

GEOGRAPHY

Geography is about the most important relationship of the 21st century – the relationship between humans and the environment. Often referred to as the world discipline, Geography brings together the social and natural sciences. Geographers literally ‘write the earth’ through mapping, visualisation and applied research.

The aim of geographic inquiry is to make a positive difference to life on this planet by understanding and evaluating persistent challenges like inequality, climate change and natural hazards, processes like globalisation, migration and erosion, and features in the landscape such as cities, farmlands and glaciers.

Geographers use their skills and specialist knowledge to support better social and environmental outcomes here and overseas. Their work may include helping refugee-background communities in Wellington to effectively resettle, mapping rural land uses and resources on the East Coast to assist iwi and regional development planning, or working with organisations in the Pacific to increase resilience to climate change.

Geographic study is divided into two main subsidiary fields - Human Geography and Physical Geography. These are complemented by knowledge and techniques in Geographic Information Science (GIScience), which is a powerful way of organising spatial data. Together these fields help geographers to understand relationships between often widely differing variables and to answer pressing social and environmental questions.

Human Geography is concerned with human behaviour and resource use at different scales, and draws on social science traditions to explore the



Photo courtesy Emily Warren-Smith

influence of culture, social and economic structures, transport and identity on the spatial arrangement of people and their impacts on the environment.

Physical Geography studies features of the earth's surface and the forces that shape that surface, including research about climates, landforms, surface processes, and plant and animal distribution. Physical geographers examine all of the activity found in the four

spheres of the planet - the atmosphere, hydrosphere, biosphere, and lithosphere.

GIScience

The widespread adoption of digital technology combined with the management of increasingly large spatial datasets has led to the development of GIScience. GIScience is the science behind the systems that collect, store, manipulate, interpret and display spatial data. It draws on cartography, remote sensing and geographic information systems to explore spatial patterns and trends.

Career View explores how degrees and courses relate to employment opportunities and to life/work planning. It includes graduate destination information and current employment issues. Your comments and suggestions are always welcomed.

Wellington Careers and Employment.
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WHY STUDY GEOGRAPHY?

Geography is all around us, wherever we are. Wherever there are people and human systems, land, climates and weather, there is a need for experts who understand the complex interrelationships between them that make human survival possible. Being able to interpret landscapes, earth surface processes and human interactions with place are valuable skills to inform decisions about land use, planning, investment and community engagement. Knowing about Physical Geography is important because earth processes 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. Knowing about Human Geography is relevant because people form attachments to place, migrate and change places, and make decisions about the use of physical resources from places near and far in their daily lives. These processes have considerable impact on the natural environments, animal and plant populations of the world, as well as the living and working conditions for other human beings.

The chance to learn about the fascinating and complex world in which we live, and the opportunity to contribute to its sustainable development, attracts many young people to Geography; the work opportunities are diverse. Geographers are well connected internationally and with other disciplines like Geology and Sociology. Their work often involves travel and communication across the globe.

WHERE DO GEOGRAPHY GRADUATES WORK?

Career options are many and varied within the public and private sectors. GIScience skills are useful for a range of organisations, including central and local government, regional councils, research and non-profit organisations, and consultancies. Graduates with GIScience skills are particularly sought by industry. Details of employers also relevant to Geography graduates can be found in the Career View issue for Geology and Geophysics, Anthropology, Sociology and Political Science and International Relations.

PUBLIC SECTOR

Government departments, ministries and government agencies employ graduates to entry-level positions such as policy analyst, policy advisor, ministerial writer, communications officer/advisor, researcher and research assistant. Some ministries have graduate



Photo courtesy Emily Warren-Smith

development programmes, depending on their recruitment needs and the economic climate.

