

2019

Postgraduate course list 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)
Email: geo-enquiries@vuw.ac.nz
Website: www.victoria.ac.nz/sgees

February 2019

STAFF CONTACTS

In most instances, staff can be reached at firstname.lastname@vuw.ac.nz

		ROOM	PHONE
Head of School:	Prof James Renwick	309	463 4719
Deputy Head of School	Dr Monica Handler (from 1 July 2019)	417	463 5391
PROGRAMME DIRECTORS			
Geography (GEOG, PHYG, ENVI, DEVE, GISCI)	Dr Bethanna Jackson	208	463 6116
Earth Sciences - ESCI (GEOL, GPHS, PGEO, MET)	A/Prof Michael Hannah	306	463 5494
POSTGRADUATE COORDINATORS			
Development Studies	Prof John Overton	209	463 5281
Environmental Studies	A/Prof Ralph Chapman	212	463 6153
Geographic Information Science	Dr Mairéad de Róiste	215	463 6431
Human Geography	A/Prof Sara Kindon	213	463 6194
	Prof Philp Morrison	210	463 5645
Physical Geography	Dr Kevin Norton	202	463 6993
	Dr Bethanna Jackson	208	463 6116
Earth Sciences	Prof Colin Wilson	411	463 9510
SCHOOL ADMINISTRATORS			
School Manager	Monika Hanson	310	463 5345
Postgraduate Administrator	Miranda Voke	311	463 6108
Programme Administrator (Geography)	Emily Brook	311	463 6158
Programme Administrator (Earth Sciences)	Steff Marinus	311	463 5337
Administrator - Operations	Emma Fisher	311	463 5346

ACADEMIC STAFF

Dr	Wokje	Abrahamse	<i>Environmental studies, human dimensions of environmental issues, behaviour change, urban sustainability</i>	204	463 5217
Dr	Cliff	Atkins	<i>Sedimentary processes and environments, Antarctic glacial geology</i>	302c	463 6143
A/Prof	Ralph	Chapman	<i>Environmental studies, climate change, energy, transport, housing, urban, design, environmental health</i>	212	463 6153
Prof	James	Crampton	<i>Biodiversity history, mollusc taxonomy, morphometrics, traditional and quantitative biostratigraphy, cretaceous stratigraphy, basin evolution and history of New Zealand</i>	214	463 8396
Dr	Mairéad	de Róiste	<i>Usability, GIS, fear of crime, transport modelling, e-democracy</i>	215	463 6431
Dr	Shaun	Eaves	<i>Quaternary geochronology, palaeoclimate, glaciology</i>	506	463 5176
Dr	Monica	Handler	<i>Geochemistry, mantle processes, volcanic rocks, Earth formation</i>	417	463 5391
A/Prof	Michael	Hannah	<i>Biostratigraphy, marine biostratigraphy, dinoflagellates; cretaceous/tertiary</i>	306	463 5494
Dr	Huw	Horgan	<i>Glaciology; ice-sheet stability, ice-shelf mass balance. Active source seismology</i>	520	463 9592
Dr	Jamie	Howarth	<i>Proxy records of environmental change preserved in sediments and tectonics</i>	224	463 5071
Dr	Bethanna	Jackson	<i>Hydrology; ecosystem service modelling; predicting impacts of land management</i>	208	463 6116
Dr	Rebecca	Kiddle	<i>Role of Māori identity and place-making; transferability of urban design ideas cross-culturally; educational space design and young people's involvement in built environment decision-making processes.</i>	205	463 6918
A/Prof	Sara	Kindon	<i>Social and development geography, participatory research, visual methods, gender, refugee resettlement</i>	213	463 6194
A/Prof	Simon	Lamb	<i>Structural geology and tectonics</i>	525	463 6428
Prof	Tim	Little	<i>Tectonics, structural geology, deformational processes</i>	410	463 6198
Prof	Andrew	Mackintosh	<i>Glaciology, palaeoclimate, geomorphology</i>	519	463 6193
Dr	Jim	McGregor	<i>Meteorology</i>	530	463 5278
Prof	Philip	Morrison	<i>Economic geography, labour market geography, urban growth and development</i>	210	463 5645
Prof	Warwick	Murray	<i>Social and economic geography of development, globalisation, Latin America, Oceania, Asia-Pacific</i>	211	463 5029
Prof	Rewi	Newnham	<i>Quaternary climate and environmental change, palynology and vegetation history</i>	200	463 5279
Dr	Kevin	Norton	<i>Geomorphology</i>	202	463 6993
Prof	John	Overton	<i>Development studies, theories of development, land tenure, rural transformations</i>	209	463 5281
Dr	Marcela	Palomino-Schalscha	<i>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 knowledge's and rights.</i>	203	463 5899

Dr	Lynda	Petherick	<i>Quaternary climate and environmental change, palynology and vegetation history, sedimentology and aeolian processes</i>	207	463 5844
Prof	James	Renwick	<i>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.</i>	206	463 4719
Prof	Martha	Savage	<i>Seismology and its relation to tectonics, volcanoes, earthquake hazards and geothermal energy.</i>	529	463 5961
Dr	Ian	Schipper	<i>Igneous Petrology and Volcanology</i>	415	463 8197
Prof	Diane	Seward	<i>Low temperature thermochronology, Fission-track analysis, (U-Th-Sm)/He analysis with applications in tectonics, structural geology, basin analysis, landscape evolution</i>	416	463 5814
Prof	Terry	Seward	<i>Chemistry and geochemistry of aqueous fluids elevated temperatures and pressures at conditions relevant to those found in the earth's crust</i>	416	463 5814
Dr	Dan	Sinclair	<i>Environmental geochemistry, palaeoclimatology, palaeoceanography, rapid climate change during the last glacial, geochemistry of carbonates, speleothems and corals; biomineralization</i>	408	463 9755
Prof	Tim	Stern	<i>Exploration geophysics and tectonics, crust and mantle structure of the earth</i>	526	463 5112
Dr	Polly	Stupples	<i>Social and cultural geography, development studies, creative practice and the creative economy, sustainability</i>	221	463 6793
Prof	Rupert	Sutherland	<i>Global-scale tectonic process and crustal-scale tectonic processes</i>	527	463 6422
Dr	Amanda	Thomas	<i>democracy, environmental democracy, political ecology, gender, class and ethnicity</i>	201	463 6117
Prof	John	Townend	<i>Fault mechanics and tectonophysics</i>	309	463 5411
Dr	Julie	Vry	<i>Metamorphic petrology, geochemistry</i>	409	463 6432
Prof	Colin	Wilson	<i>Field, chemical and physical volcanology, super-volcanoes, pyroclastic deposits, volcano-tectonics, and geothermal geology</i>	411	463 9510

ANTARCTIC RESEARCH CENTRE

Dr	Brian	Anderson	Senior Research Fellow	513	463 9662
Prof	Peter	Barrett	Emeritus Professor	515	463 5336
A/Prof	Nancy	Bertler	Associate Professor	511	463 6196
Prof	Lionel	Carter	Prof of Marine Geology	507	463 6475
Dr	Ruzica	Dadic	Research Fellow	510	463 6199
Dr	Warren	Dickinson	Senior Research Fellow	510	463 6199
Ms	Michelle	Dow	Centre Manager	512	463 6587
Dr	Gavin	Dunbar	Senior Lecturer	518	463 6123
A/Prof	Nick	Golledge	A	509	463 9592
Dr	Huw	Horgan	Senior Lecturer	520	463 6918
Prof	Andrew	Mackintosh	Professor	519	463 6193
Mr	Darcy	Mandeno	Field and Operations Engineer	513	463 9662
Dr	Rob	McKay	Senior Lecturer	508	463 6836

Prof	Tim	Naish	Director	517	463 6197
Mr	Alex	Pyne	Projects Manager	514	463 5396

CLIMATE CHANGE RESEARCH INSTITUTE

Dr	Kelli	Archie	<i>Climate change adaptation</i>	128	463 5058
Prof	Dave	Frame	Director	127	463 6790
Dr	Judy	Lawrence	<i>Adjunct Research Associate</i>	129	463 5474
Prof	Martin	Manning	<i>Adjunct Research Associate</i>	129	463 5474

