Undergraduate Courses 2019
Geography, Environment and Earth Sciences

Image: Dez Tessler

School of Geography, Environment and Earth Sciences
Te Kura Tātai Aro Whenua

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THE VICTORIA BACHELOR OF SCIENCE

Bachelor of Science Degree Requirements

- A total of 360 points
- 210 points above 100-level, of which 150 points must be Science
- 75 points at 300-level in Science
- 90 points can be from outside Science (some majors also permit an additional 30 outside points)
- At least one Major, and a second Major may be from Science or from any other first degree with a maximum of 150 points permitted from outside Science.

Science Major Requirements

- 45–60 points at 100-level
- 60–80 points at 200-level
- 60 points at 300-level

Science Minor Requirements

- 60 points above 100-level specified in the major, of which
- 15 points must be at 300-level.

THE VICTORIA BACHELOR OF ARTS

Bachelor of Arts Degree Requirements

360 approved points including:

- ☐ maximum of 180 points at 100-level
- ☐ minimum of 180 points at 200/300 level, including at least 75 points at 300 level
- ☐ at least 180 points must be in subjects from Part A of the BA Schedule

PLEASE NOTE

Cancellation of courses

The courses offered by the University and listed in this prospectus may be cancelled by the University as a result of insufficient resources or student demand, or if other unforeseen circumstances arise.

Timetable changes

Check the timetable for confirmation of course times.

HOW TO USE THIS GUIDE

Course code	Course reference number	Title	Points	Trimester
↓	↓	↓	↓	↓
ESCI 112	**CRN 15147**	**FUNDAMENTALS OF GEOLOGY**	**15 PTS**	**2/3**

FIELD TRIPS

ESCI 241	Introductory Field Geology	10 pts
ESCI 341	Sedimentary Field Geology	10 pts
ESCI 342	Structural Field Geology	10 pts
ESCI 343	Volcanic Field Geology	10 pts
ESCI 344	Field Geophysics	10 pts
ESCI 349	Earth Sciences - International Field Course	20 pts
GEOG 325	Field Methods	10 pts

Please note:

- ☐ Field trips may constitute one entire course or be only a part of it and visit a variety of locations and sites. Extra costs are normally included in the course materials fee. However, students may have to contribute towards the costs for some trips.
- Many field trips have a limited number of places –please apply by **10 December 2019**. Applications for limited entry courses will be waitlisted, and if the course is oversubscribed, decisions on final acceptance will be made on the basis of grades.
- ☐ Students must be physically able and must have a good level of physical fitness. Staff will need to be informed in advance about any known health issues that might be of concern in a field setting.
- ☐ Students are required to fill in, and submit, a confidential form providing emergency contact and health information, prior to their full acceptance into this course.
- ☐ Students are also expected to have purchased their own appropriate equipment ordered through the University's online payment portal system: https://pay.victoria.ac.nz/home/menu. These can be collected from the SGEES school office. This equipment may include geological compasses, hand lenses, write-in-the-rain type field notebooks, and geological hammers.
- ☐ Students at this level are also expected to have appropriate personal gear including field boots, waterproof and warm clothing, sleeping bag, and protective glasses (for safety when rock hammering). Please note that if you do not have suitable field boots you may be declined from attending the field trip and may result in you failing the course.

YOUR PROGRAMME

Use this template to plan your programme. Start by adding in the core papers for your degree.

Year 1: 120 points

Year 2: 120 points

Year 3: 120 points

DEVELOPMENT STUDIES

Where in the world do Asia, gender studies, Latin America, natural hazards and resources, the Pacific Islands and globalisation meet? The answer is Development Studies.

Victoria's Development Studies programme is the first major of its kind in New Zealand. It's an umbrella under which you can study almost any aspect of the development of human societies and their relationship to the Earth we live on. This multidisciplinary field is concerned with studying inequality between people and nations, and the ethical issues that poverty and inequality create. Because Development Studies investigates the world and the people who live here, it encourages you to be confident and tolerant with cross-cultural issues and to analyse and solve global problems.

You are encouraged to take this major combined with another in a related discipline such as Cultural Anthropology, Economics, Geology, History, Political Science, International Relations, Biology, Education, Environmental Studies, Asian Studies, Pacific Studies or Māori Studies.

REQUIREMENTS FOR MAJOR

- GEOG 112, 212, 312, 316
- ☐ Five further approved courses with significant relevance to development studies and/or development studies content, comprising:
  - one regional-based course and one subject-based course at 100-level*
  - one regional-based course and one subject-based course at 200-level*
  - one course at 300-level.

* Visit http://www.victoria.ac.nz/explore/degrees/science/requirements for a list of courses.

ENVIRONMENTAL SCIENCE

Environmental Science is a major offered across the sciences, drawing on the extensive expertise of staff both in the Faculty of Science at Victoria University and from the science community of Wellington. Graduates of the Environmental Science major will have obtained one of the highest quality BSc degrees available as they will have the opportunity to combine a physical, biological, and mathematical or earth sciences major with the Environmental Science major.

REQUIREMENTS FOR MAJOR

Programme requirements:

- must be linked to a partner Science major from Biological (BIOL, BMAR, EBIO), Earth (ESCI, GEOG, GEOL, GPHS, PHYG), Mathematical (MATH, STAT) or Physical Sciences (CHEM, APHS, PHYS)
- a 300-level supervised independent research project (ENSC 302)
- a 300-level taught course (ENSC 301) on a variety of environmental science topics that will allow students to link their partner major to an environment science context.

Specific major requirements are:

- STAT 193; 15 points from MATH courses, and 30 further points from 100-level BIOL, CHEM, ESCI, GEOG, MATH, PHYS and STAT
- GEOG 214; at least 40 points in 200-level BIOL, CHEM, ESCI, GEOG, MATH, PHYS and STAT in addition to that required by the partner major
- ENSC 301; ENSC 302 or 303; and further approved 300-level points to achieve at least 60 points.

***Note:** with approval, up to 30 points may be shared at 200-level with the partner major.

ENVIRONMENTAL STUDIES

If your interests in the natural world are diverse, and your passions for them are strong, a major in Environmental Studies is for you. You can study a range of topics from Antarctica to urban land use.

Victoria's major in Environmental Studies is a broad umbrella under which you can study almost anything to do with the environment, from a scientific, social, cultural or economic perspective. You can bring together courses from a range of disciplines to create a degree that is unique.