The **Ministry of Business, Innovation and Employment (MBIE)** is a large Ministry that recruits Geography graduates, particularly with Human Geography for entry-level graduate policy or research/analyst roles. Some teams at MBIE have a focus on cities and regions and Geography concepts and frameworks. Specialist roles in NZ Petroleum and Minerals are for geospatial professionals. A conjoint Geography degree with economics or law is valuable for policy. Conjoint Physical science-based Geography with investment knowledge or experience in the science system will support entry into science roles.

The **Ministry for Foreign Affairs and Trade (MFAT)** recruits a broad range of graduates. MFAT's International Development Group (IDG) runs the NZ Aid Programme. In addition to a relevant tertiary degree, competencies sought include organisational skills, experience of development/environmental issues, teamwork, excellent oral and written communication, problem solving, relationship management, research and analysis skills.

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.

Crown Research Institutes

National Institute of Water and Atmospheric Research (NIWA) conducts research into the atmosphere and marine and freshwater systems of New Zealand. Opportunities for Geography graduates can be found in climatology, resource management, hazards assessment, and environmental economic analysis. Strong numeracy skills and an understanding of atmospheric physics enhance employability; GIScience 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.

Landcare Research recruitment numbers are small however a first point of entry for a graduate would be as a Research Technician, working for a Scientist gathering data either in the field or the laboratory.

While the **Ministry of Civil Defence and Emergency Management** generally recruits at intermediate and senior levels only, there are growing opportunities in the Emergency Management Sector 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.

Local Government

City Councils have a wide range of operations and while they vary in size and scope they all share similar operations. Work 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, GISystems, 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. GIS officer entry-level roles typically involve data capture, processing and digital mapping for internal business units.

Regional Councils: in the area of resource management, relevant work for Physical Geography graduates includes environmental monitoring and resource consent assessments. Depending on their skills and experience, 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 land transport, Geography graduates could be part of the planning and monitoring of transport networks. A conjoint degree with another science widens work options.

PRIVATE SECTOR

Consultancies are many and varied. A small selection is represented here. Some consultancies prefer graduates to have prior workforce experience such as working for the city councils.

Motu Economic and Public Policy Research employs graduates as research analysts who primarily assist Senior Fellows in the completion of research projects, carrying out research and disseminating the findings. 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 mathematics backgrounds.

Critchlow Ltd works in the area of global location intelligence. One third of the staff has 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.

CoreLogic's GIS Technician role in the Data Maintenance Team is the most common stepping-stone into the business. This role provides excellent exposure to CoreLogic's primary datasets, familiarity with the products and solutions they are used in, as well as hands-on experience with the GIS systems they use. From here there are opportunities to move into Geospatial Analytic, Data Analytic or Developer roles. As geospatial awareness and use of geospatial data is growing across all sectors of New Zealand, a dual specialisation in GIS and some other physical or social science is very useful and may provide opportunities to specialise within the business. CoreLogic looks for a strong grasp of GIS principles and concepts as well as hands on experience using a GIS system; strong analytical skills and an interest in Physical or Human Geography are necessary and excellent verbal and written communication skills. An interest in programming is useful.