EMERITUS PROFESSORS

E/Prof	Michael	Crozier	<i>Physical geography</i>		off campus
E/Prof	John	Gamble	<i>Igneous Petrology and Petrogenesis, Physical Volcanology</i>	419	463 5253
E/Prof	John	Harper	<i>Fluid mechanics</i>	425	463 5276
E/Prof	Euan	Smith	<i>Seismology, earthquake occurrence, earthquake mechanics, earth deformation, seismic hazard</i>	525	463 6428
E/Prof	Dick	Walcott	<i>Global tectonics, continental deformation</i>		off campus
E/Prof	Ray	Watters	<i>Latin America, Uplands of China</i>		off campus

RESEARCH FELLOWS

Dr	Calum	Chamberlain	<i>Post-doctoral Fellow in Geophysics</i>	528	463 6353
Dr	Deborah	Maxwell	<i>Hydrology and ecosystem service modelling</i>	226	463 8369
Dr	Andrew	Rees	<i>Post-doctoral Fellow in Paleoecology</i>	214	463 9396

TECHNICAL STAFF

Mr	Aleksandr	Beliaev	UNIX Systems Administrator	502	463 6470
Mr	Adrian	Benson	Technician – Geophysics	502	463 6470
Mr	Stewart	Bush	Technician - Petrology	313	463 5492
Mr	Dene	Carroll	Technician – Collections/ First Year Lab Coordinator	319	463 6192
Dr	Bruce	Charlier	Geochemistry Laboratory Manager	414	463 5865
Miss	Jane	Chewings	Technician – Laboratory	319	463 6192
	Vacant		Technician – Geochem	319	463 6192
Mr	Andrew	Rae	Technician – GIS Support	318	463 6512
Mr	Kosta	Tashkoff	Manager Technical Services	307	463 6013
Mr	Dez	Tessler	Field Technical	318	463 6192
Ms	Ningsheng	Wang	Senior Technical Officer - Luminescence Lab Coordinator	414	463 6127

POSTGRADUATE PROGRAMMES

The diagram below represents the structure of postgraduate study in science.



The following qualifications are available within the School's programmes.

- Graduate Diploma in Science (GDipSc)
- Postgraduate Certificate in Science (PGCertSc)
- Postgraduate Diploma in Science (PGDipSc) in Geography, Geology, Geophysics, Petroleum Geoscience or Physical Geography
- Postgraduate Diploma in Arts (PGDipArts)
- Postgraduate Certificate Geographic Information Science (PGCertGIS)
- Postgraduate Diploma in Development Studies (PGDipDevStud)
- Postgraduate Diploma in Environmental Studies (PGDipEnvStud)
- Postgraduate Diploma in Geographic Information Science (PGDipGIS)
- Postgraduate Diploma in Meteorology (PGDipMet)
- Bachelor of Arts with Honours (BA(Hons)) in Geography
- Bachelor of Science with Honours (BSc(Hons)) in Geography, Geology, Geophysics or Physical Geography
- Master of Science (MSc) with Honours in Geography, Geology, Geophysics or Physical Geography (Parts 1 and 2)
- Master of Arts (MA) by thesis in Geography (Part 2 only)
- Master of Science (MSc) by thesis in Geography, Geology, Geophysics or Physical Geography (Part 2 only)
- Master of Climate Change Science and Policy (MCCSP)
- Master of Development Studies (MDevStud)
- Master of Environmental Science (MEnvSc)
- Master of Environmental Studies (MEnvStud)
- Master of Geographic Information Science (MGIS)
- Master of Meteorology (MMet)
- PhD in Development Studies, Environmental Studies, Geographic Information Science, Geography, Geology, Geophysics or Physical Geography

DOCTOR OF PHILOSOPHY

The PhD is the highest degree offered, and usually takes three to four years to complete. It is an internationally recognised research degree and opens up rich and varied career opportunities. Students should contact the Faculty of Graduate Research (FGR) www.victoria.ac.nz/fgr to enrol.

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.

CLIMATE CHANGE SCIENCE AND POLICY

Climate change is undoubtedly one of the biggest challenges our world currently faces. Globally, we are already seeing some of the consequences through increases in extreme weather events, habitable land loss and growing concerns about living and working conditions, food security, species loss and threats to biodiversity. Enrol in this cross-disciplinary programme and develop the necessary skillset to address the real world problems that climate change is bringing.

If you want to work in policy, regional or local government, research institutes or NGO advocacy related to climate change, this programme will give you an edge in your career.

MASTER OF CLIMATE CHANGE SCIENCE AND POLICY

To complete the Master of Climate Change Science and Policy (MCCSP), a student must undertake 180 points of study over at least three trimesters of study. Part 1 comprises 60 points of taught courses. Part 2 comprises a further 60-points selected from a series of relevant taught courses with Part 3 consisting of either a 60-point research essay or a practicum placement.

Entry requirements: The minimum entry qualification is an undergraduate degree in science, law, engineering or the social sciences – you do not need a science degree to apply for this degree.

The course of study for the MCCSP consists of:

Part 1: CCSP 401, 402, 403 and 404

Part 2: 60 points from BIOL 420, 423, CCSP 408, 409, ENVI 412, 522, 524, 530, GEOG 411, GOVT 542, GPHS 420, 423, 425, 426, MMPE 507, PHYG 413, 414, 420, PSYC 405, or other courses approved by Head of School.

Part 3: CCSP 510 or CCSP 511.

POSTGRADUATE DIPLOMA IN SCIENCE

A Postgraduate Diploma in Science (PGDipSc) may be awarded to a student who has completed both Part 1 and 2 (as described above) but not Part 3.

POSTGRADUATE CERTIFICATE IN SCIENCE

A Postgraduate Certificate in Science (PGCertSc) may be awarded to a student who has completed Part 1 (as described above) but not Parts 2 and 3.

400-LEVEL CLIMATE CHANGE SCIENCE AND POLICY COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

CCSP 401	CRN 30159	PHYSICAL BASIS OF CLIMATE CHANGE	15 PTS	1/3
-----------------	------------------	---	---------------	------------

Coordinator: Prof James Overton

Students will learn elementary radiative transfer physics, energy balance, concepts of climate forcing, feedback and response. Some elements of planetary circulation will be covered, along with modes of variability. Carbon, methane and nitrogen cycles will be covered in support of understanding the relationship between emissions and concentrations. Introductory atmospheric, oceanic and cryosphere physics will be taught. Topics to be covered include: observations of the atmosphere, ocean, carbon cycle and cryosphere; earth system models and their performance; modes of variability; patterns of forcing, feedback and response; and emergent patterns of change.

CCSP 402	CRN 30160	CLIMATE CHANGE IMPACTS AND ADAPTATION	15 PTS	1/3
-----------------	------------------	--	---------------	------------

Coordinator: Dr Alex Lo

This course will provide participants with high-level understanding of climate change impacts and adaptation at global, national and local scales. Climate prediction models will be used to examine social and biophysical vulnerabilities to environmental change, and explore policies and measures to minimise impacts, and the potential for adaptation at different scales. Topics include: global and local implications of climate change impacts and adaptation, implications (and risks) of a variable and changing climate on particular societies, models, feedback processes and uncertainties; adaptation strategies; categories of adaptation; Maori knowledge and values related to adaptation, information and communication; public engagement.

CCSP 403	CRN 30161	INTERNATIONAL CLIMATE CHANGE POLICY	15 PTS	2/3
-----------------	------------------	--	---------------	------------

Coordinator: Prof Dave Frame

This course provides an overview of international climate policy, drawing on policy-relevant physical climate change science, economics, game theory, ethics, and international relations theory relevant for climate policy. At the end of the course students will understand and be able to critically analyse key decision-relevant aspects of climate change science and environmental economics, as well as the history, theory and prospects of landmark efforts to govern climate change, domestically and internationally.

CCSP 404	CRN 30162	CLIMATE CHANGE MITIGATION	15 PTS	2/3
-----------------	------------------	----------------------------------	---------------	------------

Coordinator: TBC

An examination of the domestic and international policy issues surrounding climate change mitigation, including why mitigation represents a challenging social and economic as well as environmental problem; differing perspectives on policy solutions to the mitigation challenge; linkages with international policy; policies and behaviour change; the roles of relevant institutions; sectoral considerations and policy measures; policy communication, and the politics of mitigation strategies.

