

GEOGRAPHY

Geography begins at home, and home is planet Earth. Wherever people live on land and water, geographers are busy advising and influencing. Whether it's building the knowledge cities of Dubai, Leuven or Palmerston North, advising on irrigation in Canterbury, transport systems in Tokyo or constructing houses along the coast of New Zealand, geographers are using their skills and specialist knowledge to make informed, environmentally sound decisions. The effects of climate change are an increasing source of work for geographers. When a tornado rips through a city or a river floods farms and settlements, a geographer is likely to be among those in its wake who assist people to pick up the pieces and devise strategies to deal with future scenarios.

WHY STUDY GEOGRAPHY?

People often associate geography with questions such as, "What is the capital of Chile?" or "How many tribes live in the jungle of the Amazon?" Ever curious, geographers pursue and find answers to questions that are deeper and even more diverse. Global communications networks and ease of travel enable geographers to work with people and their physical environments all over the world. The chance to learn about the fascinating world we live in and contribute to its sustainable development attracts many young people to geography and the work opportunities are diverse. Wherever there are people and human systems, land, climates and weather, there is a need for experts who understand the complex interrelationships between the factors that make human survival possible.

WHAT IS GEOGRAPHY?

Geography answers the question, "What's over there?" says American geographer Matt Rosenberg. The terrain of study is divided into two categories, physical and human geography. Where these areas share common ground knowledge of both is useful.

Physical Geography

Physical geographers study features of the earth's surface. Their work includes research about climates, landforms and surface processes, plant and animal distribution. Working within the Earth Sciences tradition, physical geographers examine all of the activity found in the four spheres of the planet - the atmosphere, hydrosphere, biosphere, and lithosphere. Knowing about the physical geography of the planet is important because the natural processes of the earth affect the distribution of resources and the conditions of human settlement. These processes

have had considerable impact on human, animal and plant populations throughout the history of the planet, and continue to do so. The activity of people also affects the environment.

Human Geography

Also known as cultural geography, human geography studies people and their interrelationships; their diverse cultures, religions, languages, social, political and economic structures; their built environments, transport, agricultural and industrial systems.

Geographic Information Systems (GIS)

Computerised mapping and data analysis, known as Geographic Information Systems (GIS), is a relatively new development in geography and a skill set that many employers are wanting. Spatial data, gathered on a variety of subjects is entered into a computer. GIS users can create an infinite number of maps by requesting portions of the data to plot.

Related studies

Environmental Studies

The environment is a top priority worldwide. Geographers are among those leading the field, undertaking research and helping government and non-government agencies apply policy. Study of environmental issues links to many different areas, and enhances other subject majors, be they sociology, religious studies, or marine biology. Climate change at local

Topical coverage of career related issues brought to you by Victoria University Career Development and Employment.

Areas covered include how degrees and courses relate to employment opportunities, to life/work planning, graduate destination information and current issues or material relevant to the employment scene. Your comments and suggestions always welcomed.

and global levels along with the sustainable management, and allocation of resources are key issues facing people now and in the future. Environment, conservation, and sustainable development are important interdisciplinary focuses for the study of geography.

Development Studies

Human geographers may specialise in development studies and do a postgraduate degree. Development studies focuses on societal, economic and cultural change that aims to improve the standard and quality of people's lives. Particular reference is made to the populations and cultures of developing countries in a global setting. Studies involve critical analysis and appraisal of the concepts and outcomes of development, of the inequalities of power structures at local and international levels and of issues such as gender and race.

WHERE DO GEOGRAPHY GRADUATES WORK?

Employers across all sectors value the wide-ranging research, analytical, practical and computer skills that geography students offer, along with their extensive knowledge about physical and human processes. Career options are varied. Many of the work opportunities for geography graduates are within government-related organisations or companies with international operations. GIS skills are useful for a range of organisations, including central and local government, regional councils, research and non-profit organisations, and consultancies. Details of employers also relevant to geography graduates can be found in the Career View issue for Geology and Geophysics; branches of earth science.

GOVERNMENT

A selection of governmental organisations identified some of the varied work options for geography graduates.