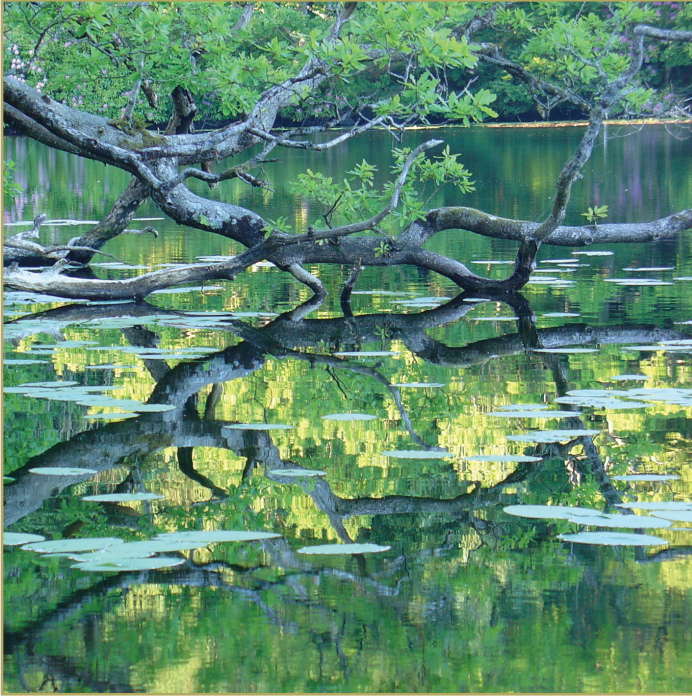


Photo courtesy Dan Sinclair

Engineering consultancies such as **Tonkin & Taylor** have work opportunities suitable for Geography graduates. In Tonkin & Taylor's Environmental team graduates may prepare assessments of the environmental effects for a range of projects such as irrigation dams, rail bridge replacements and commercial city developments; prepare environmental management plans for projects such as wind farm developments; or process a range of land use and subdivision resource consent applications on behalf of district councils. 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, good written and spoken English. In addition, a range of extracurricular interests helps to keep a balanced perspective.

Transport and logistics companies such as **Mainfreight** recruit graduates from all disciplines. Mainfreight's graduate programme starts people from the shop floor handling freight and progresses them through different parts of the company. GPS tracking and fleet management is just one area of a huge industry that may be of interest to Geography graduates. The company emphasizes the importance of people and relationships in its business.

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 valuable and important 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** – students acquire skills in physical and social science research design and methodologies. Methodologies cover qualitative and quantitative approaches.
- **Analytical** – students hone skills in data analysis and critical thinking. They evaluate observational 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 develop their ability to observe and gather relevant information, using evidence to support deductions and experimental hypotheses or deepen inductive analysis and interpretation. High-level observational skills are developed during projects working with people, mapping and GIS, and taking a variety of geophysical measurements.
- **Synthesising** – Geography draws upon information from a number of interrelated disciplines. The ability to make sense of concepts, narrative accounts and numerical data - to see patterns and connections - creates knowledge and leads to innovation. The ability to synthesise is increasingly important in a world where large quantities of information are so readily available.
- **Planning/organisation** – planning and implementing fieldwork, collaborating in teams, using equipment and writing reports give students practical experience in managing and completing projects.
- **Communication and interpersonal skills** – students develop skills in verbal and written communication through essay and report writing, discussions and presentations. They learn how to work effectively in groups in formal and informal settings such as research interviews and field trips

GRADUATE PROFILES

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.

A selection of job titles:

aid officer • cartographer • cartography/visualisation specialist • climate scientist • climatologist • community development officer/adviser/facilitator • data analyst • demographer • development officer/volunteer • emergency management officer/adviser • environmental officer/adviser/planner/consultant • geographer • geospatial analyst • geospatial database administrator • GIS officer/specialist • GIS software developer • hazard planner • hydrographic officer • information officer/scientist • land manager • land surveyor • mapping specialist/designer • marketer • natural historian • oceanographer • policy analyst • policy/senior policy adviser • programme manager • projects officer • ranger • real estate appraiser • research officer • researcher/research analyst (gas/electricity) • resource consents planner • resource management adviser • risk analyst • science writer • soil conservationist • spatial statistician • teacher • tourism consultant/planner • transport analyst • transport and traffic adviser/manager • waste management coordinator • water resource specialist • urban/transport planner

Chris McIntyre

Research Assistant, Diaspora Engagement Policies
Oxford Diasporas Programme



I began my university studies majoring in Psychology, with a pretty broad range of other subjects: Mathematics, Geography, Statistics, International Relations and Religious Studies. By the middle of my second year, I found I was getting the most out of Geography and Statistics and gravitated towards a major in each. I look back on my first and second year as a time when I could feel out a range of options and see what stuck with me intellectually. What I enjoyed most was developing the capacity to think critically through being exposed to new ideas in many different ways. I am far more rounded in the way I engage with ideas in any field, in both a conceptual and a practical sense, than I was when I left high school.