CCSP 408/409	CRN TBC	SPECIAL TOPICS	15 PTS	
---------------------	----------------	-----------------------	---------------	--

Coordinator: TBC

Courses are activated as and when required.

500-LEVEL CLIMATE CHANGE SCIENCE AND POLICY COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

CCSP 510	CRN 30163	RESEARCH ESSAY	60 PTS	3/3
-----------------	------------------	-----------------------	---------------	------------

Prerequisites: Completion of Parts 1 and 2 with a B+ average (or better) or permission of Head of School

Coordinator: Dr Alex Lo

This major research project gives the student scope to investigate a climate related topic of particular interest, and centres on writing and presenting an extended research essay of up to 15,000 words. The investigation will relate to a research question concerning an aspect of climate change science or policy, broadly interpreted. It will consist of a review of the literature, some primary research and analysis, and the leading of a seminar to share understanding of the project's outcomes with fellow students.

CCSP 511	CRN 30164	PRACTICUM PLACEMENT AND PROJECT	60 PTS	3/3
-----------------	------------------	--	---------------	------------

Prerequisites: Completion of Parts 1 and 2 with a B+ average (or better) or permission of Head of School

Coordinator: Dr Alex Lo

This course has three components: a placement, a research project, and presentation of a seminar. The placement is a period of work with an employer in the field of climate change science, policy or management (e.g. climate-related transport research or policy formulation). The short research project aims to research a particular aspect of the work undertaken, or the host organisation itself, to enrich the student's understanding of the organisation's work. A seminar aims to share understanding among fellow students of the role of the host organisation.

DEVELOPMENT STUDIES

Development studies programmes examine the theories and practices associated with inequalities in world development, using multi-disciplinary approaches.

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.

Our programmes are 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.

POSTGRADUATE DIPLOMA IN DEVELOPMENT STUDIES

The Postgraduate Diploma in Development Studies (PGDipDevStud) is a full-time programme taken over the course of one year, without a thesis component. 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.

Entry requirements: 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, Prof John Overton, before enrolment. Applications for the PGDipDevStud must be received by 10 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 as discussed with the Director.

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.

All students are urged to plan their course of study with the Director of Development Studies before enrolment. Applications for the MDevStud must be received by 10 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 as discussed with the Director.

Part 2: DEVE 592 (Thesis) **Requirements:** 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.

PHD IN DEVELOPMENT STUDIES

The PhD in Development Studies usually takes three to four years to complete.

500-LEVEL DEVELOPMENT STUDIES COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

DEVE 503	CRN 17050 CRN 17304 CRN 9236	PRACTICUM	30 PTS	2+3/3 3+1/3 1+2/3
-----------------	---	------------------	---------------	--

Assessment: Internal assessment
 Coordinator: Prof John Overton

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.

DEVE 511	CRN 5920	DEVELOPMENT THEORY	15 PTS	1/3
-----------------	-----------------	---------------------------	---------------	------------

Restriction: DEVE 501
 Coordinator: Prof John Overton

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	CRN 15921	DEVELOPMENT PRACTICE	15 PTS	2/3
-----------------	------------------	-----------------------------	---------------	------------

Restriction: DEVE 501
 Coordinator: Dr Marcela Palomino-Schalscha

DEVE 512 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.

DEVE 513	CRN 15922	DEVELOPMENT POLICY	15 PTS	1/3
-----------------	------------------	---------------------------	---------------	------------

Coordinator: Prof John Overton

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.

DEVE 514	CRN 15923	DEVELOPMENT RESEARCH	15 PTS	2/3
-----------------	------------------	-----------------------------	---------------	------------

Coordinator: Dr Marcela Palomino-Schalscha

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.

DEVE 560	CRN13963	SPECIAL TOPIC	30 PTS	1/3
	CRN10252			1+2
	CRN 11346			2/3
	CRN 23174			2+3

Coordinator: John Overton

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.

DEVE 592	CRN 11761	THESIS	120 PTS	F/Y
Assessment:		Thesis		
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.

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 finalised. The proposal is also necessary so that the student can forward that proposal both for funding consideration and for ethics approval.

The final thesis produced should be between 120 and 150 pages in length (maximum of 40,000 words).

ENVIRONMENTAL SCIENCE

Risks posed by climate change, sea level rise and stresses on our natural resources highlight the need for environmental scientists and advisors. Environmental Science is about how humans connect with and effect the natural environment and is taught through a range of scientific disciplines such as biology, chemistry, geography, mathematics and physics.

Enrol in this course-based master's degree to gain a comprehensive understanding of environmental science and how it is applied across government, private and community sectors. This 12-month programme will allow you to develop highly sought after tools and techniques in environmental monitoring, data science, climate change, biosecurity, integrated ecosystem processes and mātauranga Māori.

Our capital city location is the ideal place for you to see how environmental science ranges from the field to policy-making. With active city and regional councils, an eco-sanctuary right on the doorstep and longstanding collaborations with Crown Research Institutes like NIWA and GNS Science, the Master of Environmental Science will provide you with diverse opportunities.

MASTER OF ENVIRONMENTAL SCIENCE

The Master of Environmental Studies (MEnvSc) 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. Part 1 will ensure that you have a grounding in the basics while Part 2 brings in project-oriented study in an area of environmental science that follow your interests or prepares you for your chosen career path.

The MEnvSc course of study consists of:

Part 1: ENSC 401, 402, 485 and 60 further points from BIOL 403-431, CCSP 401, 402, CHEM 421-423, ENSC 410-421, ENVI 520, ESCI 403-416, GPHS 441-448, PHYG 413-423, PHYS 415-447 and STAT 431-452.

Part 2: ENSC 510 or ENSC 511

POSTGRADUATE DIPLOMA IN SCIENCE

A Postgraduate Diploma in Science (PGDipSc) may be awarded to a student who has completed Part 1 (as described above) but not Part 2.

POSTGRADUATE CERTIFICATE IN SCIENCE

A Postgraduate Certificate in Science (PGCertSc) may be awarded to a student who has completed 60 points from Part 1, including the courses ENSC 401 and 402.

400-LEVEL ENVIRONMENTAL SCIENCE COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

ENSC 401	CRN 31068	ADVANCED TOPICS IN ENVIRONMENTAL SCIENCE	30 PTS	1/3
-----------------	------------------	---	---------------	------------

Coordinator: TBC

This course develops field and lab skills, with a strong focus on environmental monitoring at Zealandia. Students will assess methodologies from published literature and apply relevant techniques to collected data, developing scientific, analytical and mathematical skills that can be extrapolated to key environmental problems.

ENSC 402	CRN 31069	PERSPECTIVES ON ENVIRONMENTAL SCIENCE IN AOTEAROA NEW ZEALAND	15 PTS	1/3
-----------------	------------------	--	---------------	------------

Coordinator: Dr Lynda Petherick

The Earth is facing escalating pressures on the environment. In this interdisciplinary science course, students will explore contemporary and controversial environmental issues facing New Zealand. The course will be lecture and seminar based, with external guest-speakers offering their perspectives on the state of the environment in New Zealand. Students will gain experience and skills of engagement with various stakeholders.

ENSC 410	CRN 31070	ENVIRONMENTAL SCIENCE INTERNSHIP	15 PTS	2/3
-----------------	------------------	---	---------------	------------

Prerequisite: permission of Head of School
 Restriction: ENSC 511
 Coordinator: TBC

This course enables students to gain professional work experience in environmental science. Each student is supervised by a host organisation involved in environmental science research or applications in the public or private sectors. The placement allows students to further develop teamwork and communication skills, with production of a report and presentation.

ENSC 411	CRNs TBC	SPECIAL TOPIC	15 PTS	TBC
ENSC 421				

Coordinator: TBC

Courses are activated as and when required.