REQUIREMENTS FOR MAJOR

- ESCI 111, GEOG 112, 114; STAT 193 or equivalent
- GEOG 214; one theory or policy-based course and one practice or applied course at 200-level
- GEOG 314; one theory or policy-based course and one practice or applied course at 300-level

Visit http://www.victoria.ac.nz/explore/degrees/science/requirements for a list of courses.

GEOGRAPHY

Geography involves questions about where we live, who we are, what we do and how people and places interact. It explores why parts of the world differ and how people's relationships with places and environments create different spatial patterns, resource uses and power struggles. It brings critical insights into key issues facing the world today such as urbanisation, climate change, migration, globalisation, gender inequality, indigenous rights and multiculturalism.

Your study can follow one of five themes: Environmental Geography, Development Geography, Human Geography, Physical Geography or Geographic Information Science. A major in Geography provides you with opportunities to integrate all themes. It also includes skills and techniques, particularly in the visualisation of geographic information, research design and field methods. All these skills are in high demand from employers. You can take Geography as a major in a BA or a BSc.

REQUIREMENTS FOR MAJOR

- ESCI 111, GEOG 112, 114; STAT 193 or equivalent
- GEOG 215, 217; one of (212, 214, 216, 222)
- GEOG 324, 325; 40 further 300-level GEOG points of which at least 20 points must be from (GEOG 312–316, 320)

GEOLOGY

Earthquakes, mountain building, volcanic eruptions, dinosaurs, climate change, resources and the origin and evolution of life: all in a day's work for the geologist. Wellington is a natural laboratory for geologists. You can study the effects of shifting tectonic plates in a city that is built above a major plate boundary.

Antarctica, the conservation and use of natural resources, the evaluation of natural hazards and the social and environmental effects of global change can also be studied as part of this BSc major. Both science and non-science students will find value in the 100-level ESCI courses.

Geology at Victoria is about understanding our world and the forces that shape it. Graduates gather the techniques and the problem-solving abilities, the confidence and the leadership skills to embark upon careers in a diverse range of industries.

REQUIREMENTS FOR MAJOR

- ESCI 111, 112; at least 15 MATH/PHYS/QUAN/STAT points; 15 further 100- level points from {MATH 141–177, PHYS 114 and 115, CHEM (not CHEM 191), STAT 193}
- ESCI 202, 203, 204, 241
- ESCI 301, 302, 341, 342; ESCI 303 or 305

GEOPHYSICS

Geophysics offers the chance to combine a love of the outdoors with expertise in mathematics and physics to explore the atmosphere around us and the ground beneath our feet. Geophysicists work at understanding some of the biggest and most exciting physical phenomena we know—things like earthquakes, volcanoes, mountain building, the Earth's magnetism, gravity and the deep structure of New Zealand.

You can specialise in two areas: up in the sky with Meteorology, the science of weather; or down inside the Earth studying Solid Earth Geophysics. Geophysics is a BSc major where you'll use mathematical techniques to understand natural forces and to probe the Earth's interior and atmosphere.

REQUIREMENTS FOR MAJOR

Geophysics (Meteorology):

- ESCI 111 or 112; MATH 142, 151, PHYS 114, 115
- COMP 102 or 112, MATH 251; MATH 243 or 244; PHYS 209, 223
- MATH 322, 323; 30 further 300-level approved points from (MATH, OPRE, PHYS)

Geophysics (Solid Earth):

- ESCI 111 or 112; MATH 142, 151, PHYS 114, 115
- ESCI 203, MATH 251; MATH 243 or 244; PHYS 209, 223
- ESCI 305, 344, MATH 323; 15 further 300-level approved MATH or PHYS points

PHYSICAL GEOGRAPHY

Physical geography is the study of the Earth's surface features and processes. It aims to explain the geographic pattern of landforms, soils, vegetation, hydrology, coasts and climate by understanding processes that work at the surface of the Earth.

Victoria offers New Zealand's only undergraduate major and postgraduate degrees in Physical Geography. The major focuses on understanding the evolution and processes driving alpine, glacier, hill-slope, river and climate systems. An extensive field and laboratory programme occurs in combination with lectures. The major also includes skills and techniques, particularly in the visualisation of geographic information, research design and field methods. All these skills are in high demand from employers.

REQUIREMENTS FOR MAJOR

- ESCI 111, GEOG 114, one of (ESCI 112, GEOG 112), 15 MATH, PHYS, QUAN or STAT points
- GEOG 222; two of (GEOG 215, 220, 224)
- GEOG 324, 325; two of (GEOG 318, 319, 321)

ESCI 111	CRN 9469	THE EARTH SYSTEM: AN INTRODUCTION TO PHYSICAL GEOGRAPHY AND EARTH SCIENCES	15 PTS	1/3

Restrictions: GEOG 111

The physical processes that have shaped the Earth from its birth during the formation of the solar system, through geological time, to the contemporary landscape are the focus of this course. An important emphasis is on human interaction with the environment, including both the natural hazards (eruptions, earthquakes and cyclones) that impact people and damage property, and our impact on the landscape through land use.

This course provides the foundation for higher level courses in Physical Geography and Earth Sciences and is a core paper for many of the majors in the School (Geography, Physical Geography, Geology, Geophysics and Environmental Studies).

Topics covered include the Earth's structure and composition, its climate and atmosphere, and contemporary surface processes, introducing geology, geophysics, climatology, geomorphology and hydrology. Understanding of the Earth is approached through several modules:

- Introduction to the Earth (Earth Structure and Evolution, Plate Tectonics, Rock types, Fossils)
- Geosphere and Hazards (Volcanoes, Earthquakes and Tsunami)
- Atmosphere and Oceans (Climate, Weather, Ocean Circulation)
- Surface Processes Module (Erosion, Rivers and Hydrological Processes, Glaciers, Waves and Tides)
- Environmental Change (Past, Present and Future, Climate Change).

ESCI 112	CRN 15147	FUNDAMENTALS OF GEOLOGY	15 PTS	2/3

This course introduces students to the basics of interpreting Earth history from original field and laboratory observations, and provides a basis of knowledge from which to appreciate our unique New Zealand geological landscape. Concepts include Earth's early planetary evolution; its resulting layered structure and active tectonic processes; the vastness of geological time; the materials of the Earth—minerals, fossils, and rocks; and using basic geological principles and maps to better understand our changing landscape. Laboratory work includes recognition of rocks and minerals, and field trips around the Wellington region.

