 Special Topics
- GPHS 489 Project

Contact Dr Jim McGregor (463 5278), jim.mcgregor@vuw.ac.nz, for further information.

POSTGRADUATE DIPLOMA IN SCIENCE (GEOPHYSICS)

The degree is made up of 120 points at 400 and 500-level and does not require a research project, although a project may be included where appropriate. The minimum entry qualification is an undergraduate degree with an average grade of B or higher in relevant 300-level courses. The PGDipSc can be completed in two trimesters or part time over four years. Good academic grades in the PGDipSc may allow direct entry into and MSc Part 2 (thesis).

The PGDipSc course of study for Geophysics consists of 120 points from ESCI 407, 411, 580, GPHS 401–489, MATH 461, P GEO 401 or other approved courses.
Masters in Meteorology

The degree consists of six courses selected from GPHS 420-425 or 430 (listed below) plus a project (30 points). Prerequisites may apply for some courses.

- GPHS 420 Introduction to Dynamical Meteorology
- GPHS 421 Mid-latitude Weather Systems
- GPHS 422 Radiation and Thermodynamics for Meteorology
- GPHS 423 Cloud Physics and Boundary Layer Meteorology
- GPHS 424 Satellite Meteorology
- GPHS 425 Numerical Weather Prediction
- GPHS 426 Cloud Physics and Boundary Layer Meteorology
- GPHS 430-431 Special Topics
- GPHS 520 Professional Weather Observing, Analysis and Synoptic Diagnosis
- GPHS 521 Professional Weather Diagnosis and Forecasting
- GPHS 589 Project

Contact Dr Jim McGregor (463 5278), jim.mcgregor@vuw.ac.nz, for further information.

Bachelor of Science with Honours in Geophysics

An Honours degree follows an undergraduate degree such as a Bachelor of Science and is designed to provide students with depth in a specialised field. It could also follow on from a Graduate Diploma in Science (GradDipSc) if necessary requirements have been met.

A Bachelor of Science with Honours, BSc(Hons) in Geophysics is a stand-alone one-year full-time programme of coursework with a research project (GPHS 489). It generally allows students to progress directly to PhD study.

Honours in Geophysics normally involves three 90 points of coursework and a research project, but may be undertaken part-time with permission from the Head of School. The minimum entry qualification is a BSc in an appropriate field with an average grade of B+ or higher in relevant 300-level courses.

A research project is an important part of the year’s work and is a good opportunity for further study in a selected topic. The project also provides practical training in research methods, an evaluation of published research and experience of the scientific process. If you are intending to undertake a research project, you should identify a topic as soon as possible and begin background reading or fieldwork as advised by a member of staff.

If you wish to enrol in GPHS Honours, please write to the Earth Sciences Graduate Coordinator stating both your desire to enrol in Honours AND the names of School staff you have approached regarding potential research projects before the end of Trimester 2 prior to the year you wish to study. You are advised to select the courses you wish to take early and begin reading over the summer prior to enrolment. Then, sample the courses offered in the first two weeks and be ready to finalise which courses you will take by the end of the second week. It is advisable to consider the assessment and structure of each course, the timing of assignment deadlines and the overall complement of the subjects when making your decision.
Postgraduate Prospectus 2015

The course of study for a BSc Honours in Geophysics consists of

- GPHS 489
- 90 points in an approved combination from ESCI 407, 411, GPHS 401–488, MATH 461, PGEO 401 or approved courses in the BSc(Hons) schedule.

MASTER OF SCIENCE IN GEOPHYSICS

A Master of Science consists of two parts: Part 1 (the first year) involves coursework and a research preparation course. Part 2 (the second year) is a full-time research project, leading to a thesis. Full time enrolment is usually between four trimesters and two years. Part time study may be undertaken with permission from the Head of School.

Entry into the MSc for Geophysics requires completion of an undergraduate degree or relevant graduate or postgraduate diploma, including 60 points of approved courses from ESCI, GPHS, MATH or PHYS 302-399.

Study in Part 1 consists of at least 120 points from the BSc(Hons) or other schedules. Study in Part 2 is entirely by thesis research. No coursework is required for part 2, but students may be invited to sit in on courses that would aid their studies. Full details are provided in the University Calendar and students are invited to discuss their research interests with members of staff.

There is no automatic transition from Master’s Part 1 to Part 2. You will require a grade average of B+ in your Part 1 courses. If you have a lower grade average, you will need to discuss your options with the Graduate Coordinator and you may be redirected into a suitable postgraduate diploma. You may also enter Part 2 with suitable grades in an Honours degree or postgraduate diploma.

The MSc may be awarded with Honours if both Parts 1 and 2 of the degree are completed within two years of first enrolling for the degree. A candidate who is not eligible for Honours may be awarded the MSc with Distinction or Merit. To be eligible, a full time candidate shall complete all work for Part 2 within one year from the date of first enrolment in Part 2. The award of Honours or Merit or Distinction is based upon overall assessment of the calibre of a student’s work across all the courses taken by the Graduate Coordinator in consultation with academic course coordinators and/or supervisors.

The MSc in Geophysics course of study consists of:

- Part 2: GPHS 591

Geophysics (Solid Earth)

- Part 1: ESCI 580, GPHS 441, 445 and 447 plus 60 approved points from (400-level GPHS and ESCI courses, PHYG 414, PGEO 401). With the approval of the Graduate Coordinator these may include appropriate MATH/PHYS 400-level courses.
- Part 2: GPHS 591

Geophysics (Meteorology)

- Part 1: ESCI 580, three courses from GPHS 420–426 plus 60 approved points from (400-level GPHS and ESCI courses, PHYG 414, PGEO 401). With the approval of the Graduate Coordinator these may include appropriate MATH/PHYS 400-level courses.
- Part 2: GPHS 591
DOCTORATE OF PHILOSOPHY (PHD) IN GEOPHYSICS

The PhD is the highest degree offered by the School of Geography, Environment and Earth Sciences and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities.
PETROLEUM GEOSCIENCE

Victoria University and GNS Science offer a programme in Petroleum Geoscience. The School has an excellent record in teaching and research in a wide variety of geological, geophysical and geochemical areas. New Zealand’s unique petroleum systems are complex and provide a fantastic training ground for the petroleum geoscientist.

GNS staff provide extensive commercial services to the domestic and international petroleum industry as well as conducting world class applied research programmes in petroleum geology. They have strengths in basin evolution, seismic technology and petroleum system analysis using leading-edge software.

Graduates of the programme will have extensive knowledge of the latest techniques used in hydrocarbon exploration. They will also have first-hand experience in working with the petroleum industry.

CAREERS

Demand for petroleum geoscientists remains high and a Master’s qualification is generally regarded as the minimum requirement for entry to a job in this area, both in New Zealand and overseas. Recent graduates have been employed by companies in New Zealand, Australia and South East Asia. In several cases, these students had jobs lined up prior to completing their degrees and many also gained work experience with New Zealand companies during the course of their degrees.

POSTGRADUATE CERTIFICATE IN SCIENCE

The Postgraduate Certificate in Science is offered in all MSc subjects. It may appeal to students wanting to ‘test the waters’ with postgraduate study or seeking a postgraduate course-work qualification that does not involve a research project. The PGCertSc also provides an opportunity for those students who are not able to meet the entry requirements for the BSc(Hons) or MSc Part 1. The PGCertSc requires 60 points of postgraduate study and can be completed in one trimester or part time over two years. It can be converted into a Postgraduate Diploma in Science with a further 60 points of 400-level approved courses.

POSTGRADUATE DIPLOMA IN SCIENCE

The degree is made up of 120 points at 400 and 500-level and does not require a research project, although a project may be included where appropriate. The minimum entry qualification is an undergraduate degree with an average grade of B or higher in relevant 300-level courses. The PGDipSc can be completed in two trimesters or part time over four years. Good academic grades in the PGDipSc may allow direct entry into and MSc Part 2 (thesis).

The PGDipSc course of study for Petroleum Geoscience consists of 120 points from PGEO 401, 511, ESCI 403, 406, 407, 411, 580.
MASTER OF SCIENCE IN PETROLEUM GEOSCIENCE

A Master of Science consists of two parts: Part 1 (the first year) involves coursework and a research preparation course. Part 2 (the second year) is a full-time research project, leading to a thesis. Full time enrolment is usually between four trimesters and two years. Part time study may be undertaken with permission from the Head of School.

Entry into the MSc for Petroleum Geoscience requires completion of an undergraduate degree or relevant graduate or postgraduate diploma, including 90 points from ESCI 301-399 (including ESCI 341 and 342). Study in Part 1 consists of at least 120 points from the BSc(Hons) or other schedules. Study in Part 2 is entirely by thesis research. No coursework is required but students may be invited to sit in on courses that would aid their studies. Full details are provided in the University Calendar and students are invited to discuss their research interests with members of staff.

There is no automatic transition from Master's Part 1 to Part 2. You will require a grade average of B+ in your Part 1 courses. If you have a lower grade average, you will need to discuss your options with the Graduate Coordinator and you may be redirected into a suitable postgraduate diploma. You may also enter Part 2 with an Honours degree or postgraduate diploma.

The MSc may be awarded with Honours if both Parts 1 and 2 of the degree are completed within two years of first enrolling for the degree. A candidate who is not eligible for Honours may be awarded the MSc with Distinction or Merit. To be eligible, a full time candidate shall complete all work for Part 2 within one and half years from the date of first enrolment in Part 2. The award of Honours or Merit or Distinction is based upon overall assessment of the calibre of a student's work across all the courses taken by the Graduate Coordinator in consultation with academic course coordinators and/or supervisors.

The course of study for an MSc in Petroleum Geoscience is as follows:

- **Part 1:** ESCI 580; PGEO 401, 511, ESCI 403, 406, 407, 411 and one other approved 15-point course
- **Part 2:** PGEO 591 (thesis).

DOCTORATE OF PHILOSOPHY (PHD) IN PETROLEUM SCIENCE

The PhD is the highest degree offered by the School of Geography, Environment and Earth Sciences and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities.
DEVELOPMENT STUDIES

Development Studies seeks to explain the enormous differences in peoples’ living standards across the world and to do something about them. The programme examines the theories and practices associated with inequalities in world development, using multi-disciplinary approaches. It is concerned with the processes and relationships between people and institutions at different scales—from local, small-scale communities, through to national government agencies and international organisations.

Particular attention is paid to the relationships between ‘developed’ and ‘developing’ societies, the roles played by various institutions within them and their effects on processes of social, political, economic and environmental transformation.

Development Studies concerns issues of contemporary relevance to the world today including:

- poverty
- inequality
- globalisation
- gender equity
- environmental change
- participation and democracy
- human rights
- international aid.

Our programme is accessible to graduates from a wide range of disciplines and occupations. People with work experience in community and international development are strongly encouraged to apply, especially those with a background in the Asia Pacific region. Students are encouraged to spend some time overseas in a developing country as part of their postgraduate study and Master’s students usually complete a research thesis based on work in a developing country. Students have undertaken research in places as diverse as Ethiopia, East Timor, Brazil, Chile, Bhutan, South Korea, Malaysia, Samoa and Rapanui.

The MDevStud degree seeks to enhance the ability of graduate students to contribute as professionals to development practice worldwide.

CAREERS

Many of our graduates find employment working within the Ministry of Foreign Affairs and Trade, particularly on ‘desks’ in the South Pacific. Others occupy key positions in various New Zealand-based international development NGOs like the Council for International Development, Volunteer Services Abroad, Save the Children, and Family Planning International, UNICEF. Within New Zealand, some apply their knowledge to local or national community development via positions as policy advisors, research officers and community outreach workers for government departments and agencies like Women’s Affairs and Te Puni Kokiri, regional and city councils, community-based organisations such as the Wesley Community Action, ChangeMakers Refugee Forum and Vibe Youth Service. Internationally, graduates occupy positions as consultants working for UN agencies and international organisations like the Asia Development Bank, as well as international NGOs like 360.org.
POSTGRADUATE DIPLOMA IN DEVELOPMENT STUDIES

Students who wish to complete a full time programme in one year without undertaking a thesis may enrol for the Postgraduate Diploma in Development Studies (PGDipDevStud). It is open to those already in the workforce who wish to augment or update their skill-base, or recent graduates wishing to broaden their undergraduate degree. The minimum entry qualification is a BA or BSc with an average grade of B or higher in relevant 300-level courses.

All students are urged to plan their course of study with the Director of Development Studies before enrolment, as well as during the course of their programme. Students wishing to enrol for the PGDipDevStud must apply through the online process outlined below for the Master of Development Studies. Applications must be received by 9th December for study for the following year. Part time enrolment is possible.

The course of study for the PGDipDevStud consists of DEVE 511, 512, 513, 514; and 60 further points from approved 400- or 500-level courses (see list below).

MASTER OF DEVELOPMENT STUDIES

To complete the Master of Development Studies (MDevStud), a student must undertake 240 points of study over two years full-time. Part 1 (the first year) comprises taught courses (DEVE 511-514, and 60 further approved points). Part 2 consists of a thesis (DEVE 592) worth 120 points.

Students begin their thesis following submission and acceptance of a full research proposal as part of their work for the DEVE 514 Development Research course in the second trimester of their Part 1 year. An average of B+ grades across Part 1 courses is expected. The thesis is a maximum of 40,000 words (120-150 pages) and must be completed by 28 February, two years following the year of first enrolment.

All students are urged to plan their course of study with the Director of Development Studies before enrolment, as well as during the course of their programme.

Students wishing to enrol for the Master of Development Studies (MDevStud) must apply through the online process. Applications must be received by 10th December for study for the following year. Part time enrolment is possible.

The MDevStud course of study consists of:

- **Part 1:** DEVE 511, 512, 513, 514 and 60 further approved points from the approved courses below:
  - ENVI 520 Environmental Management
  - ENVI 522 Environmental and Planning Law
  - ENVI 524 Environmental Economics for Policy
  - ENVI 525 Māori Environmental and Resource Management
  - ENVI 526 Political Ecology of Conservation
  - ENVI 528 Climate Change Issues
  - ENVI 529 Sustainable Energy
  - ENVI 530 Special Topic: Drivers of Human Behaviour
  - GEOG 404 Geography of Development Studies: Young People and Participatory Development
GEOG 406  Geography of Place, Power and Identity  (not offered in 2015)
GEOG 413  Migration, Diasporas & Transnationalism
GISC 405  GIS Programming and Databases
INTP 445  Global Civil Society  (not offered in 2015)
INTP 447  Global Governance
MAPP 554  Monitoring and Evaluation
MAPP 558  Development Policy and Management
MBUS 401  Māori Cultural and Intellectual Property Issues
MMBA 553  Project Management  (not offered in 2015)
PASI 401  Theory and Methods in Pacific Studies
PASI 403  New Zealand Policy and Pacific people  (not offered in 2015)
PHYG 414  Climate Change: Lessons from the past
PHYG 419  Natural Hazards and Risk: Processes and Impacts  (not offered in 2015)
POLS 436  State and the Economy  (not offered in 2015)
PSYC 432  Applied Cross-Cultural Psychology
PSYC 433  Current Issues in Cross Cultural Psychology
TOUR 401  Recent Advances in Tourism
TOUR 409  Strategy and Tourism Organisation in the Global Economy

- **Part 2:** DEVE 592 (thesis)

**DOCTORATE OF PHILOSOPHY (PhD) IN DEVELOPMENT STUDIES**

The PhD is the highest degree offered by the School of Geography, Environment and Earth Sciences and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities.
ENVIRONMENTAL STUDIES

Never has our environment been under such pressure, and never has what we do about it been more important for our future. Environmental Studies tackles difficult issues such as what motivates people to act in an environmentally friendly way and how policy changes can best protect our environment. Placed alongside Geography and Development Studies, Environmental Studies connects naturally to Public Policy, Law and Management. Students with an interest in the environment, whether from a science, commerce or arts background, will find Environmental Studies at Victoria University informative, challenging and inspiring.