ENSC 485	CRN 31073	ENVIRONMENTAL SCIENCE RESEARCH ESSAY	15 PTS	2/3
-----------------	------------------	---	---------------	------------

Prerequisites: ENSC 401, 402
 Coordinator: TBC

This course develops skills in research and writing in Environmental Science. A review essay will be written on a relevant topic in environmental science, with the supervision of a Victoria academic or an expert from a collaborative institute. The review is expected to meet the conventions of a scholarly outlet. The review findings will be summarised in a blog, suitable for non-experts.

500-LEVEL ENVIRONMENTAL SCIENCE COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

ENSC 510	CRN 31074	ENVIRONMENTAL SCIENCE RESEARCH PROJECT	60 PTS	3/3
-----------------	------------------	---	---------------	------------

Prerequisite:	ENSC 485
Restriction:	ENSC 511
Coordinator:	TBC

This major research project gives the student scope to investigate an environment-related topic of particular interest, and centres on writing and presenting an extended research essay of up to 15,000 words. The investigation will relate to an independent research question concerning an aspect of environmental science. It will consist of a review of the literature, some primary research and analysis, and the leading of a seminar to share understanding of the project's outcomes with fellow students.

ENSC 511	CRN 31075	ENVIRONMENTAL SCIENCE PLACEMENT AND PROJECT	60 PTS	3/3
-----------------	------------------	--	---------------	------------

Prerequisite:	ENSC 485
Restriction:	ENSC 410, 510
Coordinator:	TBC

This course provides both professional development and research training. It has three components: a placement, an applied research project, and presentation of a seminar. The placement is a period of work with an employer in the field of environmental science. The project aims to research a particular aspect of the work undertaken to enrich the student's knowledge of the organisation's work. The seminar aims to share understanding among fellow students of the role of the organisation.

ENVIRONMENTAL STUDIES

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, and is suitable for students with an interest in the environment, whether from a science, commerce or arts background.

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.

MASTER OF ENVIRONMENTAL STUDIES

The Master of Environmental Studies (MEnvStud) 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. Part 1 will ensure that you have a grounding in the basics. Part 2 provides a one-year full-time (or two-year part-time) research and professional programme in an area of environmental or resource management expertise that will prepare you for your chosen career path.

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).

Note: Enrolment in ENVI 593 or ENVI 591 will be for 12 months from the date of enrolment, or 24 months if 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. You are strongly advised to tailor your research proposal to the interests and expertise of staff in the programme.

POSTGRADUATE DIPLOMA IN ENVIRONMENTAL STUDIES

Postgraduate Diploma in Environmental Studies (PGDipEnvStud) is a full-time programme taken over the course of one year, without a thesis component. This qualification requires the completion of 120 points of coursework including two 15 point core courses (ENVI 520 and 521) and 90 points from ENVI 522-530.

Entry requirements: 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, A/Prof Ralph Chapman, before enrolment. Applications for the PGDipEnvStud must be received by 31 January for the year of study. Part time enrolment is possible.

The PGDipEnvStud course of study consists of:

ENVI 520 and 521 and 90 further points from ENVI 522–530, up to 30 of these points may be replaced by approved 400 or 500-level courses as discussed with the Director.

PHD IN ENVIRONMENTAL STUDIES

The PhD in Environmental Studies usually takes three years to complete.

500-LEVEL ENVIRONMENTAL STUDIES COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

ENVI 512	CRN 2074	PRACTICUM	30 PTS	1+2/3
-----------------	-----------------	------------------	---------------	--------------

Coordinator: A/Prof Ralph Chapman

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 timeframe, 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 end of February 2018 in order to obtain a pass grade.

ENVI 520	CRN 15675	ENVIRONMENTAL MANAGEMENT	15 PTS	1/3
-----------------	------------------	---------------------------------	---------------	------------

Coordinator: A/Prof Ralph Chapman

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.

ENVI 521	CRN 15676	RESEARCH METHODS FOR ENVIRONMENTAL STUDIES	15 PTS	2/3
-----------------	------------------	---	---------------	------------

Coordinator: Dr Wokje Abrahamse

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
-----------------	------------------	---------------------------------------	---------------	------------

Coordinator: Tom Bennion

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 524	CRN 26075	ENVIRONMENTAL ECONOMICS	15 PTS	
		1/3 FOR PUBLIC POLICY		

Coordinator: A/Prof Ralph Chapman

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.

ENVI 525	CRN 25034	MĀORI ENVIRONMENTAL AND RESOURCE MANAGEMENT	15 PTS	2/3
-----------------	------------------	--	---------------	------------

Coordinator: Dr Rebecca Kiddle

The course aims to build an understanding of Māori 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 Māori 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.

ENVI 526	CRN 17359	POLITICAL ECOLOGY OF CONSERVATION	15 PTS	1/3
-----------------	------------------	--	---------------	------------

Coordinator: Dr Amanda Thomas

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.

ENVI 528	7358	CLIMATE CHANGE ISSUES	15 PTS	2/3
-----------------	-------------	------------------------------	---------------	------------

Coordinator: A/Prof Ralph Chapman

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 530	CRN 26076	SPECIAL TOPIC: DRIVERS OF HUMAN BEHAVIOUR	15 PTS	2/3
-----------------	------------------	--	---------------	------------

Coordinator: Dr Wokje Abrahamse

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.

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.

GEOGRAPHIC INFORMATION SCIENCE

Geographic data underpins global issues from climate change to population dynamics. Almost all data today is associated with its location at the moment of collection. Geographic Information Science (GIS) is an expanding discipline designed to harness such data, facilitating a better understanding of what happens on Earth for both the physical environment and human populations.

The Victoria University of Wellington GIS programme will give you a comprehensive understanding of GIS. You'll learn to explore, store, manipulate, analyse, communicate and visualize data with a spatial or geographic component. The discipline of GIS is growing internationally and it is an identified skills-shortage area in New Zealand and graduates are highly sought after.

MASTER OF GEOGRAPHIC INFORMATION SCIENCE

The MGIS comprises at least 180 points of studied in two parts. It provides an interdisciplinary approach to GIS, which includes both taught courses and supervised research.

Part 1: Courses worth at least 120 points from the MGIS Schedule, including:

- GISC 421, GEOG 580 and STAT 483
- at least two courses from GISC 422–424
- at least one further course from GISC 422–429

Part 2:

GISC 511 or GISC 512

The Programme Director may approve a substitution in Part 1 of up to 30 points to be taken as local electives/approved courses.

Entry requirements: A Bachelor's degree with an average grade of B or higher in relevant 300-level courses, two undergraduate GIS courses and acceptance by the Director of the Joint Board of Studies. Admission to the programme is in two parts. Firstly, candidates must apply to www.mgis.ac.nz and after being accepted, apply to Victoria University of Wellington.

POSTGRADUATE DIPLOMA IN GEOGRAPHIC INFORMATION SCIENCE

The PGDipGIS programme of study consists of at least 120 points from the MGIS Schedule, including:

- GISC 421 and STAT 483
- two courses from GISC 422–424
- one further course from GISC 422–429

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.

Note: An MGIS candidate who has completed Part 1 of the MGIS degree and not Part 2 may be awarded a PGDipGIS.

POSTGRADUATE CERTIFICATE IN GEOGRAPHIC INFORMATION S C I E N C E

The PCertGIS programme of study shall consist of:

- GISC 421 and STAT 483
- two courses from GISC 422–424

Note: A PGDipGIS or MGIS candidate who has completed GISC 421, STAT 483 and two of GISC 422-424 may be awarded a PGCertGIS.

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.

400-LEVEL GEOGRAPHIC INFORMATION SCIENCE COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

GISC 421	CRN 31076	GEOGRAPHIC INFORMATION SCIENCE APPLICATIONS AND IMPACT	15 PTS	1/3
-----------------	------------------	---	---------------	------------

Prerequisite: Enrolment in a GIS postgraduate programme
Coordinator: TBC

This course provides an overview of Geographic Information Science in New Zealand and internationally. Through field teaching, individual and group work, and guest lectures from industry professionals, students will gain a strong understanding of the dimensions of the geospatial industry from data collection, storage analysis and dissemination. Specific attention will be given to exploring Maori communities and organisations' use of and impact on GIS; ethics; and GIS fit within organisations, the economy, communities and impact on their decision making.