ESCI 132	CRN 9062	ANTARCTICA: UNFREEZING THE CONTINENT	15 PTS	2/3

An introduction to the Antarctic continent. Topics covered include; history of exploration of the continent; Antarctica's role as a recorder of past climate change and its importance in any future change in climate; the geological history of Antarctica and the development of the ice sheets; life on the continent and surrounding oceans; and key environmental issues facing Antarctica today.

GEOG 112	CRN 1651	INTRODUCTION TO HUMAN GEOGRAPHY AND DEVELOPMENT STUDIES	15 PTS	2/3

An introduction to the main themes, concepts, and debates in human geography and development , using case studies from the main world regions, particularly Oceania, Latin America, the Asia-Pacific region and New Zealand's place within it. Students are introduced to the history and philosophy of Geography and Development Studies, and to its main themes of Political Geography, Social and Cultural Geography, Population and Urban Geography, and Development Geography. GEOG 112 is a compulsory course for all majors in Geography, Development Studies, Physical Geography and Environmental Studies.

GEOG 114	CRN 7021	ENVIRONMENT AND RESOURCES: THE FOUNDATIONS	15 PTS	1/3

Restriction: ENVI 114

Drawing on interdisciplinary and critical approaches, students taking this course will gain the foundations for understanding and analysing the complexity of contemporary environmental issues. The course integrates the physical, social, economic and political factors associated with environmental change.

The first part of the course introduces the earth systems associated with environmental change (both natural and human induced) from a physical geography perspective.

The second part of the course draws on this foundation to explore the social, political and economic implications of contemporary environmental issues and human-environment relations. Structured around lectures, an interactive tutorial series, and independent study, the course focuses on an array of environmental challenges facing contemporary society such as world population; development and poverty; energy; climate change; biodiversity and conservation; deforestation and agriculture; contamination; and global environmental and social justice.

STAT 193	(SEE STREAMS)	STATISTICS IN PRACTICE	15 PTS	1/3 2/3 3/3

Restrictions: MATH 277, QUAN 102
Streams:
1/3: Stream A (CRN 1791)
Stream B (CRN 11333)
2/3: Stream A (CRN 4442)
Stream B (CRN 6164)
3/3: CRN 17069

An applied statistics course for students who will be advancing in other disciplines as well as those majoring in Statistics. It is particularly suitable for students majoring in Biological Science subjects, Geography, Linguistics, Psychology, social sciences such as Education. This course assumes no previous knowledge of statistics but mathematics to Year 12 is preferred.

Topics covered include estimation, confidence intervals and hypothesis testing, comparison of means and proportions, simple regression and correlation, and analysis of variance.

200-LEVEL COURSES

ESCI 201	**CRN 11341**	**CLIMATE CHANGE AND NEW ZEALAND'S FUTURE**	**20 PTS**	**3/3**
Prerequisites:		30 points		

This course provides a summary of current knowledge on climate change, its evidence and uncertainties, and climate prediction for the next 50 to 500 years. It discusses the influence of climate change on New Zealand's society, economy and environment, and governmental strategies for adaptation and mitigation. During a Marae forum we discuss climate change from traditional and modern-day Māori perspectives.

ESCI 202	**CRN 15137**	**SEDIMENTOLOGY AND PALAEONTOLOGY**	**20 PTS**	**1/3**
Prerequisites:		ESCI 111, 112; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent		

An introduction to features of sedimentary strata and fossils that form the basis for interpreting the geological history of a region from field observations and drill cores. The laboratory sessions introduce techniques used to analyse and interpret sediments, strata and fossils such as flow channel studies, grain size analysis, fossil description, and biostratigraphy. Two weekend field trips give students experience in describing sedimentary strata and collecting fossils for subsequent study.

ESCI 203	**CRN 15141**	**EARTH STRUCTURES AND DEFORMATION**	**20 PTS**	**1/3**
Prerequisites:		(ESCI 111, 112; 15 MATH, PHYS, QUAN or STAT pts or an approved equivalent) or (ESCI 112 (or 111), MATH 142)		

An introduction to the fields of structural geology, tectonics and solid earth geophysics with the goal of describing the structure of the Earth and the mechanisms by which it deforms. The laboratory component emphasises modern field-based methods of collecting, processing, and analysing geological and geophysical data.

ESCI 204	**CRN 15138**	**PETROLOGY AND MICROSCOPY**	**20 PTS**	**2/3**
Prerequisites:		ESCI 111, 112; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent		

The characteristics and occurrences of common rocks and minerals, and methods for their study, including use of the petrographic microscope.

ESCI 241	**CRN 17287**	**INTRODUCTORY FIELD GEOLOGY**	**10 PTS**	**1/3**
Prerequisites:		ESCI 111, 112; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent		
Field trip:		You need to select one of four one week field trips (depending on demand). Refer Course Outlines for dates.		

This course is an introduction to field techniques in geology. The field trip is based at the Geology Department's field station at Onekaka, near Takaka, northwest Nelson. Students record data from outcrop sequences, prepare geological maps, cross-sections and stratigraphic columns of the area studied, and interpret the geological history of the region.

GEOG 212	**CRN 6002**	**WORLDS OF DEVELOPMENT**	**20 PTS**	**1/3**
Prerequisite:		GEOG 112 or approved course		

Globally, living standards are enormously unequal and the gap between rich and poor is rapidly increasing. This course focuses on broad social, political and economic trends and 'problems' in the so-called 'Third World'. You are encouraged to think critically about the nature of such 'problems' and whether explanations for the patterns we observe can be better explained. In particular we ask

whether some of the responses to inequality have actually increased the challenges faced in the localities, regions and nation-states of the global economic periphery. The course structure— organised around a 'concepts, problems, response, patterns' framework—urges you to think beyond the simplistic stereotypes often employed in the context of development geography. Attention is focused on the developing world at large, with case study examples taken from Asia Pacific, Latin America, the Pacific Islands and various other areas to provide the basis for comparative analysis.

GEOG 214	**CRN 6004**	**ENVIRONMENT AND RESOURCES: NEW ZEALAND PERSPECTIVES**	**20 PTS**	**2/3**
Prerequisites:		(GEOG 114, ESCI 111) or 30 approved points		
Restriction:		ENVI 214		

The aim of the course is to examine the major environmental issues and challenges New Zealand faces today. The course will highlight the policy and management frameworks that are in place to address these environmental issues. Students will also critically appraise how well current employed policy and management mechanisms achieve the goal of environmental sustainability. Tutorial sessions provide hands-on experience in examining current environmental issues in New Zealand.