National Institute of Water and Atmospheric Research (NIWA):

NIWA conducts research into the atmosphere and marine and freshwater systems of New Zealand, including marine and freshwater ecosystems (including fisheries). Their science staff are qualified in a wide range of areas including physics, chemistry, biology, ecology, geography, environmental studies and economics. Good numerical skills and literacy are prerequisites. Most research positions are quite specialised, requiring a research degree in a specialist area. Technical positions require a good grounding in the disciplines noted above, and often within a specialist

area, such as coastal ecology, GIS, engineering, electronics etc. Opportunities for geography graduates can be found in areas such as climatology, resource management, hazards assessment, and environmental economic analysis. Opportunities can be widened with strong numeracy skills and an understanding of atmospheric physics; GIS expertise - often associated with geology, climatology, or mathematics; or where geography has been studied in conjunction with biology and/or ecological studies. The majority of positions at NIWA have a multi-disciplinary focus.

Statistics New Zealand employs graduates across a wide range of business units. Not all of these require prior experience working with statistics. The Geography, Regional and Environment unit has roles for geographic statisticians or statistical analysts. Analytical capability is important for statistical analysts and job applicants are required to sit a short test as part of the recruitment process. The organisation's graduate leadership development programme (GLDP) hires graduates with potential in general skill areas such as oral and written communication, judgment and flexibility, relationship building and leadership, analytical skills, and awareness of external environment. The GLDP develops leadership and management qualities over a 3-5 year programme. This involves rotating across a range of business areas.

Emergency Management Sector - While the Ministry of Civil Defence & Emergency Management generally recruits at intermediate and senior levels only, there are growing opportunities with local government and consultancies for geography graduates with an understanding of natural hazard risks and management and planning processes. Geographers are sought particularly for their understanding of the integrated nature of physical, social and economic systems. Work options for graduates with geography majors, in the field of emergency/disaster management include: natural hazard and risk analysis in local and central government and consultancies; emergency management planners in local and central government, utility companies, and consultancies; emergency management officers in local government; policy adviser in local and central government; hazard/risk/disaster research. Sought after skills include strategic and innovative thinking, ability to synthesise and evaluate information, excellent interpersonal skills and project management skills.

New Zealand Agency for International Development (NZ Aid) recruits staff for development roles that has a combination of development-related experience, specialist

qualifications and some field experience. Recognised field experience includes working for NGOs (non-governmental organisations) in NZ and overseas, United Nations/World Bank/Asia Development Bank experience and voluntary work with migrant/refugee communities etc. NZAID does not endorse or recommend any particular academic study programme, but the types of courses and programmes suited to a development role within NZAID might include: development studies, geography, international relations, economics, social policy, gender studies, health and environmental studies. Along with skills and qualifications, NZAID also seeks staff that demonstrate personal qualities such as sound relationship and negotiation skills, cultural awareness, organisational fit and personal resilience. NZAID has a range of organisational positions that do not require development experience.

LOCAL GOVERNMENT

City Councils have a wide range of operations and while they vary in size and scope they all share similar operations. Wellington City Council (WCC) is one of the largest employers in Wellington employing approximately 1500 permanent staff that performs a wide range of services. Work area options in city councils for graduates majoring in geography include: building consents and licensing, compliance monitoring and enforcement, district plan, ecology and biodiversity planning, environment strategy, environmental health, GIS, land information, land use and subdivision development, open space and recreation policy and planning, reserve planning, urban planning, urban design policy, and urban development strategy. WCC looks for commitment, competence and confidence when hiring new employees, people who model integrity and respect in their jobs and take pride in delivering exceptional customer service.

Regional Councils: there are 12 regional councils and four unitary councils with regional council functions in New Zealand. Regional council functions are resource management (quality of water, soil, coastal planning etc), biosecurity control of regional plant and animal pests, river management, flood control and mitigation of erosion, regional land transport planning and contracting of passenger services, and civil defence (natural disasters, marine oil spill). In the area of resource management, physical geography graduates could take on work in environmental monitoring and resource consent assessments, and gain experience working with the Resource Management Act 1991 and environmental management. Depending on the skills and experience they gain, geography graduates may move

into positions such as policy development or environmental science, or could work in a more hands on position such as land management, advocating sustainable land management to landowners. In the land transport area, geography graduates could be part of the planning and monitoring of the transport networks, and encouraging greater use of public transport, cycling and walking. They must be able to work in a team and with the public, prioritise and complete work to deadlines, have strong communication skills both oral and written, and keep up to date with expertise in their fields. Self-reliance, flexibility, commitment and enthusiasm are also sought.