The programme is enriched by contributions from lecturers from within and outside the School. These enthusiastic and experienced professionals have a collective background in environmental planning, management, economics, policy, law, politics, ethics, indigenous development and non-government organisations.

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

CAREERS

Many employers are looking for employees with sharper analytical skills and understanding, and more experience than an undergraduate typically offers. With a postgraduate qualification in Environmental Studies, career prospects are excellent in a wide range of applied fields. Our graduates have found employment with central government agencies such as the Ministry for the Environment and the Department of Conservation, as well as the Office of the Parliamentary Commissioner for the Environment, regional and district councils around the country, companies, runanga, Iwi organisations, intergovernmental agencies, environmental and non-governmental agencies and industry organisations.

POSTGRADUATE DIPLOMA IN ENVIRONMENTAL STUDIES

Students who wish to complete a full-time programme in one year, without undertaking the thesis, may enrol for the Postgraduate Diploma in Environmental Studies (PGDipEnvStud). This qualification requires the completion of 120 points of coursework including two 15 point core courses and 90 points from ENVI 504–529. You may elect to take 30 points from another discipline with the Programme Director’s approval.

The minimum entry qualification is a BA or BSc with an average grade of B or higher in relevant 300-level courses. All students are urged to plan their course of study with the Director of Environment Studies before enrolment, as well as during the course of their programme.

Students wishing to enrol for the PGDipEnvStud must apply through the online process outlined below for the Master of Environmental Studies. Applications must be received by 9th December for study for the following year. Part time enrolment is possible, for example if you are having to juggle work and study.
The PGDipEnvStud course of study consists of:

- ENVI 520 and 521
- 90 further points from ENVI 501–511, 513–579; up to 30 of these points may be replaced by approved 400 or 500-level courses (see list).

**MASTER OF ENVIRONMENTAL STUDIES**

The Master of Environmental Studies (MEnvStud) Part 1 is the same as the Postgraduate Diploma and takes one-year of full-time or two-years of part-time study to complete. It is open to those already in the workforce who wish to augment or update their skill-base, or recent graduates wishing to broaden their undergraduate degree.

The Master of Environmental Studies Part 1 combines:

- 15 points of core coursework on environmental management and 15 points on research methods.
- Another 90 points of courses selected from a range of tailored principles courses dealing with the framework and practice of environmental management, environmental law, economics for public policy, Māori resource management, political ecology, climate change, sustainable energy, and human behaviour (see later for individual course descriptions).
- Opportunity to choose a 30 point or two 15 point honours or master’s level course from a variety of disciplines to complement or build on your undergraduate work. An example of a recommended course is PUBL 403, Contemporary Policy Issues, offered by Victoria University’s School of Government.

The Master of Environmental Studies Part 1 will ensure that you have a grounding in the basics, while the Master of Environmental Studies Part 2 can provide a one-year full-time or two-year part-time research and professional programme in an area of environmental or resource management expertise that interests you in your chosen career path.

Please note that entry to Part 2 will be contingent upon the programme’s capacity to provide adequate supervision. You are strongly advised to tailor your research proposal to the interests and expertise of staff in the programme (see websites for staff members).

The MEnvStud course of study consists of:

- **Part 1** as with the Postgraduate Diploma course of study set out above
- **Part 2:** ENVI 591 (120 point thesis), OR ENVI 512 Practicum or, for those with relevant work experience, a 30 point course chosen from the courses listed for Part 1 above; and ENVI 593 (90 point thesis).

Enrolment in ENVI 593 or ENVI 591 will be for 12 months from the date of enrolment, or 24 months if part-time. You normally have two years to complete both parts, i.e. Part 1 and Part 2, if you are studying full time, and four years if you are part-time. Practical work shall be carried out in approved organisations under the personal supervision of practitioners approved by the Programme Director.

Entry to Part 2 requires the acceptance of a thesis proposal by the Postgraduate Programme Director in Environmental Studies and either a B+ average from Part 1 courses or special permission from the Director.
Approved courses from other programmes (for example) that may be taken as part of a Postgraduate Diploma or Master of Environmental Studies include:

- BIOL 420 Conservation Ecology
- DEVE 511 Development Theory
- DEVE 512 Development Practice
- DEVE 513 Development Policy
- GEOG 404 Geography of Development Studies
- GEOG 410 Urban Studies
- GISC 405 GIS Programming and Databases
- PHYG 414 Climate Change: Lessons From The Past
- PHYG 417 Environmental Modelling \(\text{(not offered in 2015)}\)
- PHYG 418 Geomorphology and its application
- PHYG 419 Natural Hazards and Risk: processes and impacts \(\text{(not offered in 2015)}\)
- PHYG 420 Hydrology and Water Resources
- PHYG 423 Field Geomorphology
- PSYC 433 Current Issues in Cross-cultural Psychology
- PUBL 403 Contemporary Policy Issues

**DOCTORATE OF PHILOSOPHY (PHD) IN ENVIRONMENTAL STUDIES**

The PhD is the highest degree offered by the School of Geography, Environment and Earth Sciences and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities.
GEOGRAPHIC INFORMATION SCIENCE

The Postgraduate Diploma (PGDipGIS) and Master in Geographic Information Science (MGIS) were introduced in 2012. The programmes are run at Victoria University, Auckland University of Technology and the University of Canterbury. Students register at one of the three institutions and access the GISC courses taught at all locations as well as relevant local electives.

The MGIS is the only one of its kind in New Zealand and is a nationally and internationally relevant qualification. We give students a choice of graduate courses with the goal of meeting employment vacancies within the spatial information industry in New Zealand and overseas. Graduates with these qualifications are highly sought after and currently there is a skills shortage in this area. This programme also equips students with research skills and will enable students to progress to a PhD in GIS.

The programme is very relevant to recent graduates, and to those already in the work force wishing to up-skill their knowledge and expertise. As well as having excellent research capability in GIS between Auckland, Canterbury and Victoria, other New Zealand and international GIS colleagues, Land Information New Zealand (LINZ) and other allied agencies are involved in the delivery and research support of this programme.

CAREERS

There is a strong need for graduates with PGDipGIS or MGIS qualifications. There is currently a shortage of skilled graduates to move into geospatial roles within New Zealand and overseas. There is also a need to expand and improve the skills of existing geospatial employees.

Graduates from the programme will be qualified to work as GIS professionals in research, government and industry and will gain a range of skills (both transferable and specialised) that will equip them for employment or research in a range of cognate disciplines or within the arena of GIS specifically.

GIS is an area of increasing interest for Māori as well. GIS has been used by some roopū to assist their contemporary Māori development opportunities. It has supported and recorded complex textual and oral evidence for the Waitangi Tribunal, and has also been used to assist negotiation and empowerment at both central and local government levels.

POSTGRADUATE DIPLOMA IN GEOGRAPHIC INFORMATION SCIENCE

The Postgraduate Diploma in GIS (PGDipGIS) provides an interdisciplinary approach to Geographic Information Science and consists of 120 points. Graduates from the programme will have advanced knowledge in the field, with the ability to study independently and plan, execute and present the findings of applied GIS projects. The programme involves core and elective courses that cover the GIS foundations, theory, research methodology, data collection and processing analysis, and presentations. The programme commences with a week-long field course (GISC 401).
The PGDipGISC course of study consists of 120 points made up of:

- GISC 401–404
- one or both courses from GISC 405–406
- one or more courses from GISC 410–416
- further points from the MGIS list of approved courses (see below).

The Director of the Joint Board of Studies may approve a substitution for up to 30 points to be taken as local electives/approved courses.

The entry requirement for the PGDipGIS is a Bachelor’s degree, two undergraduate GIS courses and acceptance by the Director of the Joint Board of Studies.

Admission to the programme is in two parts. First candidates must apply to the PGDipGIS at www.mgis.ac.nz and then (after acceptance) to Victoria University.

**MASTER OF GEOGRAPHIC INFORMATION SCIENCE**

The Master of Geographic Information Science (MGIS) comprises 240 points and provides an interdisciplinary approach to Geographic Information Science, including taught courses and supervised research. Graduates will have advanced knowledge in the field, with the ability to study independently, carry out original research; and plan, execute and present the findings of applied GIS projects.

The first year (Part 1) of the programme consists of compulsory and elective courses which cover the GIS foundations, theory, research methodology, data collection and processing analysis, and presentations. The second year (Part 2) involves the completion of a 120 point thesis. The MGIS (Part 1 + Part 2) should normally be completed within 2 years of enrolling or up to five years if a student is studying part time.

The course of study for MGIS consists of:

- **Part 1**: Courses worth at least 120 points, including:
  - GISC 401–404
  - one or both courses from GISC 405–406
  - one or more courses from GISC 410–416
  - further points of MGIS approved courses

  The Director of the Joint Board of Studies may approve a substitution for up to 30 points to be taken as local electives/approved courses.

- **Part 2**: GISC 591 (thesis)
  - Entry to Part 2 requires the acceptance of a thesis proposal by the Joint Board of Studies and either a B+ average from Part 1 courses or special permission from the Director of the Joint Board of Studies.

Admission to the programme must be in two parts. Firstly candidates must apply to the MGIS at www.mgis.ac.nz and secondly (after acceptance) to Victoria University.

**DOCTORATE OF PHILOSOPHY (PHD) IN GEOGRAPHIC INFORMATION SCIENCE**

The PhD is the highest degree offered by the School of Geography, Environment and Earth Sciences and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities.
HUMAN GEOGRAPHY

Human Geography is concerned with spatial dimensions of human behaviour and resource use at various scales, as well as the people’s relationships with places and environments. Grounded in the social sciences and humanities, Human Geography brings critical insights into key issues facing the world today such as urbanisation, inequality, climate change, migration, globalization, indigenous rights and multiculturalism. It helps us question the roles that aspects of identity such as gender, ‘race’, ethnicity, age and ability play in people’s attachment to place, use of space, and participation in cultural, political and economic life.

At Victoria, the postgraduate programme in Geography provides an opportunity for students to advance their understanding of key concepts and research applications in three key areas of Human Geography: urban quality of life, migration, and community engagement under the supervision of expert staff. Alternatively, students may adopt a broad approach to their postgraduate studies, drawing on a range of courses offered in Geography, Physical Geography, Environmental Studies and Development Studies.

Wellington provides an excellent context for the teaching and research in our programme. Many of our courses are informed by relationships with, and contributions from, members of national, regional and local government agencies, non-governmental organisations and consulting companies. Frequently, students carry out research of direct relevance to these organisations, contributing useful and timely knowledge and helping their career prospects. Others head off overseas to carry out research in Asia, the Pacific and Latin America supported by our good staff networks in those regions.

Human Geography (and Geography more generally) will be of direct relevance to students majoring in Geography, Environmental Studies, Development Studies, Sociology, Anthropology, Māori Studies, Pacific Studies, Social Policy, Economics, Politics, International Relations and Tourism.

CAREERS

Students completing a postgraduate programme in Human Geography will be equipped to make critical and methodologically appropriate contributions to a range of fields and professions.

Many of our graduates are employed in policy analysis positions in government agencies and departments like the Ministry for Social Development, the Ministry of Economic Development, the Ministry of Education and Statistics New Zealand. Others have positions in consulting and private research companies like KPMG and Tonkin and Taylor.

Every year a number of students take their skills into more applied work within community organisations, NGOs and voluntary organisations, as well as the work of Wellington Regional and City Councils, and Te Papa Tongarewa The Museum of New Zealand.

Some graduates inspire high school students into university-level Geography through their work as teachers and youth workers. We also have graduates who progress into higher research degrees here and overseas and work for research institutes and universities.
POSTGRADUATE CERTIFICATE IN SCIENCE

The Postgraduate Certificate in Science is offered in all MSc subjects, including Geography. It may appeal to students wanting to ‘test the waters’ with postgraduate study or seeking a postgraduate course-work qualification that does not involve a research project.

The PGCertSc also provides an opportunity for those students who are not able to meet the entry requirements for the BSc(Hons) or MSc Part 1. The PGCertSc requires 60 points of postgraduate study and can be completed in one trimester or part time over two years.

These points can be from Human or Physical Geography courses. The Certificate can be converted into a Postgraduate Diploma in Science with a further 60 points of 400-level approved courses.

The PGCertSc course of study for Geography consists of 60 points from GEOG 401-489, 580, PHYG 401-488.

POSTGRADUATE DIPLOMA IN ARTS (PGDIPARTS)

The Postgraduate Diploma in Arts (PGDipArts) offered by the Faculty of Humanities and Social Sciences is intended primarily for students who are interested in doing advanced study in Human Geography but are not intending to complete the GEOG 489 Research Project.

Admission normally requires a Bachelor’s degree with a major in Geography. Candidates for this diploma shall normally be enrolled for at least two trimesters and shall complete the requirement within four years of first enrolling for it.

The PGDipArts course of study for Geography consists of 120 points from GEOG 401-488, PHYG 401-488.

POSTGRADUATE DIPLOMA IN SCIENCE

This degree is made up of 120 points at 400 and 500-level and does not require a research project, although a project may be included where appropriate. The minimum entry qualification is an undergraduate degree with an average grade of B or higher in relevant 300-level courses.

The PGDipSc can be completed in two trimesters or part time over four years. Good academic grades in the PGDipSc may allow direct entry into and MSc Part 2 (thesis).

The PGDipSc course of study for Geography consists of 120 points from GEOG 401-489, 580, PHYG 401-488.

BA WITH HONOURS AND BSc WITH HONOURS

An Honours degree follows an undergraduate degree and is designed to provide students with depth in a specialised field. Honours are normally a full-time, two-trimester programme, but may be undertaken part time with permission from the School.

The minimum entry qualification is a BA or BSc degree including GEOG324 and GEOG325 plus 40 points of approved courses, ideally with an average grade of B+ or higher in these
courses. Entry into Geography Honours from another undergraduate major may be granted with permission of the Associate Dean. Students are encouraged to cluster their courses into coherent programmes of study around our three main distinctive areas of research:

- Urban quality of life (GEOG 410: Urban Studies, not offered in 2015)
- Migration and resettlement (GEOG 413: Migration, Diasporas and Transnationalism)
- Community engagement (GEOG 404: Geography of Development Studies)

A list of recommended courses to complement these ‘core’ courses is listed over the page. Alternatively students may construct their own programme of study drawing from GEOG and PHYG labelled courses.

A 30 point research project (GEOG 489) is an important part of the year’s work and is a good opportunity to focus your own work within one of our distinctive areas. The project also provides practical training in social science research and how to evaluate published research. You will gain experience of how to manage and execute independent research.

Students wishing to enrol in BA or BSc Honours in Geography must write to the Geography Graduate Coordinator (Philip Morrison) by 2 December prior to the year of intended enrolment stating both their desire to enrol AND the names of academic staff members approached regarding supervision of potential research projects. Early application is recommended although approval to enrol in Honours may be granted until the 10 January of the year of study.