GEOG 215	**CRN 6005**	**INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS) AND SCIENCE**	**20 PTS**	**2/3**
Prerequisite:		60 100-level points		
Restriction:		GEOG 415		

GIS is a powerful tool and approach which can be used to investigate geographic phenomena and apply geographic knowledge to solve problems. Correct application of GIS depends on a sound knowledge of theory and principles. This course lays the theoretical foundations and concentrates on the basic principles of GIS. We review current applications of GIS through the use of invited speakers from government, business and academia. The course also has a strong practical component with a series of labs that progress from guided tutorials to more open-ended problem-solving exercises which test and develop students' understanding of the concepts and creative problem-solving ability. While this course does not require advanced computer skills, all of the coursework is computer based.

Students with a wide range of interests will gain from this course. GIS is a useful tool in many areas such as archaeology, business, conservation, development, ecology, landscape design and planning. Computer scientists, information managers and statisticians will also find that GIS provides an opportunity to specialise in a growing field.

GEOG 216	**URBAN GEOGRAPHY**	**20 PTS**
Prerequisites:	GEOG 112, 15 approved 100-level points	

Urban geography addresses the function of cities and their consequences for markets and society. Examples are drawn primarily from the OECD countries although demographic and urban trends in developing countries are also covered. Examples are also drawn from urbanisation in both more and less developed countries, with a particular focus on the very largest urban areas.

Not offered in 2019

GEOG 217	**CRN 26056**	**HUMAN GEOGRAPHY: APPROACHING OUR WORLD**	**20 PTS**	**1/3**
Prerequisites:		GEOG 112; ENVI/GEOG 114 or 15 approved 100-level points		

There are many different ways human geographers approach our world. The approach we take in this course is built around the concept of the life course – an interdisciplinary concept that many human geographers are now adopting in Europe, the USA and elsewhere. We view individuals moving through different geographic, social and economic contexts as they age. The approach is a form of 'bespoke geography' because it is tailored around the individual: you and your life over time and space. The central idea is that an individual's own developmental path is embedded in, and transformed by, conditions and events occurring during the historical period and

geographical context in which the person lives. For example, geopolitical events (e.g. war), economic cycles (e.g. recessions), and social and cultural ideologies (e.g. patriarchy) can shape people's perceptions, choices and hence their behaviour and thereby alter the course of human development.

GEOG 220	**CRN 17169**	**HYDROLOGY AND CLIMATE**	**20 PTS**	**2/3**
Prerequisites:		ESCI 111, GEOG 114, 15 points from MATH 132–177, PHYS 131, STAT 193 or equivalent		

GEOG 220 moves beyond the broad introduction to Physical Geography provided in ESCI 111, focusing on the core hydrological and climatic processes that cause change within the environment, particularly the role of water. It will help you to understand why climate varies spatially, and why vegetation has such an important influence on the availability and timing of moisture and stream flow. It will also examine how hydrological and climatic systems respond to human interaction and environmental change. The emphasis will be on providing the skills necessary to interpret the processes controlling the spatial and temporal variability.

The course consists of two modules. The hydrology module will include discussion of the components of the hydrological cycle, runoff processes and flow regimes, and the role of vegetation and human activities on hydrologic processes. There will also be coverage of sediment transport processes as an introduction to courses offered at 300-level. The climate section will cover the basics of the global climate system, including: terminology, weather and climate maps, and climate processes from an outline of the general circulation of the atmosphere to how local winds and sea breezes work. Climate variability, including ENSO and the Little Ice Age, and possible future changes will also be discussed.

GEOG 222	**CRN 26059**	**ECOLOGY AND ENVIRONMENT**	**20 PTS**	**1/3**
Prerequisites:		STAT 193, 30 points from (BIOL 111, 113, 114, 132, ENVI/GEOG 114, ESCI/GEOG 111, ESCI 112)		
Restriction:		BIOL/ENVI 222		

The course will focus on physical and biological processes in terrestrial environments and ecosystem functioning. The field trip will introduce techniques relevant to field-based enquiry in ecology, environmental and earth science.

GEOG 224	**CRN 26054**	**GEOMORPHOLOGY**	**20 PTS**	**1/3**
Prerequisites:		ESCI 111, 15 pts from (MATH 132-177, PHYS 131, STAT 193, STAT 292)		

This course introduces the student to the field of geomorphology. Modern geomorphology is concerned with the ways in which processes interact with each other and the landforms that they create and destroy. We will approach geomorphic systems from their roles in shaping planetary surfaces. This will include general introductions to the roles of wind, water, ice and gravity. Examples and exercises will be drawn from both terrestrial and extra-terrestrial planetary surfaces.

300-LEVEL COURSES

ENSC 301	**CRN 18345**	**TOPICS IN ENVIRONMENTAL SCIENCE**	**20 PTS**	**1/3**
Prerequisite:		90 points of 200-level study in approved subjects from the Science schedule		
Corequisites:		ENSC 302 or 303; admission to the major in Environmental Science		

Topics in environmental science that may include: energy supply and effects, Antarctica and environmental change, environmental toxicology, greenhouse effect environmental risk assessment, mathematical modelling of environmental problems, human health and ecology, atmosphere and ocean dynamics and natural resource management. This course will allow students to integrate their science discipline into an environmental framework and discuss, analyse and apply these ideas.

ENSC 302	**CRN 18346**	**DIRECTED INDIVIDUAL STUDY**	**20 PTS**	**2/3**
Prerequisite:		Permission of Head of School		
Assessment:		100% internal		

ENSC 303	**CRN 18347**	**DIRECTED INDIVIDUAL STUDY**	**15 PTS**	**2/3**
Prerequisite:		Permission of Head of School		
Assessment:		100% internal		

Not offered in 2019

ESCI 301	**CRN 15139**	**GLOBAL CHANGE: EARTH PROCESSES AND HISTORY**	**20 PTS**	**1/3**
Prerequisites:		ESCI 202; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent; 15 further points from (CHEM 113 -115, MATH 141-177, PHYS 114-115, STAT 193)		
Restriction:		ESCI 341 or GEOG 323		

A study of the modern and past Earth environments and the key processes that have shaped them. This course focuses on understanding and interpreting evidence from the geological record for environmental change and how this knowledge is used to help predict future variability, with specific focus on Antarctica, the Southwest Pacific Ocean and New Zealand.

ESCI 302	**CRN 15145**	**TECTONICS AND STRUCTURAL GEOLOGY**	**20 PTS**	**2/3**
Prerequisites:		ESCI 203, 341, 342; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent; 15 further points from (CHEM 113-115, MATH 141-177, PHYS 114-115, STAT 193)		
Restriction:		ESCI 340		

This course covers deformation of the earth at all scales, including plate tectonics and the structural geology. The laboratory part of the course emphasises practical methods of tectonic and structural analysis and interpretation based on outcrop, microscopic, and geophysical data sets. It includes two all-day field trips.

