

What can I do with a degree in Geology?

Geology.

Career planning: what do I need to know?

Knowledge of yourself is important for career decision making. Start by looking at your personal goals, abilities, values and interests to explore study and career options that are relevant to you. Some of these may change over time, so it is important to self-reflect and evaluate your career on an ongoing basis.

What do employers look for?

Many employers look for generic skills such as communication, customer-focus, cultural awareness and teamwork. With technology and globalisation changing the nature of society, skills such as resilience, problem solving and adaptability are valuable at work as well as in life.

How can I develop these skills?

- Some skills are developed through your degree
- Extra-curricular activities can help, for example

getting involved in clubs, mentoring, cultural groups, part-time work or volunteering

- Be open to professional and personal development opportunities. Whether it is undertaking an internship, overseas exchange, skills seminar, or joining an industry group — these activities will enhance your employability.

What else should I know?

The career options in this brochure are examples only and the list is not exhaustive. Some careers may require further study beyond a first degree or additional work experience. Some pathways and degrees have a recommended school background. Find more subject details at www.canterbury.ac.nz/subjects/geol

If this brochure does not answer your questions, talking to an expert such as a career consultant can help you to identify the next steps in your career decision making journey. www.canterbury.ac.nz/careers

What is Geology?

Geology is the study of the Earth, so if you are interested in Earth and Space Science, or environmental sustainability, and enjoy the outdoors or travel you should consider a career in geological sciences.

Geological sciences in the twenty-first century is a fascinating, exciting and incredibly diverse and multidisciplinary subject. Geological scientists are time travellers. Their scientific detective work on events in deep geological time helps us to understand the present, and both past and present are key to forging a better future for society.

Geologists developed the scientific theory of plate tectonics, which explains the major geological features and Earth-building processes of the planet. Aotearoa New Zealand, on the active Pacific Rim, with its volcanoes, earthquakes, dramatic and varied geomorphology, and 500-million years of geological history, is one of the best places on Earth to study geological processes and hazards.



UC Geology students on a field trip near Hanmer Springs, North Canterbury. Taken by Matt Guiang

AT A GLANCE

100%

of graduates who did a work placement or went on exchange abroad felt it helped them to get a job[^]

\$75k

new geologists can earn up to \$75,000 a year[#]

4.6%

growth expected in the employment of natural and physical scientists by 2020^{*}

[^] 2013 and 2015 UC Graduate Destinations Surveys combined

[#] GNS Science 2017 (Note: higher salaries such as this may go to those with postgraduate qualifications)

^{*} 2017 MBIE Occupational Outlook

What skills have UC graduates gained?

Through their Geology degree, graduates gain a valuable set of transferable skills such as:

- Scientific analysis of the outdoors
- Independent thinking
- Critically assessing and synthesising literature and data
- Capacity to think creatively, logically and quantitatively
- Oral and written communication
- Planning and organisation skills
- Teamwork and leadership.

Opportunities to apply your learning outside the classroom are available in this major, through field courses and trips that utilise UC field stations at Cass, Harihari and Westport. Such experiences deepen your skillset, awareness of others, working knowledge and employability.

Where have UC graduates been employed?

Geology graduates are employed in national and local government, planning and conservation, teaching and research, mining and petroleum industries, museums and science centres, energy companies, consulting and engineering firms, research institutes and exploration firms.

Recent UC graduates have been employed by:

- Professional engineering and geotechnical engineering consultancies eg, Pells Sullivan Meynink, Pattle Delamore Partners, Opus International, ENGE0 Ltd, Coffey Geotechnics, KGA Geotechnical
- Government eg, Environment Canterbury, Ministry of Civil Defence and Emergency Management, regional councils, North Canterbury Transport Infrastructure Recovery
- Geological, geophysical and environmental consultancies eg, Geological Solutions, Southern Geophysical Ltd, CRL Energy, Geos Mining Mineral Consultants
- Engineering contractors eg, Fulton Hogan, Downer
- Energy companies eg, Mercury Energy Ltd
- Natural resources exploration and production eg, Vermilion Energy, Oceanagold Corporation, Terra Search, BHP Billiton, Orica Mining Services, Baker Hughes, Laneway Resources
- Research institutes eg, GNS Science, National Institute of Water and Atmospheric Research
- Software eg, ARANZ Geo, International Earth Sciences IESE Ltd
- Agriculture eg, Agri Optics NZ
- Secondary schools.