You are advised to select the courses you wish to take early and begin reading over the summer prior to enrolment. If you are intending to take GEOG 489 (Research Project), you should identify a possible topic as soon as possible and begin background reading, thinking or fieldwork as advised by a member of staff. Once enrolled, sample the courses offered in the first two weeks and are ready to finalise which courses you will take by the end of the second week. It is advisable to consider the assessment and structure of each course, the timing of assignment deadlines and the overall complement of the subjects when making your decision.

The overall grade of Honours awarded is based upon the overall assessment of the calibre of a student’s work across all the courses taken, by the Geography Graduate Coordinator in consultation with academic course coordinators and/or supervisors.

The BA Honours and BSc Honours courses of study consist of

- GEOG 489
- 90 points from GEOG 401–488, PHYG 401–488.

*Note: Up to 60 points of these 90 points can be from other disciplines listed below with approval from the Geography Graduate Coordinator. Some prerequisites may be required.
Urban quality of life

Complementary recommended courses include:

- ENVI 530: Special Topic: Drivers of Human Behaviour
- MDIA 409: Special Topic: Media and the City
- PSYC 405: Environmental Psychology (not offered in 2015)
- PSYC 426: Social Psychology and Wellbeing
- SARC 451: Critical Theory of the Designed Environment
- SARC 452: History of the City in Landscape
- SARC 455: House and Home
- SARC 482: Special Topic: Resilience by Design, Ecological Footprinting for Resilient Regional Planning
- SOSC 401: Rethinking the Social

Migration and resettlement

Complementary recommended courses include:

- GEOG 404: Geography of Development Studies (refugee resettlement)
- INTP/POLS 430: Politics of International Migration
- INTP 448: Identity and World Politics
- LAWS 437: Citizens, Migrants and Refugees (not offered in 2015)
- PASI 403: New Zealand Policy and Pacific Peoples
- PSYC 432: Applied Cross-cultural Psychology
- SOSC 417: Comparing Ethnic Relations in Settler Societies (not in 2015)

Community engagement

Complementary recommended courses include:

- ANTH 408: Ethnographic Research
- DEVE 512: Development Practice
- ENVI 525: Māori Environmental and Resource Management
- ENVI 526: Political Ecology of Conservation
- KURA 401: Research as Praxis: Indigenous Perspectives
- KURA 403: Critical Pedagogies of Place
- MAOR 411: Te Ao Hurihuri: Issues in Contemporary Māori Society
- PASI 404: Special Topic: Pacific Epistemologies in Research Methodologies
- POLS 414: Special Topic: Political Participation and Representation
- SARC 482: Special Topic: Resilience by Design, Ecological Footprinting for Resilient Regional Planning

MASTER OF SCIENCE

A Master of Science in Geography consists of two parts: Part 1 (the first year) involves coursework and a research preparation course. Part 2 (the second year) is a full-time research project, leading to a thesis. Full-time enrolment is usually between four trimesters and two years. Part-time study may be undertaken with permission from the Head of School.
Entry into the MSc for Geography requires completion of an undergraduate degree or relevant graduate or postgraduate diploma, including 60 points from GEOG 301-399.

Study in Part 1 consists of GEOG 580 (Research Preparation and at least 105 points from the BSc(Hons) or other schedules. We encourage students to focus their studies in one of our distinctive areas noted above, but any coherent programme of study may be undertaken.

Study in Part 2 is entirely by thesis research. No coursework is required for Part 2 but students may be invited to sit in on courses that would aid their studies. Full details are provided in the University Calendar and students are invited to discuss their research interests with members of staff.

There is no automatic transition from Masters Part 1 to Part 2. You will require a grade average of B+ in your Part 1 courses. If you have a lower grade average, you will need to discuss your options with the Graduate Coordinator and you may be redirected into a suitable postgraduate diploma. You may also enter Part 2 with an Honours degree or postgraduate diploma.

The MSc may be awarded with Honours if both Parts 1 and 2 of the degree are completed within two and half years of first enrolling for the degree. A candidate who is not eligible for Honours may be awarded the MSc with Distinction or Merit. To be eligible, a full-time candidate shall complete all work for Part 2 within one and half years from the date of first enrolment in Part 2. The award of Honours or Merit or Distinction is based upon overall assessment of the calibre of a student’s work across all the courses by the Graduate Coordinator in consultation with academic course coordinators and/or supervisors.

The course of study for an MSc in Geography is as follows:

- **Part 1**: GEOG 580; 105 points in approved courses from (GEOG 401–488, PHYG 401–488)
- **Part 2**: GEOG 591 (thesis).

See list (p.36) of approved courses for BSc and BA Honours in Geography for other courses which may be included in the MSc with approval from the Graduate Coordinator.

**MASTER OF ARTS BY THESIS**

To enrol in a Master of Arts (MA) in Geography you must have a BA (Hons) degree with a First or Second Class Honours in Geography, or related subject (with permission of the Associate Dean). Prospective students must also obtain a recommendation by a potential project supervisor before enrolment. The course of study for an MA in Geography is GEOG 591 (thesis).

**DOCTORATE OF PHILOSOPHY (PHD) IN GEOGRAPHY**

The PhD is the highest degree offered by the School of Geography, Environment and Earth Sciences and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities.
PHYSICAL GEOGRAPHY

Physical Geography is the branch of natural science that deals with understanding the processes and patterns in the physical environment. At the heart of this discipline is the concept of Earth Systems Science, in which the Earth is made up of the inter-connected realms of the atmosphere, biosphere and geosphere. The flows of energy and matter that connect these components are studied in the field and modelled at all spatial scales, from global to local, and at timescales that enable contemporary environmental change, hazards and issues to be understood in an appropriate historical context.

The core areas within Physical Geography at Victoria University are geomorphology, climatology, hydrology, glaciology and Quaternary environmental change, and these are linked both with scientific disciplines such as Geology, Geophysics Biology, Physics, Chemistry, as well as with the Social Sciences, to inform current and future generations of the critical importance of human-environment relations to life on Earth. We emphasise interdisciplinary learning, research and the development of key skills in careful field observation, data measurement and computer modelling. Such skills are increasingly being utilised by physical science practitioners in research, education and in the private sector.

The School of Geography, Environment and Earth Sciences provides a unique environment in which to develop teaching and research in the Physical Geography by sharing staff and resources with Geology, Geophysics, Human Geography, Environmental Studies, Development Studies, the Antarctic Research Centre and the Climate Change Research Institute.

CAREERS

There is currently exceptionally strong demand for graduates in Physical Geography. Many of our graduates occupy roles in resource management, land management and planning. Others are engaged in aspects of environmental monitoring, resource surveys and impact assessment.

Physical geography graduates are employed in many agencies of central government, including Crown research institutes (such as GNS Science, NIWA), by the Ministry for the Environment, Department of Conservation, Ministry of Civil Defence and Emergency Management, Ministry of Business, Innovation and Employment, Ministry for Primary Industries, as well as catchment boards, regional and district planning authorities and private consultancies (such as Tonkin & Taylor, URS Ltd, Opus).

Some graduates go on to teach geography in secondary schools, inspiring future generations and highlighting the importance of this subject for understanding the world we live in. Many of our students also continue to higher research degrees, such as PhDs at institutions in New Zealand or abroad.
POSTGRADUATE CERTIFICATE IN SCIENCE

The Postgraduate Certificate in Science is offered in all MSc subjects, including Physical Geography. It may appeal to students wanting to ‘test the waters’ with postgraduate study or seeking a postgraduate course-work qualification that does not involve a research project.

The PGCertSc also provides an opportunity for those students who are not able to meet the entry requirements for the BSc(Hons) or MSc Part 1. The PGCertSc requires 60 points of postgraduate study and can be completed in one trimester or part time over two years. It can be converted into a Postgraduate Diploma in Science with a further 60 points of 400-level approved courses.

The PGCertSc course of study for Physical Geography consists of 60 points from PHYG 404-489, 580.

POSTGRADUATE DIPLOMA IN SCIENCE

The degree is made up of 120 points at 400 and 500-level and does not require a research project, although a project may be included where appropriate. The minimum entry qualification is an undergraduate degree with an average grade of B or higher in relevant 300-level courses. The PGDipSc can be completed in two trimesters or part time over four years. Good academic grades in the PGDipSc may allow direct entry into MSc Part 2 (thesis).

The PGDipSc course of study for Physical Geography consists of 120 points from PHYG 404–489, 580.

BSC WITH HONOURS

An Honours degree follows an undergraduate degree and is designed to provide students with depth in a specialised field. Honours are normally a full-time, two-trimester programme, but may be undertaken part time with permission from the School. The minimum entry qualification is a BA or BSc degree including GEOG 324 and GEOG 325 plus 40 points of approved courses, ideally with an average grade of B+ or higher in these courses. Entry into Geography Honours from another undergraduate major may be granted with permission of the Associate Dean.

A 30 point research project is an important part of the year’s work and is a good opportunity for further study in a selected topic. The project also provides practical training in social science research and how to evaluate published research. You will gain experience of how to manage and execute independent research.

Students wishing to enrol in BSc Honours in Physical Geography should write to the Physical Geography Graduate Coordinator, Kevin Norton, by 20 December stating both their desire to enrol in Honours AND the names of academic staff members approached regarding supervision of potential research projects. Early application is recommended although approval to enrol in Honours may be granted until 10 January of the year of study.

You are advised to select the courses you wish to take early and begin reading over the summer prior to enrolment. If you plan to take PHYG 489 (Research Project), you should identify a topic as soon as possible and begin background reading or fieldwork as advised by a member of staff. Once enrolled, sample the courses offered in the first two weeks and be ready to finalise which courses you will take by the end of the second week. It is advisable to
consider the assessment and structure of each course, the timing of assignment deadlines and the overall complement of the subjects when making your decision.

The overall grade of Honours awarded is based upon the overall assessment of the calibre of a student’s work across all the courses taken, by the Physical Geography Graduate Coordinator in consultation with academic course coordinators and/or supervisors.

The BSc(Hons) in Physical Geography course of study consists of
- PHYG 489
- 90 points in an approved combination from PHYG 404–488 or other approved courses; at least 30 points shall be from PHYG 404–488.

MASTER OF SCIENCE

A Master of Science in Physical Geography consists of two parts: Part 1 (the first year) involves coursework and a research preparation course. Part 2 (the second year) is a full-time research project, leading to a thesis. Full time enrolment is usually between four trimesters and two years. Part time study may be undertaken with permission from the Head of School.

Entry into the MSc for Physical Geography requires completion of an undergraduate degree or relevant graduate or postgraduate diploma, including 80 points from GEOG 301–399.

Study in Part 1 consists of at least 120 points from the BSc(Hons) or other schedules. Study in Part 2 is entirely by thesis research. No coursework is required but students may be invited to sit in on courses that would aid their studies. Full details are provided in the University Calendar and students are invited to discuss their research interests with members of staff.

There is no automatic transition from Master’s Part 1 to Part 2. You will require a grade average of B+ in your Part 1 courses. If you have a lower grade average, you will need to discuss your options with the Graduate Coordinator and you may be redirected into a suitable postgraduate diploma. You may also enter Part 2 with an Honours degree or postgraduate diploma.

The MSc may be awarded with Honours if both Parts 1 and 2 of the degree are completed within two years of first enrolling for the degree. A candidate who is not eligible for Honours may be awarded the MSc with Distinction or Merit. To be eligible, a full time candidate shall complete all work for Part 2 within one year from the date of first enrolment in Part 2. The award of Honours or Merit or Distinction is based upon overall assessment of the calibre of a student’s work across all the courses taken by the Graduate Coordinator in consultation with academic course coordinators and/or supervisors.

The course of study for an MSc in Physical Geography is as follows:
- **Part 1**: PHYG 580; 105 further points from PHYG 404–488, of which up to 30 points may be replaced by other approved courses
- **Part 2**: PHYG 591 (thesis).

DOCTORATE OF PHILOSOPHY (PhD) IN PHYSICAL GEOGRAPHY

The PhD is the highest degree offered by the School of Geography, Environment and Earth Sciences and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities.
PLANNING A PROGRAMME

Select your programme from the following 400 and 500 level courses and from approved courses from other schools as listed under the individual degree programmes. See this website: www.victoria.ac.nz/search to search on course numbers.

COURSE INFORMATION INDEX

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course reference number</th>
<th>Title</th>
<th>Points</th>
<th>Trimester</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 410</td>
<td>CRN 1691</td>
<td>URBAN STUDIES</td>
<td>30 PTS</td>
<td>2/3</td>
</tr>
</tbody>
</table>

400/500-LEVEL GEOGRAPHY COURSES

<table>
<thead>
<tr>
<th>GEOG 404</th>
<th>CRN 1679</th>
<th>GEOGRAPHY OF DEVELOPMENT STUDIES</th>
<th>30 PTS</th>
<th>2/3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment:</td>
<td>Internal assessment involving a mix of individual assignments and team based work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator:</td>
<td>A/Prof Sara Kindon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text:</td>
<td>All set texts are available on Blackboard</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Participatory development practice is both in vogue and in crisis. Asking ‘why?’ and ‘how?’ this contradictory state of affairs has come to be, we grapple first-hand with praxis (intersections of theory and practice) in projects with/for refugee-background young people in Wellington. The course is grounded within ideas and research in Human Geography and Development Studies, and is also relevant to students from Anthropology, Education, Environmental Studies, Māori Studies, Pacific Studies, Politics, International Relations and Sociology.

About half the course time is spent in seminars; the analysis and discussion of key papers, videos and other texts; workshops involving hands-on practice with participatory techniques; and feedback and evaluation sessions designed to integrate theory with practice. The other half is spent ‘hands-on’ in participatory projects outside of the classroom with a range of participants and local partners.

Students will gain valuable skills in participatory project management, participatory facilitation and research, cross-cultural fieldwork, teamwork and presentation. Such knowledge and skills can provide a useful foundation for Honours research projects in Geography, as well as subsequent thesis work in Human Geography via an MA by thesis or MSc Part 2 (by thesis), Master of Development Studies (Part 2) and Master of Environmental Studies (Part 2). The experience gained is valued by many agencies working in community development in New Zealand and overseas.
In GEOG 406 we investigate what some commentators over the last 20 years have called, the ‘crises of place and identity’ generated by modernity and global capitalism. We explore the re-presentations, negotiations and contestations over places and identities at various scales.

At the heart of the course are three recurring questions:

1. How are the geographic (re)workings of power manifesting themselves in new understandings of places and identities?
2. How are these places and identities being politicised? and
3. Who benefits or loses out as a result of this politicization?

To carry out the above explorations and questions, we engage different theoretical frameworks (feminist, poststructuralist and postcolonial) and work through fieldwork, discussion and student-led fieldtrips/seminars to ‘ground’ and experience the ideas explored.

We also consider their implications for how geographers can contribute to more progressive understandings of place and contribute to social justice.

Text (recommended):
Massey, Doreen 2005 For space, Sage, London.

GEOG 410 CRN 1691 URBAN STUDIES 30 PTS 2/3

Assessment: Survey applications review 20%, application of method 30%, a short research project including literature review 20%, an analysis of a specific topic using an appropriate survey 30%.

Coordinator: Prof Philip Morrison

This course is open to graduate students in Human Geography, Development Studies and Environmental Studies as well as other social science disciplines. Its aim is to help prepare students for the quantitative skills required in mixed methods research. Specifically it introduces the analysis of individual responses to questions on a wide range of social indicators covering social behaviour, attitudes and values in mainly urban environments. Covered will be those to do with subjective well-being—responses to questions on happiness, satisfaction, quality of life. The focus will be on the way such responses by different demographic and social groups vary across a range of different environments.