Another area of enjoyment was the university community. I won a New Zealand University Games medal for basketball and played in the NBL during my second-year. I became heavily involved in Salient, the student magazine, and was able to interview All Blacks, politicians, musicians and television personalities.

My studies gave me quantitative and qualitative research skills, and methods for using them together. Geography is the perfect example of a discipline that marries the two. I did a Bachelor of Science (Honours) degree but included a lot of arts papers, and the different fields complemented each other really well by providing different tools with which to think about, assess, and develop knowledge. After taking a third-year migration paper, I was invited to be a research assistant on the Oxford Diasporas Programme – a global research effort looking at the patterns of emigrants and their descendants around the world. The problem solving skills I learned from my courses and my work helped me get a job with the Boston Consulting Group – a worldwide management and strategy consultancy where I'll be taking up an Associate position in 2015.

For Geography, it's important to understand that it's nearly impossible to separate the physical and human elements and a good geographer recognises and reacts to this. In general I think it's good to keep your options open throughout your degree. Expose yourself to as many different ideas and fields as you



Photo courtesy Monique Beyer

can; you'll see the benefits even if you stick with the same major you started with when you began university. Building rapport with your lecturers is also important; they have a lot to offer in terms of expertise, guidance and opportunities.

Alaina Jury

Geospatial Analyst
Transpower

When I left school in year 12, I worked in numerous jobs and eventually ended up in an IT call centre. That's where I discovered a passion for IT. I began to see that in order to achieve real success and to challenge myself, I would need to head to university. I chose a broad range of subjects in my first year before settling on Physical Geography in my second year. As I'm also passionate about the remote outdoors (I'm a keen trumper and rock climber), Physical Geography seemed like an obvious choice.

What I enjoyed most about the Geography degree was the hands on experience you get through fieldwork, where you take real world data from the field into the classroom and thoroughly analyze it. There are so many different aspects to a Geography degree. One day you may be learning about urban planning and the next you may be analyzing soil samples in the lab. I gained a lot of skills during my degree that have been very valuable in the workplace - planning and organising trips, learning to think analytically, and most importantly, teamwork. On field trips you are often working with people you have never met before and if you want to deliver a quality group assignment, you must find a way to work together.

I also took two GIS (Geographic Information Systems) courses, which introduced me to data gathering and analysis using systems such as ESRI Arcmap. I decided that a career in GIS would interest me because it helps to bring the outdoors and IT together. My third year project in GIS looked at the susceptibility of landslides in the greater Wellington region and after completing this project I decided to seek a career in GIS. I graduated in 2013 and with my GIS knowledge from Wellington I found a job at Transpower as a geospatial analyst. I am the lead analyst on a project, which aims to spatialize Transpower's fibre network using drawings and other information.

I'd advise new students to try a broad range of courses in Human and Physical Geography and keep their



major options open. A degree in Geography has a wide range of exciting career outcomes and without my degree I doubt I would be where I am now.

William Ries

Technical Assistant
GNS Science

I spent the early part of my career travelling the world and working in many industries from electronic assembly to tourism and hospitality. The main driver to study was a desire to work in an area of science where my input could directly influence human wellbeing. When



I returned to New Zealand at the age of 29 I enrolled for an undergraduate degree in science, majoring in Geography and Environmental Studies with the idea that I would take a range of first-year courses and see where I ended up.

During my second year I took a course that introduced me to Geographical Information Systems (GIS). That same year I applied for a summer scholarship at GNS Science and was lucky enough to be involved with the active landscapes team and gain first-hand experience applying my GIS skills to natural hazard analysis. Through the combination of the GIS course and first-hand experience working at GNS, I decided to undertake a Master's in Physical Geography looking at methods to identify active faults in eroded landscapes using GIS. The Canterbury earthquake sequence occurred part way through my research and proved a very humbling introduction to why I was researching active faults, and was also a very distracting influence on my studies. I continued to work at GNS part time throughout the Master's programme and managed to develop a full-time position for myself within the active landscapes team.