CONSULTANCIES

Consultancies are many and varied, and a small selection is represented here.

Motu Economic and Public Policy Research carries out objective academic research and aims to promote well-informed debate on public policy issues, with special emphasis on issues relevant to New Zealand policy. Motu employs graduates as research analysts who primarily assist Senior Fellows in the completion of research projects, carrying out research and disseminating the findings. Research analysts are involved in all aspects of a project, from design; developing relationships with collaborators; literature search; data collection; theoretical analysis; empirical analysis and modelling; paper write-up and presentation. The ideal person for Motu has an advanced degree, Honours or higher, in an analytical field and might be thinking of doing further study at PhD level. The organisation has employed research analysts with economics, geography, statistics, physics and maths. The ideal employee also communicates and works well with others.

Critchlow Ltd works in the area of global location intelligence. The company compiles detailed digital maps using MapInfo software. The maps are designed for sophisticated mapping applications, which require many different layers of information to be integrated and visualised in a single view. Of the 30 staff, one third have degrees in either physical or human geography. When recruiting for the Data Maintenance team the company seeks graduates with data inputting skills to a high level of accuracy, spatial and cartographic knowledge, a methodical and systematic work style and strong communication skills. The Consulting team requires similar attributes as well as strong problem-solving skills and the ability to translate a very wide range of client needs and databases into GIS mapping systems.

Tonkin & Taylor is an international environmental and engineering consultancy. Work opportunities within the firm's Environmental Team suitable for geography graduates includes: preparing assessment of environmental effects reports for a range of projects such as irrigation dams, rail bridge replacements, and commercial city developments. Issues of water quality, sedimentation, visual impacts, hazards, iwi issues, and ecology are covered. Preparing environmental management plans for projects such as wind farm developments; processing a range of land use and subdivision resource consent applications on behalf of district councils; desk-top investigations for potentially contaminated sites at various locations around the country; reviewing and providing advice on policies and rules in proposed regional plans and plan changes.

Tonkin & Taylor has a range of clients that provide a variety of work for the Environmental Team. Graduates are able to experience a full range of environmental work. Recruiters look for: good grades and relevant course work; people who are honest and who have enthusiasm and interest in the work; someone who will fit in with the organisation, both with colleagues and with clients; a range of extracurricular interests as this helps to keep a balanced perspective; good written and spoken English.

EDUCATION

Universities are excellent places to work for graduates who enjoy transmitting knowledge and skills at an academic level and who wish to continue research. Graduates considering an academic career require a PhD and a record of publication to be competitive for junior positions.

Other educational institutions: Teaching is a viable career option for geography graduates as the subject is taught in secondary schools. Geography also relates to other curriculum areas such as history, social studies and mathematics. Teacher training is required.

SKILLS

Undergraduate and graduate degrees in geography provide excellent grounding for successful and varied careers. A graduate skill set will include the following:

Research - during geography studies students acquire skills in scientific and social science research methodologies. Methodologies cover qualitative and quantitative approaches.

Analytical - geography studies hone skills in data analysis and deductive thinking. Using analytical skills students sift data, evaluate concrete and conceptual information and draw

appropriate conclusions. These skills are useful in research, policy, and business roles at all levels of responsibility.

Observational - during field work in a range of settings students hone their ability to observe and gather relevant data, using evidence to support deductions and experimental hypotheses. High-level observational skills are developed during studies in GIS, GPS, mapping and other projects.

Synthesising - geography draws upon data from a number of interrelated disciplines. The ability to make sense of concepts and data, to see patterns and connections creates knowledge and leads to innovation. The ability to synthesise is an increasingly important skill in a world where large quantities of information are so quickly available.

Planning/organisation - planning and implementing field trips, working in teams, using equipment, and learning field methodology gives students practical experience in managing and completing projects.