N.B. Students who passed GISC 401 (offered 2012 to 2018) may not enrol in GISC 421

GISC 422	CRN 31077	SPATIAL ANALYSIS MODELLING	15 PTS	1/3
-----------------	------------------	-----------------------------------	---------------	------------

Prerequisites: GEOG 215, 315 or permission of Programme Director
Coordinator: Prof David O'Sullivan

Advances in data collection, such as crowdsourcing and the unique nature of geographic information require an understanding of the complexities of spatial data. Students on this course will learn to apply statistical techniques to the analysis of geographic data. Students will also explore relationships between spatial structures and processes using simulation models.

N.B. Students who passed GISC 404 (offered 2012 to 2018) may not enrol in GISC 422

GISC 423	CRN 31078	CARTOGRAPHY AND GEOVISUALISATION	15 PTS	1/3
-----------------	------------------	---	---------------	------------

Prerequisites: GEOG 215, 315 or permission of Programme Director
Coordinator: Dr Mairéad de Róiste

This course provides a theoretical grounding in the various ways geographic information can be visualised. Beyond the conventional map display, alternate representations, interfaces to geographic data, visual exploration of datasets and cartographic generalisation will be covered. The course introduces the concepts, principles, theories and applied components of Cartography and Geovisualisation.

N.B. Students who passed GISC 403 (offered 2012 to 2018) may not enrol in GISC 423

GISC 424	CRN 31079	REMOTE SENSING	15 PTS	2/3
-----------------	------------------	-----------------------	---------------	------------

Prerequisites: GEOG 215, 315 or permission of Programme Director
Coordinator: TBC

A practical introduction to interpretation and analysis of satellite, aerial and radar imagery for earth observation. This course covers the basics of the electromagnetic spectrum and explores its interpretation and use in the analysis of remotely sensed data, specifically covering classification and image manipulation techniques for both active and passive sensors.

GISC 425	CRN 31080	SPECIAL TOPIC: GEOGRAPHICAL COMPUTING	15 PTS	1/3
-----------------	------------------	--	---------------	------------

Prerequisite: GEOG 315 or equivalent
 Coordinator: TBC

Advanced work in geographical information science is conducted by scripting and programming. This course introduces principles of computer programming in the context of popular libraries for the handling of geographic data. Basic programming skills in python are introduced to equip students for modern geospatial analysis environments.

GISC 426	CRN 31081	SPECIAL TOPIC	15 PTS	TBC
-----------------	------------------	----------------------	---------------	------------

Prerequisites: GEOG 215, 315 or permission of Programme Director
 Coordinator: TBC

This course is activated as and when required.

GISC 427	CRN 31082	EMERGING TOPICS IN GIS	15 PTS	2/3
-----------------	------------------	-------------------------------	---------------	------------

Prerequisites: GEOG 215, 315 or permission of Programme Director
 Coordinator: TBC

This course will explore emerging topics in GIS through current academic literature, lectures, class discussion, and seminars. Such topics may include GIS 2.0, crowdsourcing, sensors and IoT (Internet of Things). Seminar topics vary and will be selected by the students.

GISC 428	CRN 31083	DIRECTED INDIVIDUAL STUDY	15 PTS	TBC
-----------------	------------------	----------------------------------	---------------	------------

Prerequisites: GEOG 215, 315 or permission of Programme Director
 Coordinator: TBC

This course is activated as and when required.

GISC 429	CRN 31084	INTERNSHIP	15 PTS	2/3
-----------------	------------------	-------------------	---------------	------------

Prerequisites: Enrolment in GIS postgraduate programme and 60 points from the MGIS schedule.
 Coordinator: Dr Mairéad de Róiste

This course will explore emerging topics in GIS through current academic literature, lectures, class discussion, and seminars. Such topics may include GIS 2.0, crowdsourcing, sensors and IoT (Internet of Things). Seminar topics vary and will be selected by the students.

500-LEVEL GEOGRAPHIC INFORMATION SCIENCE COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

GISC 511	CRN 31085 CRN 31185	RESEARCH PROJECT IN GEOGRAPHIC INFORMATION SCIENCE	60 PTS	2/3 3/3
-----------------	--------------------------------	---	---------------	--------------------

Prerequisites: Completion of Part 1 of the MGIS and permission of the Programme Director

Coordinator: Dr Mairéad de Róiste

This major research project gives the student scope to investigate a GIS related topic of particular interest, and centres on writing and presenting an extended research essay. It will consist of a research question, review of the literature, some primary research and analysis, and the leading of a seminar to share understanding of the project's outcomes with fellow students.

GISC 512	CRN 31086	PLACEMENT AND APPLIED RESEARCH PROJECT	60 PTS	3/3
-----------------	------------------	---	---------------	------------

Prerequisites: Completion of Part 1 of the MGIS and permission of the Programme Director

Restriction: GISC 429

Coordinator: Dr Mairéad de Róiste

This course comprises of a placement, a presentation, and a research project. The placement is a period of work with a GIS employer. The short research project aims to research a particular aspect of the work undertaken, or the host organisation itself, to enrich the student's understanding of the organisation's work. A seminar aims to share understanding among fellow students of the role of the host organisation.

GEOGRAPHY

Geography at Victoria 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.

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 Geography: urban quality of life, migration, and community engagement under the supervision of expert staff. Students can also draw on a range of courses offered in Geography, Physical Geography, Environmental Studies and Development Studies.

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.

POSTGRADUATE CERTIFICATE IN SCIENCE IN G E O G R A P H Y

The PGCertSc requires 60 points of postgraduate study and can be completed in one trimester or part time over two years. The Certificate can be converted into a Postgraduate Diploma in Science with a further 60 points of 400-level approved courses.

POSTGRADUATE DIPLOMA IN ARTS IN G E O G R A P H Y

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 Geography but are not intending to complete the GEOG 489 Research Project.

Entry requirements: A Bachelor's degree with a major in Geography, including GEOG 324 and GEOG 325 plus 40 points of approved courses. The diploma normally requires at least two trimesters of study and should be completed within four years of first enrolling.

POSTGRADUATE DIPLOMA IN SCIENCE IN G E O G R A P H Y

The Postgraduate Diploma in Science (PGDipSc) in Geography is made up of 120 points at from GEOG 401-489, 580, PHYG 413-489, and does not require a research project.

Entry requirements: 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).

BA OR BSC WITH HONOURS IN GEOGRAPHY

Entry requirement: A Bachelor's degree with a major in Geography including GEOG 324 and GEOG 325 plus 40 points of approved courses from GEOG 312-324, 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.

Students wishing to enrol in Honours in Geography must contact the Geography Graduate Coordinator (A/Prof Sara Kindon) by 2 December prior to the year of intended enrolment stating 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 10 January of the year of study.

The courses of study for a BSc(Hons) or BA (Hons) in Geography consists 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 with approval from the Geography Graduate Coordinator. Some prerequisites may be required.

Students are encouraged to cluster their courses into coherent programmes of study around our three main distinctive areas of research:

- Urban quality of life
- Migration and resettlement
- Community engagement

You are advised to select the courses you wish to take early and begin reading over the summer prior to enrolment. For 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.

MASTER OF SCIENCE IN GEOGRAPHY

An MSc in Geography consists of two parts: Part 1 involves coursework and a research preparation course. Part 2 is a full-time research project, leading to a thesis. Full time enrolment is usually two years. Part time study may be undertaken with permission from the programme director.

Entry requirements: 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. Study in Part 2 is entirely by thesis research.

Entry requirements into Part 2: B+ in your Part 1 courses. 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 a half years of first enrolling for the degree. A candidate who enrolls in Part 2 of the Master's programme, after completing a relevant Honours or Postgraduate diploma may have their Master's awarded with distinction or merit.

MASTER OF ARTS BY THESIS IN GEOGRAPHY

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).

PHD IN GEOGRAPHY

The PhD in Geography usually takes three to four years to complete.

400/500-LEVEL GEOGRAPHY COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

GEOG 404	CRN 1679	Geography of Development Studies	30 PTS	1/3
-----------------	-----------------	---	---------------	------------

Coordinator: A/Prof Sara Kindon

Participation is one of the current buzzwords of development, but what is it? How do we achieve it? And does it really result in more equitable benefits for those involved? In this course, we explore the various uses of the term participation and its impacts over the last 50 years within development discourse and geographic research. Specifically, we focus our engagement through the lens of refugee-background young people for it is with and through them that some of the challenging issues of participatory research and development become most acute.