Surveys referred to will range from the large, repeated international instruments such as the World Values Survey [www.worldvaluessurvey.org](http://www.worldvaluessurvey.org) through to the local New Zealand Quality of Life Surveys [www.bigcities.govt.nz](http://www.bigcities.govt.nz).

Students are encouraged to consult other large surveys they have access to including those on specific world regions such as Europe (Eurobarometer) [www.columbia.edu/cu/lweb/indiv/dssc/eds/eurobarometer.html](http://www.columbia.edu/cu/lweb/indiv/dssc/eds/eurobarometer.html). Increasingly surveys conducted in other regions are available for analysts to download, such as Latinobarometer and East Asian Barometer.

This course is primarily designed for students who are interested in, or may require access to, information from a much larger set of respondents than they would normally be able to collect independently. Such information will be useful within the context of the course, an Honours research project, or may be complemented in MA or MSc thesis work in the following year with qualitative small group research as taught in other courses.

**GEOG 411 CRN 1679 SPECIAL TOPIC: GEOGRAPHIES OF 30 PTS 1/3 FOOD SECURITY - CLIMATE CHANGE AND THE FUTURE OF FOOD**

Assessment: Internal assessment comprising weekly reflection papers (45%), 2 short assignments (2 x 5%), seminar presentation (45%)

Coordinator: Dr Kelli Archie


This course considers the reciprocal relationship between Earth’s changing climate and the human production and consumption of food. With attention to current theories and case studies, students will develop a comprehensive understanding of food systems in relation to global environmental change, with a specific focus on livelihoods, adaptation, sustainability, and justice. Food production and food systems epitomize the often precarious nature of human-environment interactions, and agriculture has fundamentally altered biophysical and economic landscapes around the world.

We will explore the evolution of intensive food production, specifically in how humans have changed the land surface, and the environment, in order to meet increasing food demand. We will also learn how climate change, and the associated extreme events and variability, will challenge our ability to grow and harvest crops in a timely fashion to meet nutrition standards across the world. Finally, this course will review the environmental footprint of emerging food movements, their efficacy, and a host of alternative future food production trajectories that promise a range of environmental, socio-economic and nutritional impacts.
The world is being transformed by cross-border links, forged by migrants and their
descendants. Some of these linkages are temporary in nature, sustained by frequent
mobility, while others are more durable, and are maintained by constant communication over
long distances, facilitated by new technologies. Still others are older than the map of nation-
states that has since been superimposed over geographically dispersed ethnic, religious and
political groups. Whether old or new, these linkages have profound implications for how we
understand, explain and manage the modern world.

This course introduces advanced students to key scholarly and policy debates on the
dynamics of migration, diasporas and transnationalism, expanding on central geographical
themes at 100 to 300-level.

The themes are also relevant to students from a wider range of social science backgrounds
including economics, sociology, anthropology, and political science. The main piece of
assessment is an original research proposal. Students will be guided towards this through a
series of seminars and assignments.

Geographic Information Systems (GIS) can be used to answer a number of spatial questions. GIS
is currently used in a variety of areas, such as criminal profiling, biology, geography, disaster management, marketing, access to health care, conservation monitoring and archaeology. This course will introduce students to the principles of GIS including thinking about spatial problems, appropriate data, types of analysis and how best to present results.

The course runs a number of concurrent practical sessions, which allows students to build experience of a particular GIS software program (ArcGIS).
**GEOG 440  CRN Various  DIRECTED INDIVIDUAL STUDY  30 PTS**

Prerequisite: Permission of the Head of School

A supervised programme of study approved by the Head of School. For more information please contact the Graduate Coordinators Philip Morrison and Kevin Norton for Geography and Physical Geography respectively.

**GEOG 489  CRN 10020  RESEARCH PROJECT  30 PTS  1+2/3**

Assessment: You are required to submit work regularly towards your research project. Assessment is based on the final paper/report produced.

Coordinator: Prof Philip Morrison

Timetable: Your individual timetable for this course is flexible. However, you are recommended to allocate the following times to research related activities: Weekly supervision meetings with your supervisor; Two hours per week of seminar and discussion in GEOG 580 (2/3 only).


GEOG 489 offers BA or BSc with Honours students in Geography the opportunity to design and carry out a modest independent research project on a topic of your choice under the guidance of a supervisor. It involves training support in research design, approach and methods through one-on-one sessions with a supervisor, the weekly GED (Geography, Environment and Development) Research seminars, and through participation in the GEOG 580 Research Methods course in trimester 2.

You will need to discuss a possible topic with a staff member prior to applying for admission to Honours to the Graduate Coordinator Philip Morrison in December 2014. Please consider formulating a topic in one of our three primary areas of research activity (see page 36).

Once you have identified a topic, an interim supervisor will be allocated to you, and you should work with this person to develop your research proposal so that you are ready to begin your research in earnest upon enrolment. The sooner you can narrow down your focus the better it will be for your work throughout the year. Do not wait to enrol before starting to do some exploratory research and drafting your proposal. Once enrolled, your proposal will be reviewed by the Graduate Coordinator (Philip Morrison) and your interim supervisor. You will receive feedback so that you can develop your project. Once your proposal and topic are approved, you will be allocated to a permanent supervisor with whom you will work throughout the year.
During the year, you will then be expected to:
- submit an abstract/topic statement (March)
- submit a research proposal (March)
- provide a written progress report (May)
- give a short presentation on your approach and findings (August)
- submit a draft version of your paper to your supervisor (September)
- submit the final version of your paper (October).

**GEOG 580       CRN 7766       RESEARCH PREPARATION       15 PTS       2/3**

Assessment: Literature review 30%, proposal presentation 20% and a full research proposal 50%
Coordinator: Prof Philip Morrison

This course introduces you to good research practice and is focused on the development of a research proposal. It is compulsory for students enrolled in Part 1 of an MSc(Hons) programme and classes are open to students carrying out GEOG 489. You will participate in a series of core lectures and workshops, as well as targeted discipline-specific workshops.

The course covers some of the generic issues and skills involved in research, such as choosing a topic, research design, data collection and analysis, communication and report writing. It also examines some of the issues and techniques that are particularly relevant to Geography research such as fieldwork, field methods, research ethics and relationships with participants.

By the end of the course, students should:
- understand the nature and value of research
- understand the research process in terms of its main stages of planning, preparation; field research, data analysis, writing and presentation
- be aware of the importance of preliminaries - developing proposals, securing funding and mapping out (and later managing) budgets
- have a basic knowledge of epistemologies and methodologies, and the place of quantitative and qualitative research methods
- be aware of a range of appropriate field methods in working with different groups of human participants.

Competence in the above will be demonstrated through the preparation of research plans, budgets and a detailed research proposal that will form the basis of Master's thesis research. GEOG 580 is co-taught with DEVE 514 and ENVI 521.
GISC 401  CRN 23149 FOUNDATIONS OF GEOGRAPHIC INFORMATION SCIENCE 15 PTS 1/3
Prerequisite: Enrolment in a GIS postgraduate programme  
Assessment: Written field work reports 30%, concept map of GIScience sub area 50%, in class and forum discussions of readings 20%
Coordinator: Femke Reitsma (University of Canterbury)

An essential introduction to postgraduate GIS for the MGIS/PGDipGIS programmes. Students will cover a range of topics including conceptual models, representation, technology, data capture, theory and critical spatial thinking. Students will participate in an intensive field course where they will meet peers and staff, and learn and practice new skills.

The course will begin with a week-long residential intensive programme where students will gain practical knowledge on the use of equipment and data capture as well as learn about the breadth of GIScience research. The course is normally held one week before the start of trimester 1 (23-27 February 2015).

The following ten weeks will involve both synchronous and asynchronous activities via the KAREN network (remote access seminar facility), which will include:

- two discussion tutorials building on prior online forum discussions that consider selected current research topics
- creation of a concept map that explores the breadth of a particular subarea of GIScience
- synchronous presentations of the concept map.

GISC 402  CRN 23150 GIS RESEARCH 15 PTS 2/3
Prerequisite: Enrolment in a GIS postgraduate programme  
Assessment: Peer evaluated research proposal draft 20%, final research proposal 60%, proposal presentation 20%
Coordinator: Femke Reitsma (University of Canterbury)

This course educates students in the nature and breadth of GIS research undertaken in academia, industry and government. It also guides students in the development of a proposal to undertake their own research in GIS. The course includes a series of guest lecturers providing insight into the landscape of employment or further research.

The course will be delivered mainly through lectures and activities presented synchronously and asynchronously online. Guest lectures on GIS research will be conducted via the KAREN access grid (or in person at the host institute), and these will be alternated with lectures and activities on GIS research skills. A high level of student participation in reading, discussion and group work is expected.
This course provides a theoretical grounding in the various ways geographic information can be visualised. The course introduces the concepts, principles, theories and applied components of cartography and geovisualization. Beyond the conventional map display, alternate representations, interfaces to geographic data, visual exploration of datasets and cartographic generalisation will be covered.

The course is delivered via video podcasts accompanied by set readings. These podcasts and readings will be discussed in the allocated class discussion time. Students are also expected to complete a series of guided tutorials.

This course provides an introduction to a range of statistical techniques used in the analysis of spatial data. A comprehensive laboratory programme uses a variety of software packages to explore visualization, exploratory spatial data analysis, spatial autocorrelation, point pattern analysis, spatial statistics and the modifiable areal unit problem (MAUP).

The course is taught using blended learning, with a combination of on-campus and on-line delivery:
- Lectures will take place in short intense bursts on-campus
- Laboratories will take place every fortnight. Synchronous online weekly discussion forums will also be utilised to develop research skills.

A high level of student participation in reading, discussion and group work is expected.

This course will develop students’ ability to use programming methods for extending existing GIS software and composing open source components for GIS functionality. The knowledge and skills learned in this course will support a range of applications including data processing, visualisation, advanced spatial analysis, public participatory GIS and webGIS. This course will be taught in a combination of lectures and practical laboratory exercises. Lectures will be streamed to allow students at Victoria to participate in the course.
This course explores the use of data from earth orbiting satellites for monitoring and analysing the state of the environment from local to regional scales. It provides practical experience in data analysis from a range of earth observation sensors to obtain information on surface properties in three dimensions.

The course will be taught through seminars, small group discussions, and laboratory sessions. Students will be provided with a reading list for the seminars and are expected to contribute to the discussion. Pre-seminar readings will be completed prior to the relevant seminar (approximately 10 hours per week). Students will be asked to give a 10-minute summary of the topics based on their pre-seminar readings.

The first half of the trimester will concentrate on the satellite applications and satellite data lab work. Applications, the literature review, essay, and seminar presentation will be completed during the second half of the trimester and will develop student skills in planning research and communicating it effectively.

This course will provide students with an introduction to the application of GIS in the study of health, disease and health care. Students will be expected to apply these GIS methods in developing a research proposal.

The course will be taught with a combination of several block-taught lectures with academic staff and input from guest lecturers knowledgeable in the use of GIS in health research, public health and health care, along with self-guided laboratory work. The format of the teaching includes formal lectures, class discussion, prescribed reading and practical GIS work in self-guided laboratories. The course is based in Christchurch, but as part of the MGIS is accessible to distance students in Wellington. As such, teaching will be conducted through KAREN (the access grid).
This course builds on GISC405 to develop students’ ability to use python in GIS software such as ArcGIS as well open source, and to understand and create spatial algorithms. The course is largely laboratory and project based, with the context and theoretical framework being presented in lectures and tutorials to guide hands on development.

This course will be taught in three intensive full-day sessions, which mix lectures with laboratory exercises throughout the day, ending with a laboratory assignment the students will complete during the rest of the week. The rest of the semester will involve weekly tutorials relating to the group programming project.

Students will gain a broad understanding of the techniques and issues involved with position measurement and capture of geographic data or images. Much of the course material will concentrate on airborne photography, but other remote sensing, positioning and data gathering platforms will be included, including GPS, oceanic platforms and sensors.

The course will be taught through a combination of weekly lectures and regular laboratory/practical work. Students will be introduced to key concepts during lectures, which will be complemented with practical exercises during the laboratories. Students will also be required to complete a research mini-project in a geospatial measurement topic, choosing from a suggested list or proposing their own subject. Students have the opportunity to take part in an aerial photography mission if conditions and weather permit. This will include a training tutorial and some data post processing.

This course allows students to use their knowledge gained from the PGDipGIS/MGIS postgraduate courses within business, government and non-profit organisations while gaining career-related work experiences, exploring compatibility with specific careers and companies, and becoming more mature professionally. This course will be delivered through experiential learning, with students placed in GIS internship positions in industry/government/ not-for-profit organisations where they actively participate in GIS project work.
A 0.125 EFTS MGIS internship must incorporate a minimum of 100 hours of work in a supervised position that involves GIS development, support, administration, or maintenance. This may be achieved as a part-time internship position in trimester 2, or as a full-time summer internship.

As GEOG 415 is an introductory GIS course, it cannot be included in the MGIS or PGDipGIS qualifications. However, it can be used as one of the two prerequisite GIS courses for the programme.

**GISC 416 CRN 23160 SPECIAL TOPIC: CONSERVATION GIS 15 PTS 2/3**

**Prerequisites:** GEOG 215, 315 or permission of Programme Director

**Assessment:** 2 reports 60%, presentation 20%

**Coordinator:** Barbara Breen (AUT)

Students will be required to locate, collate and review appropriate research papers in the field of spatial conservation ecology. They will also be provided with select research papers of variable quality (poor to outstandingly high) that they must critique, focusing on experimental design, expression of results, interpretation and discussion. Students will be required to submit written assignments and make oral presentations based on these focus points or literature reviews.

In addition to knowledge acquisition in a specific area, this course is designed to advance students’ skills in information location and retrieval, understanding of spatial conservation ecology, foster critical analysis of the research and statistical bases underlying conclusions reached in the literature, examine the relative strengths and weaknesses of different methods of spatial analyses, literature synthesis, understand theoretical perspectives relevant to the conservation GIS, and demonstrate an ability to identify the limitations of current research, and potential areas for further research.
**LEVEL PHYSICAL GEOGRAPHY COURSES**

**PHYG 413**  CRN 27050  **GENERAL CIRCULATION OF THE ATMOSPHERE**  15 PTS  2/3

- **Prerequisites:** GEOG 220 or GEOG 321
- **Restrictions:** GPHS 426, PHYG 416 in 2014
- **Coordinator:** Prof James Renwick
- **Assessment:** Essay 30%, in-class presentation 15%, final examination 55%

This course provides an overview of the circulation of the global atmosphere. Starting from the basic drivers of the climate system (radiation balance, earth rotation), we will explore the transport of energy and momentum in the atmosphere, and learn how the mean circulation is maintained. Natural variability of the climate will be approached by outlining the tropical climate and how it varies, and how the action of atmospheric waves transports energy outside the tropics. We will cover the key modes of variability of the Southern Hemisphere circulation, and round out the course with an outline of how human-induced climate change is affecting the climate system.

Students should have at least a basic knowledge of climate. Most of the course material is descriptive, though simple physical equations are introduced when appropriate.

**PHYG 414**  CRN 15669  **CLIMATE CHANGE: LESSONS FROM THE PAST**  15 PTS  1/3

- **Restriction:** PHYG 412
- **Assessment:** Course work 50%, final examination (2 hours) 50%
- **Coordinator:** Prof Rewi Newnham
- **Text:** No set text, students will work from journal literature

The course examines the contemporary issue of climate change in the context of the past (Quaternary palaeoclimate) and future projections. It aims to develop a longer-term perspective on contemporary climate change than can be achieved from the instrumental era.