Communication and interpersonal - through degree courses in geography students develop skills in verbal and written communication. These include report writing, discussion and presentation skills. They learn how to work effectively in groups in formal and informal settings such as field trips and interview situations.

JOB TITLES

When applying for jobs it is useful to identify strengths and areas of interest and check these against the role and person specifications. The culture, mission and future vision of the organisation are also important factors to check against personal goals and values.

A selection of job titles: urban/transport planner; policy analyst; policy/senior policy adviser; community development officer/adviser; cartographer; mapping specialist/designer; GIS officer; climatologist; hydrographic officer; transport and traffic adviser/manager; transport analyst; environmental officer/adviser/planner/consultant; land manager; science writer; research officer; emergency management officer/adviser; hazard planner; demographer; marketer; aid officer; resource management adviser; resource consents planner; real estate appraiser; information officer/scientist; ranger; risk analyst; tourism consultant/planner; water resource specialist; soil conservationist; research analyst (gas/electricity); waste management coordinator; peace corps officer/volunteer; land surveyor; natural historian; geographer.

GRADUATE PROFILES

Emily Grace

*Resource Management Consultant
Tonkin & Taylor Ltd*

I completed a BSc with honours in physical geography in 2001, and completed a law degree in 2003, both at Victoria. I initially chose this combination so I could do environmental law, but as my studies progressed I enjoyed geography, particularly physical geography, much more than my law studies. Studying geography taught me a lot about the processes that shape the physical world around us, such as coastal, river, land movement, and atmospheric processes, and how these influence the lives of human beings; our perceptions of risk from natural hazards, competition for water resources, impacts of global warming, the conflict between meeting human needs and protecting the environment.

After graduating I decided to look for a “resource management” type job as I wanted to be able to help achieve sustainable management of natural and physical resources. This meant I would have to work under the Resource Management Act. I ended up with a job as a resource consents planner at Porirua City Council.

City council planning work has less of a physical environmental processes focus and more of a focus on human amenity values in every-day settings where people live their lives. While it isn't large scale “saving the environment”, my decisions had a real impact on people's lives. The skills I gained through my law degree in interpreting rules and understanding case law were very useful. Local government is a great place to learn the ropes and get a thorough understanding of resource management under the RMA.

I then moved to an environmental consultancy firm, Tonkin & Taylor. This gave me a broader range of work including work on large scale projects that involve more physical environmental issues. Examples include: obtaining resource consents for rail bridge pier replacements in environmentally sensitive river environments, and obtaining resource consents; the construction of a water storage dam to store water taken from a river during periods of high flow for irrigation use during periods of low flow. These types of project require an understanding of many factors. These include: physical processes; sustainable management concepts; the impacts on those who live in the vicinity of or have an



interest in the project, and an understanding of the RMA processes involved. I really enjoy this sort of work, and my geography and law studies have given me the skills I need to do it.

Kim Wright

*Hazards Planning Researcher
GNS Science*

On leaving school in the mid-1980s I had qualified for university but had no interest in further study at the time. After doing a number of jobs, I decided at the age of 30 I needed a change and a challenge, and that study was the way to find an interesting, and financially sound career. I called Victoria University and after a quick chat about my interests, science, and the natural world, the verdict was, “It sounds like you should enrol for Geography.”

I enrolled for Geography major, with a bit of physics, chemistry, geology and biology thrown in. The next three years were great, full of interesting topics and interactive labs. Highlights were definitely the many field trips; you get to know and interact with your fellow students and the staff in much less formal way; you're learning while doing, and in some great locations. Some of the skills I gained included field methodology (standing in rivers, walking along beaches, using technical equipment etc) data analysis, mapping, report writing, presentation skills and how to work effectively in groups. On completing my undergraduate degree I decided to undertake a Physical Geography Masters. My research covered the February 2004 storm event impacts, particularly the impacts of landslides on the landscape. This involved a lot of grovelling in the mud and trips around the Wanganui area by air and by road - brilliant.

While studying for my Masters I worked as a summer student at GNS Science. GNS was a great place to work but unfortunately my contract was finite, with no vacancies coming up. When my Masters was complete it was time to look for my first real career job.