The orientation and content of the course is informed by epistemologies infusing participatory action research and appreciative inquiry: critical pragmatism and feminism. It involves training in research design, analysis, facilitation and cross-cultural communication through experience in a 'real-world' project. It also involves assessments that reflect the importance of contextual research, methodological preparation, group work and reflective learning.

GEOG 408	CRN 29108	Geography of Place, Power and Identity	15 PTS	2/3
-----------------	------------------	---	---------------	------------

Coordinator: Dr Marcela Palomino-Schalscha

This course provides an introduction to advanced debates within social and cultural geography, in particular around the theorisation of place, power and identity. The course will deal with a range of issues and grounded examples while introducing poststructuralist and postcolonial geographies, geographies of 'race' and gender, indigenous geographies and relational geographies.

GEOG 410	CRN 1691	Geographies of Wellbeing	30 PTS	2/3
-----------------	-----------------	---------------------------------	---------------	------------

Coordinator: Dr Luke Kiddle

The study of wellbeing at all levels is one of the fastest growing subfields in social science. This course draws on human geography research to introduce graduate students in Human Geography, Development Studies and Environmental Studies, as well as other social science disciplines, to the concepts of wellbeing and people's relationship to place.

GEOG 411	CRN 1693	ST: Geographies of Food Climate Change and the Future of Food Security	30 PTS	1/3
-----------------	-----------------	---	---------------	------------

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.

Course not offered in 2019.

GEOG 415	CRN 25033	INTRODUCTION TO GEOGRAPHIC INFORMATION SCIENCE AND ITS APPLICATIONS	15 PTS	2/3
-----------------	------------------	--	---------------	------------

Restriction: GEOG 215, PHYG 415 in 2008–12
 Coordinator: Dr Mairéad de Róiste

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

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 17425	DIRECTED INDIVIDUAL STUDY	30 PTS	1+2/3
-----------------	------------------	----------------------------------	---------------	--------------

Prerequisite: Permission of the Programme Director

A supervised programme of study approved by the Programme Director. For more information please contact the Graduate Coordinators Philip Morrison (Geography) and Kevin Norton (Physical Geography).

GEOG 489	CRN 10020	RESEARCH PROJECT (HONS)	30 PTS	1+2/3
-----------------	------------------	--------------------------------	---------------	--------------

Coordinator: Prof Philip Morrison

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.

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

Coordinator: Dr Marcela Palomino-Schalscha

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.

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 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.

POSTGRADUATE CERTIFICATE IN SCIENCE IN PHYSICAL GEOGRAPHY

The Postgraduate Certificate in Science may appeal to students wanting to undertake postgraduate study by a programme of course-work 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 413-440.

POSTGRADUATE DIPLOMA IN SCIENCE IN PHYSICAL GEOGRAPHY

The degree is made up of 120 points at 400 and 500-level and does not require a research project.

Entry requirement: An undergraduate degree with an average grade of B or higher in relevant 300-level courses.

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 413-440.

BSC WITH HONOURS IN PHYSICAL GEOGRAPHY

Entry requirements: 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 Physical Geography Honours from another undergraduate major may be granted with permission of the Associate Dean.

Students wishing to enrol in BSc(Hons) in Physical Geography should write to the Physical Geography Graduate Coordinator (Dr 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. For 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.

The BSc(Hons) in Physical Geography course of study consists of:

- PHYG 489
- 90 points in an approved combination from PHYG 401–488 or other approved courses; at least 30 points shall be from PHYG 401–488.

MASTER OF SCIENCE IN PHYSICAL GEOGRAPHY

An MSc in Physical Geography consists of two parts: Part 1 involves coursework and a research preparation course. Part 2 is a full-time research project, leading to a thesis. Full time enrolment is usually two years. Part time study may be undertaken with permission from the Head of School.

Entry requirements: Completion of an undergraduate degree or relevant graduate or postgraduate diploma with average grades of B+ or above, 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.

Entry requirements for Part 2: A grade average of B+ in your Part 1 courses. 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 a half years of first enrolling for the degree. A candidate who enrolls in Part 2 of the Master's programme, after completing a relevant Honours or Postgraduate diploma may have their Master's awarded with distinction or merit. To be eligible, a full time candidate shall complete all work for Part 2 within 18 months from the date of first enrolment in Part 2.

The course of study for an MSc in Physical Geography is:

- **Part 1:** ESCI 580; 105 further points from PHYG 401–488, of which up to 30 points may be replaced by other approved courses
- **Part 2:** PHYG 591 (thesis).

PHD IN PHYSICAL GEOGRAPHY

The PhD in Physical Geography usually takes three to four years to complete.

400/500-LEVEL PHYSICAL GEOGRAPHY COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

PHYG 413	CRN 27050	CLIMATE DYNAMICS	15 PTS	2/3
-----------------	------------------	-------------------------	---------------	------------

Prerequisites: GEOG 220 or GEOG 321
 Restrictions: GPHS 426, PHYG 416 in 2014
 Coordinator: Prof James Renwick

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.

PHYG 418	CRN 15671	GEOMORPHOLOGY AND ITS APPLICATION	15 PTS	1/3
-----------------	------------------	--	---------------	------------

Restriction: PHYG 401
 Coordinator: Claire Lukens

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.

PHYG 419	CRN 15672	NATURAL HAZARDS AND RISK: PROCESSES AND IMPACTS	15 PTS	2/3
-----------------	------------------	--	---------------	------------

Restrictions: PHYG 412
 Coordinator: Jamie Howarth

This course provides an understanding of the nature, distribution and frequency of natural hazards both within New Zealand and globally. It analyses the causes of natural hazards, the processes driving them, the methodologies used in their analysis and their impacts both within New Zealand and globally.

PHYG 420	CRN 17257	WATER RESOURCES	15 PTS	2/3
-----------------	------------------	------------------------	---------------	------------

Restriction: PHYG 404
 Coordinator: Dr Bethanna Jackson

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. 1) 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. 2) It focuses on the assessment, measurement, and quantification of surface and subsurface water resources, together with the methods and requirements of data acquisition, as

well as issues relating to the assessment, quantification, and monitoring of water quality. 3) The course briefly summarises the effects, both physical and social, of manipulating water resources and the mechanisms available for resolving conflicting usage requirements.

PHYG 423	CRN 15673	FIELD GEOMORPHOLOGY	15 PTS	1/3
-----------------	------------------	----------------------------	---------------	------------

Restriction:	PHYG 401
Coordinator:	Dr Kevin Norton and Dr Andrew Mackintosh

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.

PHYG 440	CRN 10017	DIRECTED INDIVIDUAL STUDY	15 PTS	1+2/3
-----------------	------------------	----------------------------------	---------------	--------------

Coordinator:	TBC
Prerequisite:	Permission of Programme Director

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

PHYG 489	CRN 1150	RESEARCH PROJECT (HONS)	30 PTS	1+2/3
-----------------	-----------------	--------------------------------	---------------	--------------

Coordinator:	Dr 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).

GEOLOGY

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.

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.

POSTGRADUATE CERTIFICATE IN SCIENCE IN G E O L O G Y

The PGCertSc may appeal to students seeking a postgraduate qualification that does not involve a research project, or for those 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 (up to 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 IN G E O L O G Y

The PGDipSc in Geology 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 (up to four years). Good academic grades in the PGDipSc may allow direct entry into an MSc Part 2 (thesis).

BSC WITH HONOURS IN GEOLOGY

An Honours degree follows an undergraduate degree and provides students with depth in a specialised field. It could also follow on from a Graduate Diploma in Science (GDipSc) if necessary requirements have been met. A Bachelor of Science with Honours, BSc(Hons), is a one-year full-time programme consisting of 90 points of coursework and a research project (GEOL 489). It may be undertaken part-time with permission from the School. It can also lead directly to PhD study.

Entry requirement: A BSc in an appropriate field with an average grade of B+ or higher in relevant 300-level courses.

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 a BSc with Honours in Geology, please contact the Earth Sciences Graduate Coordinator, Prof Colin Wilson, stating 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.