A key concept is ‘lessons from the past’ derived from the record of environmental change during the Quaternary period (since c. 2.6 million years ago) and how these can inform understanding of contemporary climate change science as well as helping to evaluate future projections of climate and climate impacts. The emphasis here will be on terrestrial records and environments (although marine and ice core records remain relevant) and a key focus will be New Zealand in the context of global patterns. Recent advances in the periodical literature are emphasised.

About half the course time is spent in seminars and critical discussion of key papers with contributions from specialist staff from the Climate Change Research Institute and Antarctic Research Institute. A requirement of the course is attendance at the two-day Quaternary Techniques Workshop held at GNS Science in Lower Hutt. This conference style workshop draws on expertise from GNS and other institutions to provide state-of-art classroom and laboratory instruction to postgraduate students of the Quaternary from all over New Zealand (and sometimes Australia). Students of PHYG414 will be required to pay $100 to cover the full costs (fees, course materials, catering including conference dinner and travel to/from Victoria).
**GEOG 415**  CRN 25033  **INTRODUCTION TO GEOGRAPHIC INFORMATION SCIENCE AND ITS APPLICATIONS**  15 PTS  2/3

Restriction:  GEOG 215, PHYG 415
Assessment:  Internal assessment
Coordinator:  Dr Mairéad de Róiste

**Note:** You cannot enrol in this course if you have previously completed either GEOG 215, GEOG 315, PHYG 415 (to 2012).

GIS can be used to answer a number of spatial questions and is currently used in a variety of areas, such as criminal profiling, biology, geography, disaster management, marketing, access to health care, conservation monitoring and archaeology. This course will introduce students to the principles of GIS including thinking about spatial problems, appropriate data, types of analysis and how best to present results.

The course runs a number of concurrent practical sessions, which allows students to build experience of a particular GIS software program (ArcGIS).

As GEOG 415 is an introductory GIS course, it cannot be included in the MGIS or PGDipGIS qualifications. However, it can be used as one of the two prerequisite GIS courses for the programme.

---

**PHYG 417**  CRN TBA  **ENVIRONMENTAL MODELLING**  15 PTS  2/3

Prerequisite:  Not offered in 2015
Assessment:  Project design 20%, project report 40%, exam (3 hour) 40%
Coordinator:  TBA

This course introduces students to the variety of modelling tools and other assessment methods available for environmental system assessment. It looks at how a variety of different environmental models, including hydrological, climatological, ice-sheet, geomorphological, biological and chemical models, are built and implemented, working through the process with simple examples in-class. It also introduces a range of available models in the commercial and research domains, examining situations in which particular models may be more or less suitable for a given purpose. Data and model uncertainty are covered, and techniques to reduce and quantify such uncertainty explained. Finally, case studies applying and interpreting model results are used to explore how such tools can be used for environmental evaluation, predictions, and to improve our understanding of both specific sites and fundamental processes.

Please note this course requires use of the programme Matlab, which is available on school teaching laboratory computers. If you wish to use this programme off-campus, you will need to purchase your own student license (approximately NZD$150).
This course explores the application of geomorphology to understanding landscape change. The focus is on landscapes as dynamic entities in which tectonic and erosive forces combine to create, shape and ultimately destroy topography. These dynamic processes act constantly to drive changes in landforms either towards or away from quasi-stable states. Understanding Earth's surface requires knowing how landforms have developed, which processes are currently acting on these surfaces, and how they might respond to future change. To this end, geomorphology is presented as an interdisciplinary subject, drawing on concepts and tools from across the physical sciences in an effort to disentangle the often combined effects of geologic, climatic, and anthropogenic forces. A small number of specific topics and methods will be examined with reference to the modern geomorphic literature.

This course aims to provide an understanding of the dominant components of the water cycle at local and global scales and to provide the skills necessary to undertake an analysis of the water resources of a region or catchment. It covers three broad areas. Firstly, the processes governing surface, subsurface and atmospheric movement of water are introduced. Global water and energy cycles, soil water flow processes, evapotranspiration, groundwater and catchment scale rainfall runoff and solute transport processes are covered. Secondly, it focuses on the assessment, measurement, and quantification of surface and subsurface water resources, together with the methods and requirements of data acquisition. Issues relating to the assessment, quantification, and monitoring of water quality will also be studied. Finally, the course briefly summarises the effects, both physical and social, of manipulating water resources and the mechanisms available for resolving conflicting usage requirements.
Through a field examination of the landform systems of New Zealand, this course analyses contemporary and past landform evolution, and its impacts on society. The course is focused around an intensive fieldwork programme conducted on the South Island, whereby geomorphic systems from the high alps to coastal plain are investigated and the linkages between them discussed. Issues such as climate change and glacial processes, hillslope instability, coastal erosion and landform evolution are covered in the context of the spectacular environment of the active New Zealand landscape.

For more information please contact the Graduate Coordinator (Kevin Norton)

This course involves the formulation and execution of a research project of your own choice under the guidance of a staff member. It is compulsory for all those enrolled for BSc(Hons) in Physical Geography.

If you are considering taking an honours degree in Physical Geography make an appointment to see the Graduate Coordinator, Dr Kevin Norton, who will offer guidance, discuss resources, and point you to potential supervisors. It is important that you discuss possible research topics with appropriate staff before the academic year commences.

PHYG 489 provides you with the opportunity and forum to design and carry out an independent research project on a topic of your choice. It involves training support in research design, approach and methods through one-on-one sessions with a supervisor, the weekly
GED (Geography, Environment and Development) Research seminars, and through participation in the ESCI 580 Research Preparation course in trimester 2.

You will need to discuss a possible topic with a staff member prior to applying for admission to Honours to the Graduate Coordinator Kevin Norton in December preceding the year of study.

Once you have identified a topic, an interim supervisor will be allocated to you, and you should work with this person to develop your research proposal so that you are ready to begin your research in earnest upon enrolment. The sooner you can narrow down your focus the better it will be for your work throughout the year. Do not wait to enrol before starting to do some exploratory research and drafting your proposal. Once enrolled, your proposal will be reviewed by the Graduate Coordinator and your interim supervisor. You will receive feedback so that you can develop your project. Once your proposal and topic are approved, you will be allocated to a permanent supervisor with whom you will work throughout the year.

Throughout the year, you will also be expected to:

- submit a topic statement (March)
- submit a research proposal (March)
- provide a written progress report (May)
- give a short presentation on your approach and findings (August)
- submit a draft version of your research paper (September)
- submit the final version of your research paper (October).

**ESCI 580  CRN 25137  RESEARCH PREPARATION  15 PTS  1+2**

- Assessment: Internal assessment
- Coordinator: Dr Daniel Sinclair

The course aims to provide the skills and techniques required for successful scientific research in Physical Geography and Earth Sciences including: philosophy of science; bibliographic database searches; writing, reviewing and revision of proposals, abstracts and journal papers; strategies for poster and oral presentations. Students will work with their MSc thesis project supervisor to develop and submit for grading a research proposal for their project. This is due at the end of the course as part of the assessment, along with an oral presentation of the research proposal.
Meeting times for Geology Honours course seminars are organised during the first week of Trimester 1, to suit the commitments of staff and students. Generally, each full course consists of one 2-hour seminar per week, for approximately 8–10 weeks. All courses are worth 15 points, apart from the project (GEOL 489), which is 30 points.

**ESCI 403 CRN 15245 STRATIGRAPHY AND PALEOENVIRONMENTS 15 PTS 1/3**

<table>
<thead>
<tr>
<th>Prerequisite:</th>
<th>ESCI 301</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction:</td>
<td>GEOL 403</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Internal assessment 50%, final examination 50%</td>
</tr>
<tr>
<td>Coordinator:</td>
<td>Dr Rob McKay</td>
</tr>
</tbody>
</table>

This course begins by reviewing principles of stratigraphy and then considers several approaches for studying past environments, such as facies analysis and sequence stratigraphy. The latter part of the course comprises seminars with examples of the use of geochemical and paleontological proxies for studying past changes in Earth's environment and climate over the last 100 million years.

**ESCI 404 CRN 15246 18009 TOPICS IN EARTH SCIENCES 15 pts 1+2/3**

<table>
<thead>
<tr>
<th>Prerequisite:</th>
<th>40 300-level points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction:</td>
<td>GEOL 404</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Final examination 100%</td>
</tr>
<tr>
<td>Coordinator:</td>
<td>Dr Warren Dickinson</td>
</tr>
</tbody>
</table>

This course consists of a selection of two to five topics offered each year. Students must take TWO of the topics to complete the course. The topics are chosen at the start of the year, and the offering varies from year to year depending on staff availability and student interest. Most of the topics are offered in trimester 2, but depending time tables, some topics may be offered in trimester 1. Recent topics included: glacial geology, paleomagnetism, sedimentary petrology, oceanography, paleoclimatology, cosmochemistry, geochemical methods, isotope geochemistry, and evolution.

**ESCI 406 CRN 15247 PETROLEUM GEOLOGY 15 PTS 1/3**

<table>
<thead>
<tr>
<th>Prerequisite:</th>
<th>ESCI 304</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction:</td>
<td>GEOL 406</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Internal assessment 0–25%, final examination 75–100%</td>
</tr>
</tbody>
</table>

The subject matter for petroleum geology and geochemistry falls into two main areas. The principles of petroleum geology and geochemistry are discussed in detail, together with their application to exploration. Secondly, a number of case histories are covered that exemplify the previous material.
ESCI 407  CRN 15248  GLOBAL TECTONICS  15 PTS  1/3
Prerequisite:  ESCI 302
Restriction:  GEOL 407
Assessment:  Internal assessment 25%, final examination 75%
Coordinator:  Professor Martha Savage

ESCI 407 is concerned with the tectonics of the New Zealand microcontinent and other global plate boundary settings as well as general principles in geodynamics and geotectonics. Specific topics vary from year to year, and will include four two-week blocks during which the background and recent research related to a fundamental topic will be covered. Students will present and debate literature during seminars and prepare an essay based on their own extended reading. Case studies from the New Zealand plate boundary zone or from other regions of interest in the world are included. Topics may include mantle processes, seismicity and seismotectonics, geodetic strain, the development and structure of different types of plate boundaries, faults, or mountain belts, and/or the tectonics of sedimentary basins.

ESCI 408  CRN 17081  SPECIAL TOPIC: FRONTIERS  15 PTS  2/3
OF PALAEOBIOLOGY
Prerequisite:  20 300-level ESCI points
Assessment:  TBA
Coordinator:  A/Prof Mike Hannah and A/Prof James Crampton

This course will review some of the latest results in the field of palaeobiology. Using research papers published over the last twelve months, we will choose the most exciting and extraordinary topics available. Depending on what’s published in that period, topics may include discussions on mass extinctions, processes and patterns in the fossil record, human evolution and any particularly spectacular fossils that are reported. Participants will be encouraged to suggest study topics in any area of palaeobiology that interests them.

ESCI 411  CRN 15254  ADVANCED EXPLORATION  15 PTS  2/3
GEOPHYSICS
Prerequisite:  ESCI 305
Restriction:  GEOL 411
Assessment:  Internal assessment 25%, final examination 75%
Coordinator:  Dr Huw Horgan

ESCI 411 covers geophysical topics relevant to earth science research in New Zealand and elsewhere. It has a strong focus on seismic methods such as seismic reflection/refraction to image the whole of the lithosphere, seismic anisotropy in rocks, seismic wave attenuation and amplitude behaviour. We also covers one or a combination of: gravity studies; geodesy; geophysics and geothermal studies. Seismic reflection processing using Claritas software is taught in a six week block and the report from this course makes up 25% of the assessment.
**ESCI 412**  **CRN 15255**  **PALEOCLIMATOLOGY**  **15 PTS**  **1/3**

Prerequisite: ESCI 301  
Restriction: GEOL 412  
Assessment: Internal assessment 50%, final examination 50%  
Coordinator: Dr Gavin Dunbar

ESCI 412 is a study of contemporary research papers in Paleoclimate science. We concentrate on environmental proxy indicators, dating methods and climate dynamics. The course examines prominent Quaternary records from New Zealand as well as high profile records from elsewhere (for example, polar ice and sediment cores and tropical climate records from speleothems). We also develop an understanding of how the atmosphere, ocean and cryosphere influence climatic change as recorded in the geological record. This includes a discussion of orbital forcing (Milankovitch cycles) as well as sub-orbital features such as Dansgaard-Oeschger events and ENSO.

**ESCI 413**  **CRN 15257**  **GEOCHEMICAL FORENSICS OF EARTH’S ORIGINS, HISTORY AND FUTURE**  **15 PTS**  **2/3**

Prerequisite: ESCI 303  
Restriction: GEOL 413  
Assessment: Internal assessment 40%, final examination 60%  
Coordinator: Dr Monica Handler

ESCI 413 is an advanced course presenting petrologic/geochemical techniques and concepts used for reconstructing Earth processes. Topics include trace element and isotope geochemistry, mantle processes and magmatism, and marine and paleoenvironmental geochemistry.

**ESCI 414**  **CRN 15181**  **PHYSICS AND CHEMISTRY OF VOLCANOES**  **15 PTS**  **1/3**

Assessment: Internal assessment 100% (3 seminars; 1 final report)  
Coordinator: Prof Colin Wilson  
Text (recommended): Sigurdsson, *Encyclopaedia of Volcanoes* (Victoria University Library, print and online)

ESCI 414 is an advanced course covering how volcanoes work and how they can be studied from the products of past eruptions, as well as from present-day information. The course is focussed around case studies prepared by the lecturers or their colleagues, and is also designed to prepare students to tackle the challenges involved in research presentation. As part of the course, each student will present 3 x 15 minute seminars on topics based around those covered in the lectures, and each student will be allocated a topic from which to prepare a detailed essay as a final report.
ESCI 416  CRN 15259  METAMORPHIC PETROLOGY  15 PTS  2/3
Coordinator:  Dr Julie Vry
Prerequisite:  ESCI 303
Restriction:  GEOL 414
Assessment:  Marked exercise 2.5%, participation, presentations 12.5%, final examination (3 hr) 85%

ESCI 416 begins by reviewing basic concepts in modern metamorphic petrology, then uses research literature to help expand understanding of how the key variables of pressure, temperature, time, deformation, and fluid / rock interaction are assessed and interpreted, and the resulting specific and broad geological implications as to conditions and processes in various geological settings.

ESCI 441  CRN 15261  DIRECTED INDIVIDUAL STUDY  15 PTS  1/3
Prerequisite:  Permission of the Head of School

ESCI 449  CRN 23187  EARTH SCIENCES – INTERNATIONAL FIELD COURSE  15 PTS  3/3
Prerequisite:  60 300-level points from (ESCI, GEOG) including one of ESCI 341–344 or GEOG 325
Restriction:  ESCI 349
Field trip:  This is an entirely field-based course run overseas during tri 3, 2015/2016 (mid-Nov 2015 to end Feb 2016—TBC).
Coordinators:  A/Prof Brent Alloway
Assessment:  100% internally assessed comprising participation and associated field exercises, field note-book and individually written research report (3500 words). A written test based on field experience and related literature may also be given. Students are expected to give a collective presentation of their learning experience to the School.
Costs:  An extra fee beyond that for a 20-point (PG) course will apply. All associated costs for the course (travel, food and accommodation) will need to be met by the student.