Part of my study had been in the area of natural hazards. I applied, and was accepted for, a job at Auckland Regional Council in the Hazards Management Team. I spent two years working with some great people in a really social workplace while learning heaps about how councils manage hazards, and how emergency management operates in New



Zealand. However, Wellington is where my heart is, and when I saw a vacancy at GNS for a Hazards Planning Researcher, it was too good a chance to pass up. I am now back at GNS and looking forward to travel, research, publishing my own work and a really interesting job.

Stacey Gledhill

*GIS Technician
Terralink International*

When I started at Victoria I had no idea what to major in, let alone what sort of career I wanted. In my first year I took a whole range of subjects in order to find my passion. With my love for travel, culture and the outdoors it's no surprise I was attracted to earth sciences, and chose to combine environmental studies with geography to make up my majors for a science degree.



One of the great things about the environmental studies and geography majors is the variety in the courses. I have taken papers in environmental politics, conservation and animal behaviour, marine biology, physics of the environment and geology. But if you were to ask an Earth Science student about their favourite aspect of the study, they would undoubtedly recall the many field trips with great enthusiasm. Getting to know your lecturers and other students outside of the lecture theatre is fantastic and you get the chance to really envisage the various careers on offer.

The most useful part of my geography study was the papers I took in Geographical Information Systems (GIS). GIS is computer based, and involves mapping and analysing spatial data. There are so many career opportunities in New Zealand and overseas for people with GIS skills. I soon found that most GIS jobs advertised required experience, but I knew I just needed a foot in the door. After speaking to lecturers, I learned of a large Wellington based company called Terralink International and a few months after graduating I gained an interview with the company. They hired me on the spot as part of the customer service team, with the understanding that I could advance to a GIS position after a few months.

After just 3 weeks I was offered the role of GIS technician. I now work as part of the team that acquires and maintains the New Zealand geographic data, which is used by the

entire company.

I'm happy I made the choice to study geography and environmental studies. Now I am set on my career and I can't wait. I chose to follow the GIS path, but Geography has so many options for careers. For students who want versatility and to keep their career options open, as well as a chance to work outdoors and with a great bunch of people, this is the degree for you.

Terence Wood

*Information Officer
Development Resource Centre*

There were two main reasons behind my choice to study for a Masters degree in International Development following a BA with majors in Geography and Geology. I wanted to find some explanations for the huge disparities in wealth and wellbeing I had observed while travelling, and see if there was anything I could do personally to help tackle these disparities.



After seven years living overseas, I was keen to be close to my family who were living in Wellington, and enrolled at Victoria University. Once I had commenced my studies I found that study at Victoria had other benefits. As the capital city, Wellington serves as the heart of New Zealand's international development community. I was able to attend numerous talks on development related issues, met and talked with many development professionals, and worked as an intern for Save the Children.

For my Masters thesis I travelled to Brazil to study Participatory Democracy in two large Brazilian cities. Both cities had all the issues that one stereotypically associates with Brazil, yet at the same time both cities also had committed social and political reformers who were doing their best to overcome this. For me, it was both inspiring to study the reforms and humbling to see the scope of the issues that needed to be addressed.

On completing my studies I got my first job working for the university, doing research, taking tutorials and the occasional lecture. The research involved looking at the Millennium Development Goals in the Pacific and the challenges confronting the Pacific Island Countries as they attempt to attain the development targets contained in the Goals. I had previously paid little attention to development issues in the

Pacific, and found this an interesting and, at times alarming, exercise - take a look at the rapid rise of HIV in Papua New Guinea and you will see what I mean. To my surprise, teaching at Victoria was also something I found thoroughly enjoyable. And now, finally, I can stand up in front of a room of students and talk without being terrified.

In January 2006 I started working for the Development Resource Centre (DRC) a relatively large non-governmental organisation (NGO). Working for the DRC has been a great learning experience. Among other things, I have had the opportunity to write articles for our magazine, produce fact sheets, and provide feedback on NZAID policy. In all these areas the learning gained through my development studies degree has been most valuable.