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

- GEOL 489
- 90 points an approved combination from ESCI 401-488, PGEO 401 including at least 45 points from the list 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).

ESCI 403	Stratigraphy and Palaeoenvironments
ESCI 404	Topics in Earth Sciences
ESCI 407	Global Tectonics
ESCI 408	Special Topic
ESCI 411	Advanced Exploration Geophysics
ESCI 412	Paleoclimatology
ESCI 413	Geochemical Forensics of Earth's Origins, History and Future
ESCI 414	Physics and Chemistry of Volcanoes
ESCI 416	Metamorphic Petrology
ESCI 441	Individual Directed Study
GPHS 441	Solid Earth and Geophysics
GPHS 445	Observational Earthquake Seismology
GPHS 446	Advanced Seismology
GPHS 447	Geomagnetism
PGEO 401	Basin Analysis

MASTER OF SCIENCE IN GEOLOGY

An MSc 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 two years. Part-time study may be undertaken with permission from the Head of School.

Entry requirements: Completion of an undergraduate degree or relevant graduate diploma, including 80 points from ESCI 301–349 (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 and will require a grade average of B+ in your Part 1 courses and agreement from an academic to act as your supervisor. 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 a half years of first enrolling for the degree. A candidate who enrolls in Part 2 of the Master's programme, after completing a relevant Honours or Postgraduate diploma may have their Master's awarded with distinction or merit. To be eligible, a full time candidate shall complete all work for Part 2 within 18 months from the date of first enrolment in Part 2.

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, 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).

PHD IN GEOLOGY

The PhD in Geology usually takes three to four years to complete.

400/500-LEVEL GEOLOGY COURSES

Meeting times for Geology Honours course seminars are organised during the first week of Trimester 1. Generally, each full course consists of one 2-hour seminar per week, for approximately 8–10 weeks.

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

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

Prerequisite: ESCI 301
 Coordinator: Dr Rob McKay

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	ST: TOPICS IN EARTH SCIENCES	15 pts	1+2
-----------------	------------------	-------------------------------------	---------------	------------

Prerequisite: 40 300-level points
 Coordinator: Dr Warren Dickinson

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 407	CRN 15248	GLOBAL TECTONICS	15 PTS	1/3
-----------------	------------------	-------------------------	---------------	------------

Prerequisite: ESCI 302
 Coordinator: A/Prof Simon Lamb

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 seismo-tectonics, 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 OF PALAEOBIOLOGY	15 PTS	2/3
-----------------	------------------	--	---------------	------------

Prerequisite: 20 300-level ESCI points
 Coordinator: 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 Applied Geophysics	15 PTS	2/3
Prerequisite:	ESCI 305			
Coordinator:	Dr Huw Horgan			

Geophysical topics relevant to earth science research in New Zealand and elsewhere including: seismic exploration, anisotropy in rocks, seismic wave attenuation & amplitude behaviour, gravity studies, geodesy, geophysics & geothermal studies, palaeomagnetism, Ground Penetrating Radar (GPR) and also includes reflection seismic processing.

ESCI 412	CRN 15255	PALEOCLIMATOLOGY	15 PTS	1/3
Prerequisite:	ESCI 301			
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			
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
Coordinator:	Prof Colin Wilson			

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 focused 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 or GEOL 363			

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 440	CRN 1tba	DIRECTED INDIVIDUAL STUDY	15 PTS	tba
-----------------	-----------------	----------------------------------	---------------	------------

Prerequisite: Permission of the Head of School

ESCI 441	CRN 1tba	DIRECTED INDIVIDUAL STUDY	15 PTS	tba
-----------------	-----------------	----------------------------------	---------------	------------

Prerequisite: Permission of the Head of School

GEOLOGY 489	CRN 1773	RESEARCH PROJECT (HONS)	30 PTS	1+2/3
--------------------	-----------------	--------------------------------	---------------	--------------

Coordinator: Prof Colin Wilson

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 ESCI Postgraduate Coordinator (Prof Colin Wilson) 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.

ESCI 449	CRN 23187	Earth Science International Field Course	20PTS	3/3
-----------------	------------------	---	--------------	------------

Prerequisite: 60 300–level points from ESCI or GEOG, including one of ESCI 341, 344 or GEOG 323

Restriction: ESCI 349

Coordinator: Dr Warren Dickinson

Field Trip: This is an entirely field-based course run overseas.

Costs: An extra fee beyond that for a 20-point course will apply. All associated costs for the course (travel, food and accommodation) will need to be met by the student

In 2018, the international field course will run in the western USA from 27 Nov to 20 Dec. It will be a 25-day intensive, field-based course run in conjunction with a 400 class at one of America's leading small independent colleges. The field trip will provide a geologic-tectonic transect of the North American Cordillera, from the western-platform sedimentary succession in the Grand Canyon to the Sierra Nevada arc system and the San Andreas transform plate boundary. The trip runs from Colorado Springs to Los Angeles. Tent camping and hiking is expected to give an up-close view of the geology and reduce costs.

Please note: Students must have a current passport and fulfil all necessary visa requirements. 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.

ESCI 580	CRN 25137	RESEARCH PREPARATION	15 PTS	1+2/3
-----------------	------------------	-----------------------------	---------------	--------------

Coordinator: A/Prof Michael Hannah and Dr Ian Schipper

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.

GEOPHYSICS

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

Geophysics at Victoria is grouped into two themes—Solid Earth Geophysics and Meteorology. Students interested in the Geophysics programme at Victoria should select a research topic in consultation with the staff member who will supervise the project.

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.

STUDY OPTIONS

Prerequisites: A BSc degree including 60 points of approved courses from (ESCI, GEOL, GPHS, MATH, PHYS 300 Level) 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.

BSC WITH HONOURS IN GEOPHYSICS

An Honours degree follows an undergraduate degree such as a BSc and is designed to provide students with depth in a specialised field.

A BSc(Hons) in Geophysics is a stand-alone one-year full-time programme involving 90 points of coursework and a research project (GPHS 489). Part-time enrolment may be possible with permission from the Head of School.

Entry requirements: The minimum entry requirement 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 provides practical training in research methods, evaluation of published research and experience of the scientific process.

If you wish to enrol in GPHS Honours, please contact 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 in consultation with your supervisor and begin reading over the summer prior to enrolment.

The course of study for a BSc(Hons) 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.

POSTGRADUATE CERTIFICATE IN SCIENCE IN GEOPHYSICS

The PGCertSc is offered in all MSc subjects. It may appeal to students seeking a postgraduate coursework 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 IN 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, PGEO 401 or other approved courses.

POSTGRADUATE DIPLOMA IN METEOROLOGY

The course of study consists of courses worth 120 points selected from the list below, including a project (30 points). Prerequisites may apply for some courses.

- GPHS 420 Introduction to Dynamical Meteorology
- GPHS 422 Radiation and Thermodynamics for Meteorology
- GPHS 426 Climatology and Remote Sensing
- GPHS 430/431 Special Topics
- GPHS 589 Project

Contact Dr Jim McGregor jim.mcgregor@vuw.ac.nz, for further information.

MASTER OF METEOROLOGY

The course of study for the MMet consists of courses worth 180 points selected from the list below, including 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 425 Numerical Weather Prediction
- GPHS 426 Climatology and Remote Sensing
- GPHS 520 Professional Weather Observing, Analysis, and Synoptic Diagnosis
- GPHS 521 Professional Weather Diagnosis and Forecasting
- GPHS 589 Project

Contact Dr Jim McGregor jim.mcgregor@vuw.ac.nz, for further information.

MASTER OF SCIENCE IN GEOPHYSICS

An MSc consists of two parts: Part 1 involves coursework of 120 points from the BSc(Hons) or other schedules, and a research preparation course. Part 2 is a full-time research project, leading to a thesis. Full time enrolment is usually 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.

Requirements: Students must receive a grade average of B+ in your Part 1 courses to continue to complete Part 2. 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 and a half years of first enrolling for the degree. A candidate who enrolls in Part 2 of the Master's programme, after completing a relevant Honours or Postgraduate diploma may have their Master's awarded with distinction or merit.