I am currently continuing the development of my GIS skills including research into remote sensing, landslide modelling, computer programming and database management. I have recently completed a comprehensive review of all mapped active faults within New Zealand and administer the Active Fault Database of New Zealand. I would recommend any student considering a career in the earth sciences to consider Geography as it has a wide range of diverse study areas that can easily be applied to a wide range of jobs.

Jennifer Ryan

Manager Chart Production
New Zealand Hydrographic
Authority

I have been passionate about the environment and enjoyed the outdoors for as long as I can remember. I saw Geography as the ideal outlet to combine these enthusiasms and the prospect of studying demography to landform development and coastal processes was very enticing. I added Environmental Studies as a second major to complement my broader interest in environmental planning and policy.

Studying Geography at Wellington was fascinating, especially the opportunities to conduct fieldwork, collect data and work through a design and/or problem to achieve a tangible result. I got great satisfaction from blending both complex data analysis to develop informed and justified decisions along with creative flair to present multifaceted results to a broad audience. I was able to utilise my inquisitive mind and refine my ability to look beyond the obvious and seek out hidden problems. I thrived in this 'learning by doing' environment and became particularly interested in Geographical Information Science (GIS), which uses computer-based systems to store, manipulate and share/display location-based information.

I secured a summer internship as a GIS Analyst within Land Information New Zealand (LINZ) and have continued a strong career in the marine GIS industry. This includes further specialist training in marine cartography at the UK Hydrographic Office, leadership development and training, and a promotion to Manager Chart Production for the New Zealand Hydrographic Authority (NZHA).

Studying Geography at Victoria also taught me critical soft skills, such as the importance of building relationships with others to aid decision-making and test out ideas. I'm equipped to quickly establish common bonds with people as I often utilise (and rely on) first-hand customer information for improvements to products and services. Geography has given me a valuable foundation in terms of work ethic, and given me access to versatile options for career development and progression. If you are naturally inquisitive, enjoy the outdoors and are interested in a career with varied and exciting opportunities, Geography ticks all the boxes!



Kirk McDowall

Advisor, Strategy and Risk
Environmental Protection
Authority (EPA)

I have always been interested in travelling and learning about different cultures, and enjoyed subjects like Geography and history. However, at college I didn't have a clear idea of what career I wanted. Because of my interests, I enrolled for a Bachelor of Science in Geography and Environmental Studies at Victoria University of Wellington. This degree covered a range of areas, looking primarily at human development, the physical environment, and the interaction between them.

I completed my degree in 2012 and applied for a Master of Development Studies at Wellington University the following year. I decided to do this because I enjoyed learning about Human Geography and the influence of international development. In order to get some practical experience before I began this degree, I applied for a volunteering internship for three months at a community based HIV/AIDS organisation in Bandung, Indonesia. I was able to have this experience because of my studies on cross-cultural research, local communities and human development, as well as the research and analytical skills I had learnt. This volunteer experience allowed me to view the practical side of development, as well as the challenges and benefits for the people involved in this field.

I spent the next two years completing my postgraduate degree and was head tutor and teaching assistant for three Geography courses. In addition, I spent six months volunteering in Mainland China, which contributed to my postgraduate thesis focusing on volunteer tourism. These opportunities were possible because of my study and work at Victoria University. They allowed me to engage with local communities and see the outcomes for the individuals involved. On completing my postgraduate degree, I successfully applied for an advisor position at the Environmental Protection Authority in Wellington.

Studying Geography can open up a range of work and life opportunities and gives students a chance to focus on areas they truly enjoy. Although I didn't know what my career would be, studying subjects that engaged my interest opened up opportunities for me. As a result, I am grateful I studied at Victoria University and focused on areas I was passionate about.