This international field course is an intensive 21-day field-based overview to overseas earth science locations where academic staff have familiarity, experience and research knowledge. The course location is likely to vary from year-to-year depending on the availability of staff and student interest. This course will offer a variable but unique insight, understanding and experience of earth sciences in the field beyond that which already exists in New Zealand.

This course runs in alternate years and will next run in 2015/16: Southern Andean Geology with emphasis on the products and effects of the recent volcanic eruptions (i.e. 2011 Puyehue and 2008 Chaiten eruptions) in southern Chile and Argentina, led by A/P Alloway.

Limit of 30 students—apply by 10 December 2014. Applications for limited entry courses will be waitlisted, and if the course is oversubscribed, decisions on final acceptance will be made on the basis of grades.
Please note:

- Students must have a current passport and fulfil all necessary visa requirements.
- Students who enrol in field courses must be physically able and must have a good level of physical fitness. Staff will need to be informed well in advance about any known health issues that might be of concern in a field setting. Therefore, students are required to fill in, and submit, a confidential form providing emergency contact and health information, prior to their full acceptance into any field course.
- Students enrolling in any SGEES field courses are expected to have purchased their own appropriate geological equipment including geological compass, hand lens, write-in-the-rain type field notebooks, and geological hammer. These can be ordered through the SGEES school office. Students at this level are also expected to have appropriate personal gear including field boots and high-visibility vest.
- A 50% deposit will be required by the end of April. If the course is oversubscribed, preference will be given to students on the basis of academic merit.
- This course requires a minimum number of students in order to run. If that critical threshold isn’t achieved then this field-course will be cancelled. In this unlikely event, enrolled students will be notified at the end of April and shortly after the due date for the 50% deposit.

**GEOL 489 CRN 1773 RESEARCH PROJECT 30 PTS 1+2/3**

**Timetable:**
Your individual timetable for this course is flexible. However, you are advised to allocate the following times to research related activities: Weekly or monthly supervision meetings as agreed with your supervisor; two hours per week of seminars and discussion in Research Preparation sessions.

**Assessment:**
Research project 100%

**Coordinator:**
A/Prof Brent Alloway

**Text (recommended):**
McConchie, J.A. (2000) *Research Project Guide* (available from the Graduate Coordinator); previous Geography Honours Projects (available in School Library); *School of Geography, Environment and Earth Sciences Graduate Student Handbook*

This course involves the formulation and execution of a research project of your own choice under the guidance of a staff member. It is compulsory for all those enrolled for BSc(Hons) in Geology.

If you are considering taking an honours degree in Geology make an appointment to see the Graduate Coordinator, A/Prof Brent Alloway, who will offer guidance, discuss resources, and point you to potential supervisors. It is important that you discuss possible research topics with appropriate staff well before the academic year commences.

GEOL 489 provides you with the opportunity and forum to design and carry out an independent research project on a topic of your choice. It involves training support in research design, approach and methods through one-on-one sessions with a supervisor, the weekly Earth Sciences Research seminars, and through participation in the ESCI 580 Research Preparation course in trimester 2.

You will need to discuss a possible topic with a staff member prior to applying for admission to Honours to the Graduate Coordinator Brent Alloway before the end of trimester 2 in the year preceding the commencement of your Honours degree study.
Once you have identified a topic, an interim supervisor will be allocated to you, and you should work with this person to develop your research proposal so that you are ready to begin your research in earnest upon enrolment. The sooner you can narrow down your focus the better it will be for your work throughout the year. Do not wait to enrol before starting to do some exploratory research and drafting your proposal. Once enrolled, your proposal will be reviewed by the Graduate Coordinator (Brent Alloway) and your interim supervisor. You will receive feedback so that you can develop your project. Once your proposal and topic are approved, you will be allocated to a permanent supervisor with whom you will work throughout the year.

Throughout the year, you will also be expected to:

- submit a topic statement (March)
- submit a research proposal (March)
- provide a written progress report (May)
- give a short presentation on your approach and findings (August)
- submit a draft version of your research paper (September)
- submit the final version of your research paper (October).

ESCI 580     CRN 25137     RESEARCH PREPARATION     15 PTS     1+2
Assessment:    Internal assessment
Coordinator:    Dr Daniel Sinclair

The course aims to provide the skills and techniques required for successful scientific research in Earth Sciences including: philosophy of science; bibliographic database searches; writing, reviewing and revision of proposals, abstracts and journal papers; strategies for poster and oral presentations. Students will work with their MSc thesis project supervisor to develop and submit for grading a research proposal for their project. This is due at the end of the course as part of the assessment, along with an oral presentation of the research proposal.
400/500-LEVEL PETROLEUM GEOSCIENCE COURSES

PGEO 401 CRN 13747 BASIN ANALYSIS 15 PTS 2/3
Prerequisites: ESCI 403, 407
Assessment: Internal assessment (essay and seminar presentation) 30%, final examination 70%
Coordinator: Prof Tim Stern (Victoria) and Martin Crundwell (GNS Science)
Course costs: $49.75

This course is jointly taught with GNS Science. Students will be expected to understand the process of integrating geological, geochemical and geophysical data to provide a history of a sedimentary basin’s formation, growth and to demonstrate an understanding of its sedimentary fill. Students will then assess the potential for a basin to produce hydrocarbons through the analysis of possible hydrocarbon sources in the basin fill and the development of a thermal model to investigate source maturity.

PGEO 511 CRN 13748 TECHNICAL PETROLEUM GEOSCIENCE 15 PTS 2/3
Assessment: 100% internal comprising a combination of written reports on work accomplished as well as an oral presentation
Coordinator: Prof Tim Stern (Victoria)
Course costs: $47.80

This course is jointly taught with GNS Science. The course offers practical exposure to the state of the art facilities used in petroleum exploration. Students will be expected to become familiar with data collection and manipulation and the presentation of results in conference type settings.

PGEO 580 CRN 13749 RESEARCH PREPARATION 15 PTS 1+2
Assessment: Internal assessment
Coordinator: Dr Daniel Sinclair

The course aims to provide the skills and techniques required for successful scientific research in Earth Sciences including: philosophy of science; bibliographic database searches; writing, reviewing and revision of proposals, abstracts and journal papers; strategies for poster and oral presentations. Students will work with their MSc thesis project supervisor to develop and submit for grading a research proposal for their project. This is due at the end of the course as part of the assessment, along with an oral presentation of the research proposal.
### 400/500-LEVEL GEOPHYSICS COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Course Title</th>
<th>Credits</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPHS 420</td>
<td>8156</td>
<td>Introduction to Dynamical Meteorology</td>
<td>15</td>
<td>1/3</td>
</tr>
<tr>
<td>Prerequisite:</td>
<td>MATH 323</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment:</td>
<td>Course work 30%, final examination 70%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator:</td>
<td>Dr Jim McGregor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This course introduces students to the fundamental concepts of dynamical meteorology and develops skills in problem solving.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Course Title</th>
<th>Credits</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPHS 421</td>
<td>8157</td>
<td>Mid-Latitude Weather Systems</td>
<td>15</td>
<td>1/3</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Course work 30%, final examination 70%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator:</td>
<td>Dr Jim McGregor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This course extends the knowledge gained in GPHS 420 to the development of an understanding of weather systems in middle latitudes. Special emphasis is paid to weather systems in New Zealand and the Tasman Sea region.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Course Title</th>
<th>Credits</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPHS 422</td>
<td>8158</td>
<td>Radiation and Thermodynamics for Meteorology</td>
<td>15</td>
<td>1/3</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Course work 30%, final examination 70%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator:</td>
<td>Dr Jim McGregor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Students are introduced to the concepts of radiation and thermodynamics that are relevant to applications in meteorology and atmospheric physics. Students who are intending to enrol for GPHS 424 Satellite Meteorology or GPHS 426 Cimatology and Remote Sensing should complete this course first.
GPHS 423 CRN 8159 CLOUD PHYSICS AND BOUNDARY LAYER METEOROLOGY 15 PTS 2/3

Assessment: Not offered in 2015
Coordinator: Course work 30%, final examination 70%
Text (recommended): Dr Jim McGregor

This course investigates the microphysical properties of clouds. The meteorology of the lower boundary layer of the Earth’s atmosphere is also examined.

GPHS 424 CRN 8160 SATELLITE METEOROLOGY 15 PTS 2/3

Assessment: Course work 30%, final examination 70%
Coordinator: Dr Jim McGregor

This course examines the contribution and impact that satellites have on modern meteorology. Geostationary and Polar orbiting satellite programmes of the major meteorological satellite operators are examined. The orbital dynamics and attitude control of satellites is examined and particular attention is paid to meteorological instrumentation and applications.

This course cannot be taken with GPHS 426 Climatology and Remote Sensing.

GPHS 425 CRN 11096 NUMERICAL WEATHER PREDICTION 15 PTS 2/3

Assessment: Not offered in 2015
Coordinator: Coursework 30%, final examination 70%
Text (recommended): Dr Jim McGregor
Atmospheric Modelling, Data Assimilation and Predictably, Eugenia Kalnay, Cambridge University Press, 2003

Numerical Weather Prediction (NWP) is examined within the context of modern weather forecasting. It includes material on the historical development of NWP, wave properties of the governing mathematical equations, numerical methods, model physics, statistical methods in post-processing, ensemble forecasting, and applications of global and limited area NWP in modern weather forecasting operations.

GPHS 426 CRN 27049 CLIMATOLOGY AND REMOTE SENSING 15 PTS 2/3

Assessment: Course work 30%, final examination 70%
Coordinator: Dr Jim McGregor
Restrictions: GPHS 430 in 2014, PHYG 413
Text (recommended): TBA

This course takes a mathematical approach to understanding climate dynamics, based on the equations of atmospheric motion and energy transport in the large-scale circulation. The second half of the course derives and uses the equation of radiative transfer as a basis for investigating remote sensing of the atmosphere.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Title</th>
<th>Credits</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPHS 441</td>
<td>CRN  9063</td>
<td>SOLID EARTH AND GEOPHYSICS</td>
<td>15</td>
<td>1/3</td>
</tr>
<tr>
<td>Restrictions:</td>
<td></td>
<td>GPHS 405, PHYS 406, 441</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment:</td>
<td></td>
<td>Internal 20%, final examination 80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator:</td>
<td></td>
<td>Dr Malcolm Ingham</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text (recommended):</td>
<td></td>
<td>Frank Stacey, <em>Physics of the Earth</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This course teaches methods of radiometric dating, the age of the Earth, and the thermal and gravitational structures of the Earth. It is also taught as PHYS 441.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Title</th>
<th>Credits</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPHS 445</td>
<td>CRN  9067</td>
<td>OBSERVATIONAL EARTHQUAKE SEISMOLOGY</td>
<td>15</td>
<td>1/3</td>
</tr>
<tr>
<td>Prerequisite:</td>
<td></td>
<td>MATH 323</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restriction:</td>
<td></td>
<td>GPHS 409</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment:</td>
<td></td>
<td>Internal 20%, final examination 80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator:</td>
<td></td>
<td>Prof Martha Savage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This course provides an introduction to observational earthquake seismology and its contribution to the development of Earth models. Students will learn the fundamental concepts and processes of seismic wave generation, propagation, recording and analysis in idealised media and in the real Earth.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Title</th>
<th>Credits</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPHS 446</td>
<td>CRN  9068</td>
<td>ADVANCED SEISMOLOGY</td>
<td>15</td>
<td>2/3</td>
</tr>
<tr>
<td>Prerequisite:</td>
<td></td>
<td>MATH 323 and GPHS 445</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restriction:</td>
<td></td>
<td>GPHS 409</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment:</td>
<td></td>
<td>Internal 20%, final examination 80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator:</td>
<td></td>
<td>A/Prof John Townend</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This course provides an introduction to theoretical seismology and the quantitative analysis of Earth structure and earthquake source physics. Topics covered include the mathematical analysis of seismic wave generation and propagation, and the construction and analysis of synthetic seismograms. Applications examined in the second half of the course may include some or all of the following, depending on students' specific interests: relative earthquake location, seismotectonics, seismic anisotropy, surface wave tomography.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Title</th>
<th>Credits</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPHS 447</td>
<td>CRN  9605</td>
<td>GEOMAGNETISM</td>
<td>15</td>
<td>2/3</td>
</tr>
<tr>
<td>Restrictions:</td>
<td></td>
<td>GPHS 408, 442; PHYS 406, 442, 447</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment:</td>
<td></td>
<td>Internal 25%, final examination 75%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator:</td>
<td></td>
<td>Dr Malcolm Ingham</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GPHS 447 covers physical and mathematical description of the geomagnetic field, spectrum of time variations, secular variation, reversals and sea-floor anomalies, origin of the geomagnetic field, introduction to palaeomagnetism, and electromagnetic induction in the Earth. It is also taught as PHYS 447.
GPHS 448 CRN 9605 ADVANCED TOPICS IN GEOMAGNETISM 15 PTS 2/3
Restrictions: GPHS 408
Assessment: Internal 25%, final examination 75%
Coordinator: Dr Malcolm Ingham

GPHS 448 covers a selection of topics from (but not limited to) rock magnetism, palaeomagnetism, electrical/electromagnetic geophysics and satellite geomagnetism.

GPHS 489 CRN 1891 PROJECT 30 PTS 1+2/3
Assessment: Research project 100%
Coordinator: Prof Martha Savage

This course involves the formulation and execution of a research project of your own choice under the guidance of a staff member. It is compulsory for all those enrolled for BSc(Hons) in Geophysics.

If you are considering taking an honours degree in Geophysics make an appointment to see the Graduate Coordinator, A/Prof Brent Alloway, who will offer guidance, discuss resources, and point you to potential supervisors. It is important that you discuss possible research topics with appropriate staff before the academic year commences.

GEOL 489 provides you with the opportunity and forum to design and carry out an independent research project on a topic of your choice. It involves training support in research design, approach and methods through one-on-one sessions with a supervisor, the weekly Earth Sciences Research seminars.

You will need to discuss a possible topic with a staff member prior to applying for admission to Honours to the Graduate Coordinator Brent Alloway in December preceding the year of study.

Once you have identified a topic, an interim supervisor will be allocated to you, and you should work with this person to develop your research proposal so that you are ready to begin your research in earnest upon enrolment. The sooner you can narrow down your focus the better it will be for your work throughout the year. Do not wait to enrol before starting to do some exploratory research and drafting your proposal. Once enrolled, your proposal will be reviewed by the Graduate Coordinator (Brent Alloway) and your interim supervisor. You will receive feedback so that you can develop your project. Once your proposal and topic are approved, you will be allocated to a permanent supervisor with whom you will work throughout the year.

Throughout the year, you will also be expected to:
- submit a topic statement (March)
- submit a research proposal (March)
- provide a written progress report (May)
- give a short presentation on your approach and findings (August)
- submit a draft version of your research paper (September)
- submit the final version of your research paper (October).
This course, together with GPHS521, forms an integrated study of forecasting practice and supporting meteorological theory. Emphasis is placed on the theoretical principles of weather observation, analysis, and diagnosis that underpin weather prediction. Students will actively apply the principles learnt through a variety of simulated exercises.

This course, together with GPHS520, forms an integrated study of forecasting practice and supporting meteorological theory. Emphasis is placed on the theoretical principles of weather diagnostics at synoptic and meso-scales that underpin weather prediction. Students will apply the principles learnt through advanced simulated exercises.