ESCI 303	**CRN 15140**	**PETROLOGY AND GEOCHEMISTRY**	**20 PTS**	**2/3**
Prerequisites:		ESCI 204; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent; 15 further points from (CHEM 113-115, MATH 141-177, PHYS 114-115, STAT 193		

This course covers the generation and modification of magmas and volcanoes and the investigation of metamorphic conditions and processes, and examines how chemical and isotopic tracers are used in a diverse range of fields. It also examines the formation of the elements and origins of the Solar System and the rocky planets, and the principles and applications of geochronology, as applied to wide-ranging time-scales and diverse problems in earth sciences. As part of the assessment for this course, students undertake a large research project based on geochemical data obtained on the School's state-of-the-art electron microprobe and/or plasma-source mass spectrometers.

ESCI 305	CRN 15146	APPLIED GEOPHYSICS	20 PTS	1/3
Prerequisites:		ESCI 112 or 203; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent; 15 further points from (CHEM 113-115, MATH 141-177, PHYS 114-115, STAT 193)		

This course covers the use of geophysical data acquisition, processing and interpretation for exploring the Earth's interior, especially on a small regional scale. Topics will include gravity, electrical and magnetic surveying and the fields of simple bodies, refraction seismology, an introduction to reflection survey data interpretation, the use of GPS for surveying and geodesy, and the use of surface waves for determination of shear wave velocities for engineering and seismic hazard purposes.

ESCI 341	CRN 15144	SEDIMENTARY FIELD GEOLOGY	10 PTS	1/3
Prerequisites:		ESCI 202, 241; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent; 15 further points from (CHEM 113-115, MATH 141-177, PHYS 114-115, STAT 193)		
Restriction:		ESCI 340		
Field trip:		You need to select one of two one week field trips over the period January to February		

The rolling hills beyond Martinborough are an ideal introduction to geological field mapping and stratigraphy. The grassy landscape hides a gently deformed late Cenozoic sedimentary sequence ranging from marine mudstone through limestone to terrestrial fluvial conglomerate and mudstone. Through a series of group field exercises and independent work, students learn how to conduct a traverse taking detailed outcrop descriptions, and use these to assemble a geological map, stratigraphic column and cross-section of the area. These form the basis of a brief report on the geological history of the area.

Note: Fieldwork is a basic and fundamental part of the training of a geologist, but in exceptional cases, field course requirement(s) may be waived, and alternative courses substituted, with the approval of the Head of School.

ESCI 342	CRN 15142	STRUCTURAL FIELD GEOLOGY	10 PTS	1/3
Prerequisites:		ESCI 202, 203, 241; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent; 15 further points from (CHEM 113-115, MATH 141-177, PHYS 114-115, STAT 193)		
Restriction:		ESCI 340		
Field trip:		You need to select one of two one week field trips over the period February to March.		

Held on the north-eastern (Kaikoura) coast of the South Island, this course provides practical experience in the mapping and study of geological structures in the field. The course involves outcrop description, mapping, structural analysis, and cross-section preparation.

Students will examine and interpret late Quaternary features that are deformed across active strike-slip faults, as well as relationships between syn-orogenic sediments, folds, thrust faults, and strike-slip faults in Cretaceous-Miocene rocks that have been strongly deformed in the Pacific-Australia plate boundary zone.

Note: Fieldwork is a basic and fundamental part of the training of a geologist, but in exceptional cases, field course requirement(s) may be waived, and alternative courses substituted, with the approval of the Head of School.

ESCI 343	CRN 17289	VOLCANIC FIELD GEOLOGY	10 PTS	1/3
Prerequisites:		ESCI 204, 241; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent; 15 further points from (CHEM 113-115, MATH 141-177, PHYS 114-115, STAT 193)		
Restriction:		ESCI 340		
Field trip:		The field trip will be held in the mid-Trimester break.		

This course runs in the southern portion of the Taupo Volcanic Zone (TVZ), based at Whakapapa. It is an intensive field-based introduction to andesitic and rhyolitic volcanoes and their eruptions, how they are studied and quantified from simple field observations, and how they can be mapped. We will cover different styles of eruptions (lava flows and pyroclastic deposits), and three different styles of volcano (scoria cones, composite volcanoes, caldera volcanoes), and fit them into the big picture of TVZ volcanic and magmatic history.

ESCI 344	CRN 17288	FIELD GEOPHYSICS	10 PTS	1/3
Prerequisites:		ESCI 112 or 203; 15 MATH, PHYS, QUAN or STAT points or an approved equivalent; 15 further points from (CHEM 113-115, MATH 141-177, PHYS131, STAT 193)		
Corequisite:		ESCI 305		
Field trip:		The field trip complements ESCI 305. It is held in the mid-trimester break during Trimester 1. The course involves at least 4 days in the field followed by 2 days of analysis back in the geophysics lab at Victoria.		

This course teaches methods and techniques for field geophysical surveys. Also taught as GPHS 344.

ESCI 349	CRN 23186	EARTH SCIENCES - INTERNATIONAL FIELD COURSE	20 PTS	3/3
Prerequisites:		60 pts of 200-level ESCI or GEOG including either ESCI 241 or GEOG 223		
Restriction:		ESCI 449		
Field trip:		This is an entirely field-based course run overseas.		
Costs:		An extra fee beyond that for a 20-point (undergraduate) course will apply. All associated costs for the course (travel, food and accommodation) will need to be met by the student.		

<u>Please note</u>: This course is only offered every two years and the next offering will be from 18 November to 18 December 2019. The course is offered on the condition that students must have a current passport and fulfil all necessary visa requirements. It requires a minimum number of students in order to run and if that critical threshold is not achieved the course will be cancelled.

<u>For information</u>: In 2017, this course was run in the western USA in the November to December period. It was a 25-day intensive, field-based course run in conjunction with a 400-level class at one of America's leading small independent colleges. The field trip provided 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 ran from Colorado Springs to Los Angeles. Tent camping and hiking gave an up-close view of the geology and reduced costs.