Recommended course combinations for areas of focus within Part 1 of the MSc Geophysics

Solid Earth: ESCI 580, GPHS 441, 445 and 447 plus 60 approved points from (400-level GPHS, PHYG and ESCI courses).

Meteorology: ESCI 580, three courses from GPHS 420–426 plus 60 approved points from (400-level GPHS, PHYG and ESCI courses,). With the approval of the Graduate Coordinator these may include appropriate MATH/PHYS 400-level courses.

PHD IN GEOPHYSICS

The PhD in Geophysics usually takes three to four years to complete.

400/500-LEVEL GEOPHYSICS COURSES

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

GPHS 420	CRN 8156	INTRODUCTION TO DYNAMICAL METEOROLOGY	15 PTS	1/3
-----------------	-----------------	--	---------------	------------

Prerequisite: MATH 323
 Coordinator: Dr Jim McGregor

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

GPHS 421	CRN 8157	MID-LATITUDE WEATHER SYSTEMS	15 PTS	1/3
-----------------	-----------------	-------------------------------------	---------------	------------

Coordinator: Dr Jim McGregor

This course extends the knowledge gained in GPHS 420 to the development of an understanding of weather systems in middle latitudes. Conceptual and mathematical models are investigated to provide insights into the physical processes that occur during development, including diagnosis of vertical motion. Special emphasis is paid to weather systems in New Zealand and the Tasman Sea region.

GPHS 422	CRN 8158	RADIATION AND THERMODYNAMICS FOR METEOROLOGY	15 PTS	1/3
-----------------	-----------------	---	---------------	------------

Coordinator: Dr Jim McGregor

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 426 Climatology and Remote Sensing should complete this course first.

GPHS 423	CRN 8159	CLOUD PHYSICS AND BOUNDARY LAYER METEOROLOGY	15 PT	2/3
-----------------	-----------------	---	--------------	------------

Coordinator: 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 425	CRN 11096	NUMERICAL WEATHER PREDICTION	15 PTS	
-----------------	------------------	-------------------------------------	---------------	--

Coordinator: Dr Jim McGregor

Not offered in 2018

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
-----------------	------------------	---------------------------------------	---------------	------------

Coordinator: Dr Jim McGregor
 Restrictions : GPHS 430 in 2014, PHYG 413

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.

GPHS 441	CRN 9 063	SOLID EARTH GEOPHYSICS	15 PTS	1/3
Restrictions:		PHYS 406, 441		
Coordinator:		Dr Gillian Turner		

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.

GPHS 445	CRN 9 067	OBSERVATIONAL EARTHQUAKE SEISMOLOGY	15 PTS	1/3
Prerequisite:		MATH 323		
Restrictions:		GPHS 409		
Coordinator:		Prof Martha Savage		

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.

GPHS 446	CRN 9068	ADVANCED SEISMOLOGY	15 PTS	2/3
Prerequisite:		MATH 323		
Restrictions:		GPHS 409		
Coordinator:		A/Prof John Townend		

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. The second half of the course may include some or all of the following: relative earthquake location, seismotectonics, seismic anisotropy, surface wave tomography.

GPHS 447	CRN 9 605	GEOMAGNETISM	15 PTS	2/3
Restrictions:		GPHS 408, 442, PHYS 406, 442, 447		
Coordinator:		Dr Malcolm Ingham		

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 9 606	ADVANCED TOPICS IN GEOMAGNETISM	15 PTS	2/3
Coordinator:		Dr Malcolm Ingham		
Restrictions:		GPHS 408, 443, 444		

GPHS448 covers a selection of topics from (but not limited to) rock magnetism, palaeomagnetism, electrical/electromagnetic geophysics and satellite geomagnetism

GPHS 489	CRN 1 891	PROJECT (HONS)	30 PTS	1+2/3
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 Geophysics Postgraduate Coordinator, Prof Martha Savage 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.

GPHS 520	CRN 27121	PROFESSIONAL WEATHER OBSERVING, 30 PTS ANALYSIS AND SYNOPTIC DIAGNOSIS
-----------------	------------------	---

Prerequisite:	Permission from Programme Director
Corequisite:	GPHS 521
Coordinator:	Dr Jim McGregor

Not offered in 2018

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.

GPHS 521	CRN 27122	PROFESSIONAL WEATHER DIAGNOSIS 30 PTS AND FORECASTING
-----------------	------------------	--

Prerequisite:	Permission from Programme Director
Coordinator:	Dr Jim McGregor

Not offered in 2018

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.

GPHS 589	CRN 27123	PROJECT	30 PTS	1+2+3/3
-----------------	------------------	----------------	---------------	----------------

Prerequisite:	Permission from Programme Director
Coordinator:	Dr Jim McGregor

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.

ESCI 580	CRN 25137	RESEARCH PREPARATION	15 PTS	1+2/3
-----------------	------------------	-----------------------------	---------------	--------------

Coordinator:	A/Prof Michael Hannah and Dr Ian Schipper
--------------	---

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.

PETROLEUM GEOSCIENCE

N.B. Petroleum Geoscience is closed to new enrolments from 2019

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

POSTGRADUATE CERTIFICATE IN SCIENCE IN PETROLEUM GEOSCIENCE

The Postgraduate Certificate in Science may appeal to students wanting to undertake postgraduate study by course-work without completing 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 IN PETROLEUM GEOSCIENCE

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.

Entry requirements: 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 (B+ and above) 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, and additional approved courses.

MASTER OF SCIENCE IN PETROLEUM GEOSCIENCE

An MSc consists of two parts: Part 1 involves coursework and a research preparation course. Part 2 is a full-time research project, leading to a thesis. Full time enrolment is usually two years. Part time study may be undertaken with permission from the Head of School.

Entry requirements: 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.

Entry requirements for Part 2: An average of B+ in Part 1 courses. 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 a half years of first enrolling for the degree. A candidate who enrolls in Part 2 of the Master's programme, after completing a relevant Honours or Postgraduate diploma may have their Master's awarded with distinction or merit. To be eligible, a full time candidate shall complete all work for Part 2 within 18 months from the date of first enrolment in Part 2.

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

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

400/500-LEVEL PETROLEUM GEOSCIENCE COURSES

N.B. Petroleum Geoscience is closed to new enrolments from 2019

Course Code	Course Registration Number	Course Name	Points	Trimester Available
-------------	----------------------------	-------------	--------	---------------------

PGEO 401	CRN 13747	BASIN ANALYSIS	15 PTS	1
-----------------	------------------	-----------------------	---------------	----------

Prerequisites: ESCI 403, 407
Coordinator: Prof Tim Stern
Course costs: TBC

The course covers the process of integrating geological, geochemical and geophysical data to provide a history of a sedimentary basin's formation and growth, and an understanding of its sedimentary fill. Students will 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.

Note: from 2019 onwards, this course is offered as ESCI 402.

PGEO 511	CRN 13748	TECHNICAL PETROLEUM GEOSCIENCE	15 PTS	2/3
-----------------	------------------	---	---------------	------------

Coordinator: Prof Rupert Sutherland
Course costs: TBC

The course offers practical exposure to the state of the art facilities used in petroleum exploration. Students will become familiar with data collection and manipulation and the presentation of results in conference-type settings.

PGEO 591	CRN 13750	THESIS IN PETROLEUM GEOSCIENCE	120 PTS	FY
-----------------	------------------	---------------------------------------	----------------	-----------

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/students/support

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

Hours: 8.30 am–4.00pm Monday, Wednesday, Thursday, Friday
9.30 am–4.00pm 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: \[patricia.stein@vuw.ac.nz\]\(mailto:students_patricia.stein@vuw.ac.nz\)](mailto:students_patricia.stein@vuw.ac.nz) 04-463 5982

Johan Barnard, Manager, Student and Academic Services 04-463 5980

Marc Wilson, Associate Dean (Postgraduate Students) 04-463 5092

TE RŌPŪ ĀWHINA

Address: Cotton Building, Kelburn Parade, Room

CO133 Phone: 04-463 5748

Email: teropuawhina@vuw.ac.nz

Web: www.victoria.ac.nz/awhina

Te Rōpū Āwhina is the on-campus whānau for Māori and Pacific students within the Faculties of Science, Engineering, and Architecture and Design. 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.