This project will be based on a ‘real world’ meteorological research objective selected from a list of research topics arising from meteorological operations at MetService. Students will be encouraged to demonstrate their independence, critical thinking and scientific rigour in their project work. MetService will provide all meteorological data required for the project. Supervision will be by MetService and/or Victoria University staff. Overall guidance and assessment will be by Victoria University staff.

The course aims to provide the skills and techniques required for successful scientific research in Earth Sciences including: philosophy of science; bibliographic database searches; writing, reviewing and revision of proposals, abstracts and journal papers; strategies for poster and oral presentations. Students will work with their MSc thesis project supervisor to develop and submit for grading a research proposal for their project. This is due at the end of the course as part of the assessment, along with an oral presentation of the research proposal.
The practicum consists of supervised practice in a field of development management focusing attention on the interface between policy and practice. The student selects a workplace where development practices can be assessed. The student submits a proposal of the intended workplace to the course coordinator and keeps an account of the hours spent on practical work with that organisation. At the conclusion of the practicum, the student writes a research essay, which places the practical experience in the light of relevant development theories. Opportunities can be explored through Volunteer Wellington, through the Council for International Development or other NGOs and suitable development agencies.

This course aims to introduce students to the wide range of theories about development that have appeared over the past 60 years and more. It involves an examination of ‘development’ and its various interpretations as well as its theoretical and ideological underpinnings. The course will cover the evolution of ideas about development and span a broad range of thinking about development and related concepts such as poverty, underdevelopment and inequality.

Topics covered include Western and non-Western perspectives and the historical context of development, market-based development theories, radical theories of dependency and world systems, alternative development including participation, gender and sustainability, and post development theories. Throughout, the links between development theory and policy will be explored.

DEVE 512 examines the practice of development and introduces students to some of the key issues involved, and techniques used, in development practice. It has two main aims. Firstly, it aims to construct a framework of critical issues for practice. Acknowledging the intimate connections between material and discursive processes in development, this course explores issues of ethics, power relations, and underlying assumptions and values that influence the practice of development, also introducing students to the ‘institutional landscape’ of development. Secondly, the course aims to lead students through the main elements of project cycle management and the principle issues and techniques used in managing development projects. Here topics and techniques such as project proposals, analysis, planning, implementation, monitoring and evaluation are covered.
This course aims to cover the basic elements of development policy formulation using a ‘hands-on’ approach and practical work in policy development. The emphasis in this course is on developing an example of policy formulation, involving policy documents, role play negotiations, and group work. Although a fictitious country will be used as the context for study, real documents will be used and practical work will result in a draft policy statement for the country. In this course students will be expected to work in groups and participate fully in discussions, role plays and writing exercises. There is an emphasis on oral presentation skills alongside written work.

Topics covered include poverty reduction strategy papers (PRSPs), international policy frameworks (e.g. MDGs), donor agency policies, multi-donor harmonisation and alignment, domestic policy frameworks of government departments, local governments and NGOs, and issues of disbursement and monitoring.

This course aims to prepare students for thesis research. It covers some of the generic issues and skills involved in research, such as choosing a topic, research design, data collection and analysis, communication and report writing. It also examines some of the issues and techniques that are particularly relevant to development research such as fieldwork, field methods, research ethics and relationships with participants.

By the end of the course, students should:

- understand the nature and value of research
- understand the research process in terms of its main stages of planning, preparation; field research, data analysis, writing and presentation
- be aware of the importance of preliminaries - developing proposals, securing funding and mapping out (and later managing) budgets
- have a basic knowledge of epistemologies and methodologies, and the place of quantitative and qualitative research methods
- be aware of a range of appropriate field methods in working with different groups of human participants.

Competence in the above will be demonstrated through the preparation of research plans, budgets and a detailed research proposal that will form the basis of Master’s thesis research. DEVE 514 is co-taught with ENVI 521 and GEOG 580.
This course provides the opportunity for a student to examine a particular aspect of development in more depth according to their own needs and interests. The student negotiates the topic with the Director of Development Studies or designated supervisor and together they devise a course of study and related assessment. In some cases DEVE 560 may also be used to take a modified version of one of the undergraduate courses listed below.

Please note that the following three 300-level Geography courses will require an extra piece of assessment in addition to what is listed below in order to equate them with a postgraduate 30-point course. Please let the Course Coordinator know if you are going to be sitting one of the 300-level courses as DEVE 560. Only one of the courses can be credited towards the PGDipDevStud or MDevStud.

Gender and Development is firmly on the agenda of most development agencies and national governments internationally. Considerations of masculinity and sexuality are becoming more widespread, yet ‘race’ remains conspicuously absent from development discourse and practice. Why might this be? And how might it be connected to colonial continuities at work within practices of international and national development?

Paying attention to patterns of development at regional, national and local scales both here and overseas, we consider why gender inequalities persist and how they are related to ‘race’ and sexuality. We use four theoretical ‘lenses’ to help us in this inquiry: feminist, postcolonial, queer and Kaupapa Māori. We also examine the personal and political dimensions of cross-cultural research and practice to consider how we might contribute to the realization of more equitable development outcomes within Aotearoa and overseas.
Globalisation is everywhere! Talked about on the TV, the radio, and in newspapers it is a term that is increasingly used to rationalise a wide range of economic and political policies, and explain a plethora of cultural, social and economic processes. Despite this, it is rarely well defined, or critically appraised. A popular image of globalisation is one of a process which unfolds like a blanket across the globe, homogenising the world’s economies, societies and cultures as it falls. You will be horrified to learn that based on this conception some have even proclaimed that Geography is dead! To the contrary, contemporary research in all sub-disciplines within Geography points towards the differentiating impacts of global processes as they interact with local conditions. It is indeed true that the world’s economy and culture are becoming increasingly inter-connected, but as such processes are articulated and resisted in localities they are creating new and increasingly uneven geographies. This course critically engages with the concept of globalisation, examines some of its theoretical, historical, and empirical characteristics and—through case studies from ‘developed’ and ‘developing’ countries—illustiates how an appreciation of geography is fundamental to understanding globalisation.

The course is divided into five themes:

**Theme 1** Concepts: What in the world is globalisation?
**Theme 2** Antecedents: History and theories of Globalisation
**Theme 3** Processes: Globalisation in interdependent spheres. 3a. Economic Globalisation; 3b. Globalisation and politics; 3c. Cultural Globalisation; 3d. Sustainable Globalisation?
**Theme 4** Patterns: Geographies of Globalisation
**Theme 5** Reflections: Long live Globalisation

Human populations are fundamentally shaped by the entry of new people through birth and immigration, and the exit of others through death and emigration. In this course we look at how these dynamics interact to determine the age, gender and ethnic composition of human populations, and influence economic, political and socio-cultural fabric of different places. The first half of the course focuses on largely dynamics such as fertility and mortality which
alter size and composition of populations. The second half of the course focuses closely on international entries and exits, examining the drivers and impacts of international migration, and how they relate to processes of globalization and development, demographic and labour market change, national and global governance, and social and cultural identity formation. The course extends students’ understanding of issues raised in GEOG 216 (Urban Geography) and GEOG 212 (Worlds of Development), and complements GEOG 312 (Race, Gender and Development) and GEOG 316 (Geographies of Globalization). It links to GEOG 413 Migration, Diasporas and Transnationalism, GEOG 410 Urban Studies, and GEOG 404 Geography of Development Studies.

DEVE 592  CRN 11761  THESIS  120 PTS  F/Y
Assessment: Thesis 100%
Coordinator: Prof John Overton

This research-based thesis provides experience in research design, planning, implementation, analysis and representation with the assistance of an academic supervisor.

The thesis requires students to compile a bibliography of readings appropriate to their chosen topic, then integrate their knowledge of development ideas with practical field experience. A student should show initiative, optimise their expertise and make the most of University resources. Above all, students are expected to become actively engaged in the process and take responsibility for their own project.

Each student is encouraged to consider their topic of interest and discuss it with the Director during the first year of their enrolment. A formal proposal is required to be submitted as part of the DEVE 514 coursework. The proposal will be considered by Development Studies staff before approval is given to proceed and supervision finalized. The proposal is also necessary so that the student can forward that proposal both for funding consideration and for ethics approval. The University requires every research student to have approval from the Victoria University of Wellington Human Ethics Committee before commencing fieldwork with human subjects. The final thesis produced should be between 100 and 150 pages in length (maximum of 40,000 words).

Candidates are expected to submit two loosely bound copies for examination. One of these will be returned with the examiners’ reports. The thesis is examined by two readers. Wherever possible one of these examiners will be on the staff of the University and the other, the external examiner, will be a person of standing in the field under investigation and not necessarily on the staff of the University.
# 500-LEVEL ENVIRONMENTAL STUDIES COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Course Title</th>
<th>Credit Points</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVI 512</td>
<td>2074</td>
<td>PRACTICUM</td>
<td>30</td>
<td>F/Y</td>
</tr>
</tbody>
</table>

**Coordinator:** A/Prof Ralph Chapman  
**Text:** Readings TBA, check with course coordinator

This is a supervised placement in a specialised field of environmental or resource management, focusing on practice in a particular organisation or agency. The placement is negotiated in consultation with the Director and organisation. The placement is based on a 200-hour time frame, is presumed to be unpaid (except in exceptional circumstances), and can be carried out over an extended period during the trimester or in more concentrated blocks during the non-teaching breaks. ENVI 512 includes seminars as needed for students to report back on key learning and to share with other students. All the course requirements must be completed by the beginning of March 2016 in order to obtain a pass grade.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Course Title</th>
<th>Credit Points</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVI 520</td>
<td>15675</td>
<td>ENVIRONMENTAL MANAGEMENT</td>
<td>15</td>
<td>1/3</td>
</tr>
</tbody>
</table>

**Restriction:** ENVI 502  
**Assessment:** Coursework 60%, final examination 40%  
**Coordinator:** A/Prof Ralph Chapman  
**Text:** Readings TBA, check with course coordinator

This course explores frameworks and issues in resource and environmental management, providing a broad overview of the field and underpinning further study in the other courses. Students are encouraged to take a critical view and to develop an understanding of relevant conceptual frameworks and how they are applied in practical environmental management. Environmental policy analysis and communications are considered. In addition to issues in current international environmental management, New Zealand frameworks for environmental management are explored. Readings will be set for each class meeting and students are expected to contribute to the discussions through oral participation.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Course Title</th>
<th>Credit Points</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVI 521</td>
<td>15676</td>
<td>RESEARCH METHODS FOR ENVIRONMENTAL STUDIES</td>
<td>15</td>
<td>2/3</td>
</tr>
</tbody>
</table>

**Restriction:** ENVI 502  
**Assessment:** Internal assessment  
**Coordinator:** Dr Bethany Haalboom  
**Text:** Readings TBA, check with course coordinator

This course prepares students for thesis research. It covers some of the generic issues and skills involved in research, such as choosing a topic, research design, data collection and analysis, ethics, communication and report writing. It also examines some of the issues and techniques that are particularly relevant to environmental research such as fieldwork, field methods, research ethics and relationships with participants.

By the end of the course, students should:
- understand the nature and value of research
- understand the research process in terms of its main stages of planning, preparation; field research, data analysis, writing and presentation
• be aware of the importance of preliminaries - developing proposals, securing funding and mapping out (and later managing) budgets
• have a basic knowledge of epistemologies and methodologies, and the place of quantitative and qualitative research methods
• be aware of a range of appropriate field methods in working with different groups of human participants

Competence in the above will be demonstrated through the preparation of research plans, budgets and a detailed research proposal that will form the basis of Master’s thesis research. ENVI 521 is co-taught with DEVE 514 and GEOG 580.

**ENVI 522**  
**CRN 17362**  
**ENVIRONMENTAL AND PLANNING LAW 15 PTS**  
1/3

**Restriction:** ENVI 503  
**Assessment:** Short assignments 2 x 10%, research essay 40%, final examination 40%  
**Coordinator:** Tom Bennion  
**Text (recommended):** Readings TBA, check with course coordinator

This course offers a practical survey of the law, theories of law as they affect environmental management, the bearing of international law on New Zealand law, and how planning and environmental regulation happens under environmental law in New Zealand, especially the Resource Management Act 1991.

**ENVI 523**  
**PLANNING AND THE RESOURCE MANAGEMENT ACT**  
15 PTS

**Not offered in 2015**

**ENVI 524**  
**CRN 26075**  
**ENVIRONMENTAL ECONOMICS FOR PUBLIC POLICY**  
15 PTS 2/3

**Restriction:** ENVI 504  
**Assessment:** Course work 50%, final examination (2 hours) 50%  
**Coordinator:** A/Prof Ralph Chapman  
**Text (recommended):** Readings TBA, check with course coordinator

Introduces ecological economics, the environment as ‘natural capital’, and the economy vis-a-vis society/environment. Covers the mechanics and limitations of the market and government, private/collective choices and their impacts on the environment. Policy-oriented, with focus on relevant core microeconomic theory (market / non-market); heterodox/orthodox approaches; behavioural, institutional and ecological economics.
<table>
<thead>
<tr>
<th>Code</th>
<th>CRN</th>
<th>Title</th>
<th>Points</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVI 525</td>
<td>CRN 25034</td>
<td>MĀORI ENVIRONMENTAL AND RESOURCE MANAGEMENT</td>
<td>15 PTS</td>
<td>2/3</td>
</tr>
<tr>
<td>Restriction:</td>
<td>ENVI 505</td>
<td>Assessment:</td>
<td>Internal assessment</td>
<td>Coordinator:</td>
</tr>
<tr>
<td>Text (recommended):</td>
<td>Readings TBA, check with course coordinator</td>
<td>Additional Cost:</td>
<td>$210.10 (wananga)</td>
<td></td>
</tr>
</tbody>
</table>

The course aims to build an understanding of Maori perspectives of the environment through an in-depth look at the complex interplay between social, political, environmental and cultural factors that impact on Aotearoa New Zealand’s built and natural environments. The course considers the role Maori environmental perspectives could, and do, play in the creation of uniquely Aotearoa New Zealand places by drawing on case studies across Aotearoa New Zealand. Strategies and methods for ensuring the adequate consideration of these perspectives are evaluated.

<table>
<thead>
<tr>
<th>Code</th>
<th>CRN 17359</th>
<th>POLITICAL ECOLOGY OF CONSERVATION</th>
<th>15 PTS</th>
<th>2/3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction:</td>
<td>ENVI 506</td>
<td>Assessment:</td>
<td>Internal assessment</td>
<td>Coordinator:</td>
</tr>
<tr>
<td>Text:</td>
<td>Readings available via Blackboard</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conserving the planet’s biodiversity is considered to be one of the most pressing and imperative environmental issues, but it is also highly complex and contentious. This course will explore the socio-political dimensions of conservation by critically considering the histories, knowledge, and broader political economies that shaped and shape conservation policies and practices. Particular focus will be placed on 1) unpacking assumptions we commonly have about conservation; and 2) examining how uneven relationships of power play out through different approaches to conservation.