GEOG 312	CRN 6009	RACE, GENDER AND DEVELOPMENT	20 PTS	2/3
Prerequisite:		(GEOG 212, 20 further GEOG 200-level points) or 40 approved 200-level points		

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

Paying attention to patterns of development at regional, national and local scales both here and overseas, we consider why gender inequalities persist and how they are related to 'race' and sexuality. We use a number of theoretical 'lenses' to help us in this inquiry: feminist, postcolonial, Kaupapa Māori and queer. We also examine the personal and political dimensions of cross-cultural research and practice to consider how we might contribute to the realization of more equitable development outcomes within Aotearoa and overseas.

GEOG 313	CRN 18579	GEOGRAPHIES OF NEW ZEALAND	20 PTS	3/3
Prerequisite:		20 200-level GEOG points, or approved courses for non GEOG majors		
Restriction:		GEOG 311		
Field trip:		The course will run over three weeks. The first two weeks will consist of lectures, followed in the third week by a field trip in January 2020 (date TBC.		

GEOG 313 studies human geographies of New Zealand, including demography, historical geography, political economy, economic geography, industrial geography, rural geography, social geography and urban geography, in both historical and contemporary settings. For final year students it will advance their knowledge of contemporary geographical processes in the New Zealand environment. For foreign, exchange or graduate students it will give them an advanced introduction to geographical context of the country in which they are studying.

GEOG 314	CRN 6011	ADVANCED ENVIRONMENT AND RESOURCES: GLOBAL ISSUES	20 PTS	2/3
Prerequisite:		GEOG 214		
Restriction:		ENVI 314		

The course is underpinned by an understanding that different disciplines frame environmental problems through their own particular lens. This lens has a role in the kinds of solutions that are proposed for the problem. These disciplinary lenses sometimes conceive of and value 'environment', 'nature' and what constitutes legitimate 'knowledge' differently.

Knowledge about human interaction with the 'environment' and 'nature' is therefore highly politicised. Drawing on these foundations, the course explores environmental challenges through a variety of disciplinary lenses that are commonly used to critically analyse the complexity of human induced environmental change.

GEOG 315	CRN 6012	ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (GIS)	20 PTS	2/3
Prerequisites:		GEOG 215, 20 further approved 200-level points		

This course builds on the theoretical foundations of GEOG 215 and focuses primarily on spatial analysis and remote sensing. The course explores a number of quantitative spatial analysis techniques including pattern analysis, interpolation, network analysis and process modelling. The course applies remote sensing to real world issues and develops student's skills in remote sensing techniques. Students develop their practical skills and conceptual understanding through a series of computer practicals and a group project. This course is suited to students who wish to work in the geospatial/GIS industry or who wish to continue on to the Master in Geographic Information Science (MGIS).

GEOG 316	CRN 6013	GEOGRAPHIES OF GLOBALISATION	20 PTS	1/3
Prerequisites:		(GEOG 212, 20 further GEOG 200-level points) or 40 approved 200-level points		
Field trip:		A half day field trip in Wellington (date TBC)		

Globalisation is everywhere. Talked about on the TV, the radio, and in newspapers, it is a term that is increasingly used to rationalise a wide range of economic and political policies, and explain a plethora of cultural, social and economic processes. Despite this, it is rarely well defined, or critically appraised. A popular image of globalisation is one of a process which unfolds like a blanket across the globe, homogenising the world's economies, societies and cultures as it falls. You will be horrified to learn that based on this conception some have even proclaimed that Geography is dead! To the contrary, contemporary research in all sub-disciplines within Geography points towards the differentiating impacts of global processes as they interact with local conditions.

This course critically engages with the concept of globalisation, examines some of its theoretical, historical, and empirical characteristics and—through case studies from 'developed' and 'developing' countries—illustrates how an appreciation of geography is fundamental to understanding globalisation.

GEOG 318	CRN 7517	QUATERNARY ENVIRONMENTAL CHANGE	20 PTS	1/3
Prerequisites:		BIOL/GEOG 222, one of (GEOG 220, 224)		
Field trip:		Mandatory weekend field trip (departing Friday afternoon returning Sunday evening) early in trimester 1 (dates TBC).		

The onset of the Quaternary Period at 2.6 Ma marks one of the most significant climate transitions in Earth's history over the last 65 Ma. It is witnessed by the progressive expansion of ice on Northern Hemisphere continents and coincident global cooling, which initiated a pattern of glacial-interglacial cycles controlled by cyclical changes in Earth's orbit around the sun and in the tilt of the earth's axis, that have dominated global climate to this day. It also encompasses the time in which the genus Homo first appeared and evolved. The geological evidence for this transition is now widespread and is expressed in a range of polar to equatorial depositional environments including deep ocean sediments, shallow marine continental margin sequences and terrestrial records including loess, lacustrine and glacio-fluvial sediments, as well as a wide range of palaeoecological archives.

New Zealand is well-endowed with a diverse array of sedimentary deposits and landforms of Quaternary-age that not only record significant climatic and environmental variability over time but also volcanic and tectonic processes that have a distinct influence upon these deposits and landforms. This course aims to investigate these New Zealand Quaternary records, and to find out why these records are of global significance.

GEOG 319	CRN 7518	APPLIED GEOMORPHOLOGY	20 PTS	1/3
Prerequisites:		GEOG 224, one of (GEOG 220, BIOL/GEOG 222); 15 further points from MATH 132-177, PHYS 131 or STAT 193 (or equivalent) not previously taken		
Field trip:		Mandatory 2-day weekend field trip early in the trimester (dates TBC)		

This course will explore landscape dynamics from a process point of view. This requires knowledge of the mechanisms, both chemical and physical, by which rock is weathered, the controls on sediment transport rates on hill slopes and in streams and the tendency of these systems towards equilibrium states. The focus on systems and equilibrium provides a base from which to understand deviations from equilibrium conditions.

Throughout this course, we will address specific perturbations (human, climatic or even tectonic), paying particular attention to how they alter geomorphic systems and the role of system feedbacks.

GEOG 321	CRN 26057	ICE AND CLIMATE	20 PTS	2/3
Prerequisites:		GEOG 220, one of (BIOL/GEOG 222, GEOG 224); 15 points from MATH 141-177, PHYS 131 or STAT 193 (or equivalent) not previously taken		

GEOG 321 builds upon the material provided in GEOG 220 (Hydrology and Climate) to focus on interactions between climate variability and the cryosphere. It provides underpinning physical understanding of the climate system and of human-induced climate change. The cryosphere is an important component of the climate system and exerts a fundamental control on sea level through time. In particular, the cryosphere is vulnerable in a warming climate. We use lectures and laboratories to develop an in-depth understanding of both the climate system and cryospheric change.