Ryan Paulik

Policy Analyst – Water and Soil Northland Regional Council

While at secondary school I decided to study for an earth science degree at university. Victoria University's physical geography programme offered a variety of topic areas from the founding theories of landform development to contemporary management of natural resources in New Zealand. Coupled with this were the opportunities to get out and about in the field and enjoy the environments you were learning about. This was important as our knowledge of landforms, earth processes and natural hazards is derived from observing these phenomena in the field. One of the most satisfying aspects of physical geography is collecting and analysing your own field data to produce information that assists our knowledge of how natural landscapes function.

Post-graduate studies allowed me to concentrate on my favoured discipline, coastal geomorphology. My research included projects on sediment infill history and rocky coastline development in Whanganui Inlet near Farewell Spit. These involved fieldwork on landform surveying, rock hardness tests, tidal current gauging, vibrocoring and sediment sample collection. Laboratory analysis accompanied the fieldwork and included landform profile construction, wave hindcast modelling and processing of sediment cores and samples. During post-graduate studies I saw and experienced a lot of things many people would never get the



opportunity to do, while the research skills I gained stood me in good stead to enter the workforce.

Following the submission of my thesis in mid-2006 I joined the Northland Regional Council to develop its Regional Water and Soil Plan. Although my background in planning was limited, my research skills and knowledge in geomorphology, natural resources and natural hazards greatly assisted me to understand the region's resource issues and management needs. On the job I have formed an understanding of New Zealand's environmental legislation. This knowledge is necessary when making management decisions on a variety of issues, including water use and quality, soil conservation, biodiversity and natural hazards. I have also taken on the responsibility to develop resource policy to mitigate adverse affects of coastal hazards on land use in Northland. Despite specialising in coastal geomorphology the variety of disciplines taught within physical geography has allowed me to tackle any environmental management issue I face in my job with confidence. I believe those who take a multi-disciplinary approach to a physical geography major (incorporating elements of geology, chemistry, physics, biology, statistics, and environmental law) give themselves a good base from which to participate in a number of careers. These include scientific research, geotechnical engineering, natural resource exploration, environmental and resource management. A degree in physical geography will certainly increase your options for an interesting future.



GEOGRAPHY AT VICTORIA

Geography is a discipline that covers a very wide range of topics from the impact of sea level change on the coast, hill-slope erosion and the role of storms in shaping our environment to feminist thought and Maori resource management. Students enrolling in geography therefore tend to select one of several themes for their study depending on their interest in physical or social systems. Within the School of Geography, Environment and Earth Sciences, these themes are Human Geography (including Development and Environmental Studies) and Physical Geography. Each one of the researchers who teach incorporates the latest thoughts and ideas from their field of expertise into the core of the discipline. Geography also maintains strong active linkages with private consultancies, government departments, aid organisations, and United Nations agencies as well as the Crown Research Institutes of GNS Science and NIWA, all of which add value to the teaching and research programme of the group.

Students studying geography come from many backgrounds, most commonly Arts and Sciences, although often there is cross over with other fields such as Architecture, Education, Law and Economics. A major in Geography is therefore varied depending on each person's interests and passions, and can therefore cross over many disciplinary boundaries. The ability of geographers to link data, analyse space, and critically review ideas makes them highly sought after by employers.

At a postgraduate level, the Institute of Geography also runs the professional programmes in Environmental and Development Studies and offers the only graduate specialisation in Physical Geography in New Zealand. Degrees from graduate diploma to doctoral levels are also offered in

Human Geography, under the general Geography label.

Geography research within the School covers many topics including; for Human Geography:

- Development studies in the Pacific and Latin America
- Happiness Geographies
- Urban Development
- Maori and Feminist Perspectives
- Environmental activism
- Tourism
- Economic geography
- Indigenous peoples

Within Physical Geography, which also has strong linkages with the Geology and Geophysical Programmes within the School as well as the Antarctic Research Centre, research interests include:

- Climate change and its affects on landforms
- Tsunami
- Sediment erosion and deposition within catchments
- Carbon cycling in the environment
- Hillslope Stability
- Hydrology
- Groundwater
- Climatology
- Glacial processes

The Geography group also has an active Geographic Information Systems (GIS) theme which is integrated into both the Physical and Human side of the discipline and is focussed around courses at 2nd and 3rd year level.

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