<table>
<thead>
<tr>
<th>Code</th>
<th>CRN 17358</th>
<th>CLIMATE CHANGE ISSUES</th>
<th>15 PTS</th>
<th>1/3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction:</td>
<td>ENVI 508</td>
<td>Assessment:</td>
<td>Coursework 60%, final examination 40%</td>
<td>Coordinator:</td>
</tr>
<tr>
<td>Text:</td>
<td>Readings will be arranged – check with course coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This course aims to provide an understanding of issues in climate change science and particularly policy and its implications for planetary management, both globally and in New Zealand. Students will become familiar with how the science, social science, policy and management issues associated with climate change can be integrated and handled more effectively. Students will have the opportunity to gain skills in assessing and discussing climate change science and policy.
ENVI 529 CRN 17357 SPECIAL TOPIC: SUSTAINABLE ENERGY

15 PTS 2/3

Assessment: Short assignments 45%, final research paper 45%, participation 10%

Coordinator: Dr Eric Martinot

Text: Articles and readings from a variety of sources provided

This course aims to provide an understanding of sustainable energy globally and in New Zealand, including an understanding of technology characteristics, environmental impacts, economic costs, public policy options, and long-term future scenarios. Technologies covered include conventional fossil fuels, renewable energy, energy efficiency, and cleaner coal, as well as technologies for buildings, industry, and transport. Students will have the opportunity to gain the skills to assess and discuss sustainable energy systems, compare the costs and benefits of different technologies, and understand the range of public policy options.

ENVI 530 CRN 26076 SPECIAL TOPIC: DRIVERS OF HUMAN BEHAVIOUR

15 PTS 1/3

Assessment: 100% internal assessment

Coordinator: Dr Wokje Abrahamse

Text: Articles and readings will be provided on Blackboard

This course examines human behaviour in relation to environmental challenges. We will focus on individual drivers of behaviour, as well as understanding the ways in which (un)sustainable practices are situated within existing social, natural, technological and policy contexts. Through the analysis of case studies, students will gain a better understanding of how individuals can be encouraged to engage in environmentally friendly practices, and how behaviour change principles may be used to inform environmental policy and practice (course pending approval).

ENVI 591 CRN 23008 THESIS

120 PTS F/Y

The ENVI 591 thesis provides an opportunity for students to further develop and demonstrate skills in a sustained piece of research. The 120-point thesis is a more research-intensive 'academic' option than the standard (ENVI 593) option combining a thesis and placement. The optimal thesis length is 30–40,000 words. The thesis topic is developed in consultation with an academic supervisor based on the development and acceptance of a research proposal through ENVI 521 in the preceding year. The thesis is due in one year (full time) from the date of enrolment in ENVI 591. Students are expected to participate in the academic life of the School including attending the Geography, Environment and Development (GED) Seminar Series.

ENVI 593 CRN 2077 THESIS

90 PTS F/Y

The ENVI 593 thesis provides an opportunity for students to develop and demonstrate skills in a research project. The 90-point thesis represents around eight to nine months' full-time work, and sits alongside the ENVI 512 Practicum (placement) course. The optimal thesis length is 20–25,000 words, with anything over 30,000 very strongly discouraged. The thesis topic is developed in consultation with an academic supervisor based on the development and acceptance of a research proposal in ENVI 521 in the preceding year. The thesis is due in one year (full time) from enrolment in ENVI 593. Students are expected to participate in the academic life of the School including attending the Geography, Environment and Development Seminar (GED) Series.
ACADEMICS—RESEARCH AREAS

EARTH SCIENCES

Geology
Most research is carried out in the New Zealand region, but research also takes place in Antarctica, Australia, Asia, North America and the Pacific islands.

Research areas include (but are not limited to) the following:
- climate and sea level changes during the past several million years
- the history of glaciations in New Zealand and Antarctica
- the deformation of New Zealand and its plate boundary zone over the last few million years using geodesy, geology and paleomagnetic methods
- neotectonics, the study of active faulting and related landscape processes
- mountain building, deep crustal and mantle structure, and crustal metamorphic processes in the Southern Alps, North Island and southeast Papua New Guinea
- volcanology and magma genesis in the central North Island
- history of sedimentation onshore and offshore of New Zealand and Antarctica, and its relationship to plate tectonics, climate change and petroleum generation
- Pacific Island sediment and resource studies
- palaeontology and micropaleontology
- development of novel geochemical and isotopic analytical techniques used in the earth and environmental sciences
- geology and geochemistry of geothermal systems
- thermochronology and histories of landscapes in New Zealand and elsewhere.

Geophysics
Research equipment and supervision in a wide range of geophysical topics are available for MSc and PhD candidates enrolled in the Institute. We make use of our Wellington location to engage in joint research programmes with Crown research institutes and the MetService, and supervision of projects is often shared with staff from these organisations. In the past decade, several large geophysical projects have been undertaken as joint collaborations with colleagues from US, Japanese and British universities, with funding being shared between the two countries.

Research is currently in progress in the following areas:
- earthquake seismology, volcano seismology, fault mechanics, seismogenesis, seismic hazard and seismic studies of Earth structure
- physical meteorology, including the use of mesoscale models, precipitation forecast verification and satellite imagery.
- palaeomagnetism and geomagnetism, including the determination of the historical geomagnetic field from lake sediment cores
- structural and tectonic studies, including the use of deep seismsics, magneto-tellurics, gravity, resistivity and heat flow
• plate tectonics and crustal and mantle dynamics, including modelling the plate motion and satellite geodesy.

Research seminars, arranged jointly with the GNS Science, Avalon, Lower Hutt, are held monthly and lunch-time colloquia with CRI and MetService staff provide an opportunity for less formal discussions.

GEOGRAPHY

Staff teaching in the Geography group are active in carrying out research in a wide range of fields in Aotearoa New Zealand, Oceania, Latin America and the Asia Pacific region.

Development Studies

• Development theory and practice
• Development sovereignty and aid modalities
• Gender and development
• Participatory approaches, with particular reference to poverty issues
• Monitoring and evaluation of development projects
• REDD+ in Indonesia

Environmental Studies

• Climate change, energy, transport, urban design and environmental health
• Political ecology of conservation management
• Māori approaches to environmental management/Treaty of Waitangi
• Economic, legal and other tools for resource management
• Public involvement processes: consultation to co-management
• Drivers of environmental behaviour

Human Geography

• Globalisation and agrifood chains
• Urban quality of life
• The geography of well-being
• GIS and spatial analysis
• Migration and environmental change
• Refugee resettlement
• Community engagement, public participation
• Indigenous geographies
• Tourism and political ecology

Physical Geography

• Contemporary earth surface processes: landslides, soil erosion, chemical weathering and fluvial activity
• Hydrology, water quality, soil hydrology and hydrological modelling
• The relationship between people and the natural environment: natural hazards, recreational and land use impacts
• Long-term landscape evolution
- Hazard mapping, terrain representation, and GIS
- Dating glacial moraine records with Beryllium-10 and reconstructing past climate using glacial records
- Ice sheets and their relationship with sea level
- Reconstructing past climate change and human-environment interaction through the use of palaeoecological techniques
- Monitoring and modelling of contemporary glaciers and their response to future climate
- Climate variability and change
- Tropical climate variability and its effects on New Zealand and southern ocean climate
- High latitude climate variability and sea ice
- Reconstructing the history of Quaternary environmental change through landform recognition and analysis, cover-bed stratigraphy and the application of tephrochronology

As can be seen from the above list, there is a great deal of scope for suggesting topics, so please discuss your ideas with one of the academic staff. Please also consult our website www.victoria.ac.nz/sgees for current research interests of individual staff.
MASTER OF ADVANCED TECHNOLOGY ENTERPRISE

The Master of Advanced Technology Enterprise (MATE) is an interdisciplinary one year research programme, the first of its kind in New Zealand. The programme explores the relationship between scientific research and commercial product development by establishing teams developing high-value enterprises from research projects with real commercial potential.

Through its unique practical approach, the programme explores the many challenges of creating successful technology enterprises, such as coping with an extended development time-frame and technology risks, balancing the often conflicting relationship between research and commercial product development, and applying best practice business activities focussed around advanced technology.

The MATE programme is open to graduates of science, engineering, design, commerce and law, and graduates from other disciplines with appropriate backgrounds. MATE creates an entrepreneurial team environment to allow students to gain knowledge, skills and experience in taking an advanced technology to market.

Within the enterprise, each student assumes individual responsibilities that, when combined, form a dynamic team capable of developing a viable product concept. Students from any discipline are invited to apply to the MATE programme. In each case the individual will inject specific discipline expertise into the team. Their role will draw on expertise gained from previous study and work experiences, and will be shaped by the needs of the particular project and enterprise.

MATE FOR SCIENTISTS

Scientists are the link between scientific research and the advanced technology enterprise. Goals of research and commerce are quite different, so the scientist must manage the relationship with the research team and ensure that research and commercial development activities are mutually compatible. The scientist understands the scientific method and, while they may not possess expertise in the particular research science, they become the technology expert within the enterprise.

Supervision, mentoring and governance for the teams and individuals within the MATE programme is provided by staff from throughout Victoria University of Wellington, and by external commercial partners. Students learn from experienced technology entrepreneurs, academics and business experts, and build their own professional support network.

At the end of the year, teams present their enterprise to an audience of Victoria staff, external programme supporters and potential investors. They aim to conduct value added development of the research towards a viable product—to secure further investment for the enterprise.

Individual research roles will build on each student’s prior knowledge. Research investigates the role of a discipline expert within a multi-disciplinary team, the team function, and entrepreneurship within an advanced technology enterprise. Students create a Master’s research thesis focused on their role, and aligned with the team outcomes.
Graduates leave having developed their discipline-specific skills within an advanced technology enterprise, added a deep understanding of advanced technology business practice, and developed into confident professionals capable of leading the next wave of new technology businesses.

ENTRY REQUIREMENTS

- A four-year degree, Honours degree or relevant postgraduate diploma with a B+ average at 400-level from a university in New Zealand or, at the discretion of the Associate Dean (Students) of the Faculty of Science, another university.
- Approved by the Programme Director and the MAdvTecEnt Board of Studies as capable of proceeding with the proposed programme of study.
- Requirement 1 may be waived by the Associate Dean (Students) of the Faculty of Science, for a candidate who has had extensive practical, professional or scholarly experience of an appropriate kind.

GENERAL REQUIREMENTS

- The course of study for the MAdvTecEnt shall consist of courses worth at least 135 points, comprising:
  - **Part 1:** ATEN 501—a 15-point course run intensively over four weeks
  - **Part 2:** ATEN 591—a 120-point thesis and development of business plan.
- Entry to Part 2 requires the successful completion of Part 1 with at least a B+ grade and acceptance by the Programme Director and Board of Studies.
- Candidates must:
  - enrol full-time for Part 1 and Part 2; and
  - complete Part 1 and enrol in Part 2 in consecutive trimesters.

<table>
<thead>
<tr>
<th>ATEN 501</th>
<th>CRN 25038</th>
<th>ADVANCED TECHNOLOGY ENTERPRISE DEVELOPMENT</th>
<th>15 PTS</th>
<th>3/3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Practical and theoretical frameworks used in development and initiation of an advanced technology enterprise and research translation are introduced, along with collective brainstorming, team development, collaboration and communication. Emphasis is on pragmatic and practical learning in innovative behaviour development, while developing an advanced technology business idea, team formation and an independent research focus.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATEN 591</th>
<th>CRN 25039</th>
<th>ADVANCED TECHNOLOGY ENTERPRISE THESIS</th>
<th>120 PTS</th>
<th>1/2/3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>An individual supervised piece of research undertaken within an integrated team environment working on the progression of an advanced technology enterprise. Students will actively participate in a structured seminar and peer-review programme. Their value proposition will be presented to an expert panel.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ENROLMENT

Programme start date is 2 March 2015. Apply online at www.victoria.ac.nz/home/admisenrol

APPLICATION/ENQUIRY CONTACT DETAILS

David Bibby, Programme Director david.bibby@vuw.ac.nz 04-4635479
Shona de Sain, Associate Dean (Academic) shona.desain@vuw.ac.nz 04-463 5092
GENERAL INFORMATION

Students are encouraged to view the websites for current information.

POSTGRADUATE RESEARCH SUPERVISION

Academic Board requires all supervisors to provide regular written reports with students enrolled in Master’s by thesis and PhD programmes. These reports are expected to identify what has been achieved, outline agreed timetables for future work and identify any problems and how they can be resolved. Copies of the formal reports are provided to the student and the School’s Graduate Coordinators, and put on file in the Faculty Student Administration Office.

Theses are prepared and written in close consultation with a staff member who acts as supervisor. Research students are expected to participate in and contribute to research-in-progress seminars organised from time to time by the School.

Master’s students are required to submit a one month confirmation of study which includes your research proposal. These are expected one month after enrolment. Master’s students are also required to supply a three and eight month progress report.

PhD students are required to submit six monthly reports in May and November.

FUNDING

The Research Funding Guide is published by the University’s Research Policy Office and is available at www.victoria.ac.nz/home/publications/research_funding_guide.pdf

The Postgraduate Students’ Association has information on StudyLink funding www.victoria.ac.nz/pgsa

POSTGRADUATE SCHOLARSHIPS, PRIZES AND GRANTS

Students should check out the University’s Prizes and Scholarships database at www.victoria.ac.nz/scholarships

Faculty Research Grants and Summer Scholarships may also be available, visit www.victoria.ac.nz/science/study/scholarships or contact Margot Neas for more information margot.neas@vuw.ac.nz

POSTGRADUATE STUDENTS’ ASSOCIATION

The Postgraduate Students’ Association provides representation and other services for all Victoria's postgraduate students www.victoria.ac.nz/pgsa. You can subscribe to the PGSA email list by emailing pgsa-members-subscribe@vuw.ac.nz

VICTORIA ABROAD

Students studying course-taught postgraduate studies are able to participate in an exchange, however not all of our partner universities are open to postgraduate students—talk to the Victoria Abroad Office about which universities will be open to you. www.victoria.ac.nz/exchange/
WHO TO CONTACT

Student Services provides a range of services to all students to help you make the most of your time at university. If you have an issue, need guidance to get through your studies, help is available. [www.victoria.ac.nz/home/viclife/studentservice/default.aspx](http://www.victoria.ac.nz/home/viclife/studentservice/default.aspx)

STUDENT AND ACADEMIC SERVICES—FACULTY OF SCIENCE

**Te Wāhanga Pūtaiao**

**Address:** Level 1, Cotton Building  
**Phone:** 04-463 5101  
**Email:** science-faculty@vuw.ac.nz  
**Web:** [www.victoria.ac.nz/science](http://www.victoria.ac.nz/science)  
**Hours:** 8.30 am–5 pm Monday, Wednesday, Thursday, Friday  
9.30 am–5 pm Tuesday

At the Faculty of Science Student Administration Office, student advisers can help with admission requirements, degree planning, changing courses and transfer of credit from other tertiary institutions. They also deal with other aspects of student administration such as enrolment, exams organisation and the maintenance of student records.

Patricia Stein manages all postgraduate students:  
[patricia.stein@vuw.ac.nz](mailto:patricia.stein@vuw.ac.nz)  
04-463 5982

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johan Barnard</td>
<td>Manager, Student and Academic Services</td>
<td>04-463 5980</td>
</tr>
<tr>
<td>Shona de Sain</td>
<td>Associate Dean (Academic)</td>
<td>04-463 5092</td>
</tr>
</tbody>
</table>

**TE RŌPŪ ĀWHINA**

**Address:** Cotton Building, Kelburn Parade, Room 148  
**Phone:** 04-463 5987  
**Email:** teropuawhina@gmail.com  
**Web:** [www.victoria.ac.nz/science/awhina](http://www.victoria.ac.nz/science/awhina)

Te Rōpū Āwhina whānau in the Faculties of Science, Engineering and Architecture and Design at Victoria University was established in 1999. Āwhina is about people and collective success. The kaupapa of Āwhina is to produce Māori and Pacific science, engineering, architecture and design professionals to contribute to Māori and Pacific community and leadership development. Anyone who assists the building of Āwhina is part of the whānau.