GEOG 322	CRN 31090	ISLANDS AND OCEANS: PEOPLE, POWER AND PLACE	20 PTS	1/3
Prerequisite:		40 200-level points from ANTH, DEVE, ENVI, GEOG, MAOR,		
Restriction:		PASI or POLS		

This course examines a range of issues relevant to island and ocean geographies in (post) colonial contexts – such as climate change, forced migration, militarization, biodiversity, the blue economy – through relevant geographic theories including material geographies, political geographies, more-than-human geographies, and feminist geographies. In doing so, it builds on geographic concepts of region, scale, scarcity, boundaries, marginality and identity. Case studies will largely be drawn from the wider Pacific region, including Aotearoa/New Zealand. Theory drawn from Anglo-centric geographers will be engaged in dialogue with theory from Pākeha, Māori, Pasifika and other indigenous scholars.

GEOG 324	CRN 26058	RESEARCH DESIGN	10 PTS	1/3
Prerequisites:		40 ENVI or GEOG 200-level points (or 40 approved 200-level points); STAT 193 or equivalent		

This is a practical and professionally-oriented course. It imparts some of the excitement and value of different approaches to research design across all aspects of Geography (physical and human). With the support of lectures and laboratory exercises and discussions, students learn about how to ask relevant research questions, develop appropriate research designs, integrate different methods, consider ethics, and practice project management. Building communication skills, students work in teams to develop and present a group research proposal for a project (to be carried out in GEOG 325).

GEOG 325	CRN 26055	FIELD METHODS	10 PTS	2/3
Prerequisites:		GEOG 324		
Field trip:		A mandatory requirement of this course is that all students are required to participate in one of two field trips. The selection of the fieldtrip will depend on the focus of their project proposal developed as part of GEOG 324. Both trips will be 4-5 days long and take place in the mid-year break between Trimester 1 and 2.		

The course is field-based with some follow up classroom activities.

The course builds directly on GEOG 324 to enable students to carry out team-based research using relevant field methods in particular sites, to analyse the data they generate and to present on their findings. It exposes students to a range of field methods and their application and provides a strong foundation for more independent research at postgraduate level.

WHO TO CONTACT

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: 8.30am–4.00pm Monday, Wednesday, Thursday, Friday
9.30am–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.

Student Advisor	**Email**	**Contact**
Varsha Narasimhan	**varsha.narasimhan@vuw.ac.nz**	04-463 5983
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Emma Thornbury	**emma.thornbury@vuw.ac.nz**	04-463 5799

Johan Barnard Student and Academic Services	04-463 5980	Manager,
Kevin Gould	Associate Dean (Academic Undergraduate)	04-463 6649 or 04-463 5101

STAFF CONTACTS

		ROOM	**CONTACT**
Head of School	Prof James Renwick (from February 2019)	309	463 4719
Deputy Head of School	TBC		
PROGRAMME DIRECTORS			
Geography (GEOG, PHYG, ENVI, DEVE)	Prof Rewi Newnham	200	463 5279
Earth Sciences (ESCI, GEOL, GPHS)	Dr Monica Handler	417	463 5391
UNDERGRADUATE COORDINATORS			
Development Studies	Dr Marcela Palomino-Schalscha	203	463 5899
Environmental Studies	Dr Rebecca Kiddle	205	463 6119
Environmental Sciences	Dr Lynda Petherick	207	463 5844
Human Geography	Prof Warwick Murray (TI)	211	463 5029
	A/Prof Sara Kindon (T2)	213	463 6194
Geology	Dr Monica Handler	417	463 5391
Geophysics	Prof Martha Savage	529	463 5961
Geographic Information Science	Dr Mairéad de Róiste	215	463 6431
Physical Geography	Prof Rewi Newnham	200	463 5279

POSTGRADUATE COORDINATORS

Development Studies	Prof John Overton	209	463 5281
Environmental Studies	A/Prof Ralph Chapman	212	463 6153
Geography	A/Prof Sara Kindon	213	463 6194
Geology/Earth Sciences	Prof Colin Wilson	411	463 9510
Geophysics	Prof Martha Savage	529	463 5112
Physical Geography	A/Prof Kevin Norton	202	463 6993

SCHOOL ADMINISTRATORS

School Manager	Monika Hanson	310	463 5345
Administrator - Postgraduate	Miranda Voke	311	463 6108
Programme Administrator - ESCI	Steff Marinus	311	463 5337
Programme Administrator - GEOG	Emily Brook	311	463 6158
Administrator - Operations	Emma Fisher	311	463 5346

ACADEMIC STAFF

Title	First Name	Surname	Research Interests	Room	Tel No
Dr	Wokje	Abrahamse	*Environmental studies, human dimensions of environmental issues, behaviour change, urban sustainability*	204	463 5217
Dr	Cliff	Atkins	*Sedimentary processes and environments, Antarctic glacial geology*	302c	463 6143
A/Prof	Ralph	Chapman	*Environmental studies, climate change, energy, transport, housing, urban, design, environmental health*	212	463 6153
Prof	James	Crampton	*Biodiversity history, mollusc taxonomy, morphometrics, traditional and quantitative biostratigraphy, cretaceous stratigraphy, basin evolution and history of New Zealand*	214	463 8396
Dr	Mairéad	de Róiste	*Usability, GIS, fear of crime, transport modelling, e-democracy*	215	463 6431
Dr	Monica	Handler	*Geochemistry, mantle processes, volcanic rocks, Earth formation*	417	463 5391
A/Prof	Michael	Hannah	*Biostratigraphy, marine biostratigraphy, dinoflagellates; cretaceous/tertiary*	306	463 5494
Dr	Huw	Horgan	*Glaciology; ice-sheet stability, ice-shelf mass balance. Active source seismology*	520	463 6918
Dr	Jamie	Howarth	*Earthquake behavior and hazards, storm frequency, mountain systems*	224	463 5071
A/Prof	Bethanna	Jackson	*Hydrology; ecosystem service modelling; predicting impacts of land management*	208	463 6116
Dr	Rebecca	Kiddle	*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.*	205	463 6119
A/Prof	Sara	Kindon	*Social and development geography, participatory research, visual methods, gender, refugee resettlement*	213	463 6194
A/Prof	Simon	Lamb	*Structural geology and tectonics*	525	463 6428
Prof	Tim	Little	*Tectonics, structural geology, deformational processes*	410	463 6198
Prof	Andrew	Mackintosh	*Glaciology, palaeoclimate, geomorphology*	517	463 6193

Dr	James	McGregor	*Meteorology*	530	463 5278
Prof	Philip	Morrison	*Economic geography, labour market geography, urban growth and development*	210	463 5645
Prof	Warwick	Murray	*Social and economic geography of development, globalisation, Latin America, Oceania, Asia-Pacific*	211	463 5029
Prof	Rewi	Newnham	*Quaternary climate and environmental change, palynology and vegetation history*	200	463 5279
A/Prof	Kevin	Norton	*Geomorphology*	202	463 6993
Prof	David	O'Sullivan	*Urban geography, spatial analysis, modelling and visualization, geospatial technologies*	227	463 6492
Prof	John	Overton	*Development studies, theories of development, land tenure, rural transformations*	209	463 5281
Dr	Marcela	Palomino-Schalscha	*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*	203	463 5899
Dr	Lynda	Petherick	*Quaternary climate and environmental change, palynology and vegetation history, sedimentology and aeolian processes*	207	463 5844
Prof	James	Renwick	*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*	309	463 4719
Dr	Andrew	Rees	*Paleoecology*	214	463 8396
Prof	Martha	Savage	*Seismology and its relation to tectonics, volcanoes, earthquake hazards and geothermal energy*	529	463 5961
Dr	Mirjam	Schindler	*TBC*	TBC	TBC
Dr	Ian	Schipper	*Igneous Petrology and Volcanology*	415	463 8197
Prof	Diane	Seward	*Low temperature thermochronology, Fission-track analysis, (U-Th-Sm)/He analysis with applications in tectonics, structural geology, basin analysis, landscape evolution*	416	463 5814
Prof	Terry	Seward	*Chemistry and geochemistry of aqueous fluids elevated temperatures and pressures at conditions relevant to those found in the earth's crust*	416	463 5814
Dr	Dan	Sinclair	*Environmental geochemistry, palaeoclimatology, palaeoceanography, rapid climate change during the last glacial, geochemistry of carbonates, speleothems and corals; biomineralization*	419	463 9755
Prof	Tim	Stern	*Exploration geophysics and tectonics, crust and mantle structure of the earth*	526	463 5112
Dr	Polly	Stupples	*Social and cultural geography, development studies, creative practice and the creative economy, sustainability*	225	463 6793
Prof	Rupert	Sutherland	*Global-scale tectonic process and crustal-scale tectonic processes*	527	463 6422
Dr	Amanda	Thomas	*democracy, environmental democracy, political ecology, gender, class and ethnicity*	201	463 6117

Prof	John	Townend	*Fault mechanics and tectonophysics*	528	463 5411
Dr	Julie	Vry	*Metamorphic petrology, geochemistry*	409	463 6432
Prof	Colin	Wilson	*Field, chemical and physical volcanology, super-volcanoes, pyroclastic deposits, volcano-tectonics, and geothermal geology*	411	463 9510

SENIOR TUTORS

Mr	Dene	Carroll	*Senior Tutor – Earth Sciences*	302c	463 5932
Mr	Pascarn	Dickinson	*Senior Tutor - Geography*	222	463 8030

ANTARCTIC RESEARCH CENTRE

Dr	Brian	Anderson	Senior Research Fellow	506	463 5176
Prof	Peter	Barrett	Emeritus Professor	515	463 5336
A/Prof	Nancy	Bertler	Antarctic Science Platform Director	519	463 6196
Prof	Lionel	Carter	Prof of Marine Geology	507	463 6475
Dr	Ruzica	Dadic	Senior 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
Dr	Bella	Duncan	Postdoctoral Fellow	511	463 5004
Dr	Shaun	Eaves	Quaternary geochronology, palaeoclimate, glaciology	506	463 5176
A/Prof	Nick	Golledge	Associate Professor	509	463 9592
Dr	Huw	Horgan	Senior Lecturer	520	463 6918
Dr	Stefan	Jendersie	Research Fellow	511	463 5004
Prof	Andrew	Mackintosh	Director (until end of May 2019)	517	463 6193
Mr	Darcy	Mandeno	Field and Operations Engineer	513	463 9662
A/Prof	Rob	McKay	Associate Professor	508	463 6836
Prof	Tim	Naish	Professor in Earth Sciences	506	463 6197
Mrs	Dao	Polsiri	Administrator & NZ SeaRise Programme Manager	512	463 6587
Mr	Alex	Pyne	Project Manager	514	463 5396

CLIMATE CHANGE RESEARCH INSTITUTE					
Prof	Dave	Frame	Director	127	463 6790
Dr	Judy	Lawrence	Senior Research Fellow	129	463 5474
Dr	Alex	Lo	Senior Lecturer	128	463 5058

EMERITUS PROFESSORS					
E/Prof	David	Bibby	*Nuclear energy*	Off campus	
E/Prof	Michael	Crozier	*Physical geography*	off campus	
E/Prof	John	Gamble	*Petrology and volcanology*	421b	463 5253
E/Prof	Euan	Smith	*Seismology, earthquake occurrence, earthquake mechanics, earth deformation, seismic hazard*	525	463 6428
E/Prof	Dick	Walcott	*Global tectonics, continental deformation*	off campus	
E/Prof	Ray	Watters	*Latin America, Uplands of China*	off campus	

POSTDOCTORAL FELLOWS					
Dr	Simon	Barker	*Volcanology, Geochemistry, and Petrology*	505	463 4042
Dr	Carolyn	Boulton	*Fault Mechanics*	505	463 4042
Dr	Calum	Chamberlain	*Geophysics*	505	463 4042
Dr	Jenni	Hopkins	*Volcanic Geochemistry*	505	463 4042
Dr	Finnigan	Illsley-Kemp	*Volcano Geodynamics*	505	463 4042
Dr	Claire	Lukens	*Climate and Tectonics*	222	463 8030
Dr	Deborah	Maxwell	*Hydrology and Ecosystem Service Modelling*	226	463 8369

TECHNICAL STAFF					
Mrs	Luisa	Ashworth	Technician – Geochem	404	463 6402
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Dr	Bruce	Charlier	Geochemistry Laboratory Manager	414	463 5865
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Mr	Andrew	Rae	Technician – GIS Support	502	463 6470
Mr	Kosta	Tashkoff	Manager Technical Services	307	463 6013
Mr	Dez	Tessler	Technician – Field Support	318	463 6192
Ms	Cassandra	Trinh-Le	Technician – Geophysics	318	463 6192
Ms	Fiona	Tuckett	Technician - Petrology	319	463 9479
Ms	Ningsheng	Wang	Senior Technical Officer	414	463 6127