📄 www.canterbury.ac.nz/recruitingemployers

What jobs and activities do UC graduates do?

Geology graduates monitor and assess hazards such as volcanoes, earthquakes, landslides and tsunamis, and play a vital role in land planning and assessing environmental impact, and hazard and disaster risk and resilience.

Geoscientists also search for the natural resources which sustain our society, including water. The construction of buildings, bridges, roads, dams and reservoirs requires geological expertise in the investigation of foundations.

Some specific geoscience jobs are listed below.

Note: Some of the jobs listed may require postgraduate study. See the 'Further study' section.

Engineering geologist

- Conducts field investigations
- Advises on site selection using geological maps, aerial imagery and remote sensing
- Uses specialised software to assess ground suitability
- Provides advice on construction materials and materials testing

Natural hazards analyst

- Carries out site-specific hazard and risk assessment
- Gathers and maintains natural hazards data
- Advises relevant managers and local authorities

Environmental scientist

- Develops scientific solutions to environmental problems in land and water use
- Carries out field and lab tests, records data
- Conducts analysis and writes technical reports
- Interprets regulations and monitors compliance

Mining geologist

- Tests ore blending and block modelling
- Facilitates grade control programmes
- Liaises with engineers and managers

Petroleum geologist

- Carries out research to find natural resources
- Collects geological information on site
- Interprets geological data for petroleum exploration and resource assessment
- Plans and coordinates drilling

Geophysicist, field seismologist

- Locates seismic equipment to investigate subsurface geology and earthquake seismicity
- Analyses geological and seismological data and writes reports

Soil technician

- Monitors, collects and tests soil samples
- Analyses soil data and writes reports

Field / laboratory technician

- Plans and carries out research experiments in the lab and the field
- Maintains/calibrates field or lab equipment
- Liaises with scientists and industry personnel
- Collects and collates data, and drafts reports

Project manager / coordinator

- Manages a project plan, budget and schedule
- Supervises project progress and manages risks
- Liaises with project staff and clients

Entrepreneur and CEO

- Develops an idea to form their own business
- Offers their services as a consultant

Get started at www.canterbury.ac.nz/careers/Entrepreneurship/getting_started.shtml

What professional bodies can people link to?

As they progress, students and graduates often join professional bodies relevant to their area of interest. These organisations can provide regular communications and offer the chance to network.

- Geoscience Society of New Zealand
www.gsnz.org.nz
- Straterra Natural Resources of New Zealand
www.straterra.co.nz
- Petroleum Exploration and Production Association of New Zealand
www.pepanz.com
- New Zealand Geotechnical Society Inc
www.nzgs.org
- New Zealand Geothermal Association
www.nzgeothermal.org.nz
- International Association of Emergency Managers
www.iaem.com

Social media networks such as LinkedIn, Facebook and Twitter can provide avenues to keep up-to-date with industry events and job vacancies.

Why do further study and what are my options?

Postgraduate study can facilitate career benefits such as specialist skills, higher starting salary, and advanced research capability. It can also lead to an academic job. It is important to determine which, if any, further study will help your career.

Graduates can advance in Geology through an honours, master's or PhD qualification; these enable independent research and project work.

UC Geological Sciences also offers the Professional Master of Engineering Geology and the Master of Disaster, Risk and Resilience. UC has a range of higher degrees in, for example, Environmental Science, GIS, Teaching, and Water Resource Management. www.canterbury.ac.nz/courses



Useful links

UC Careers, Internships & Employment
www.canterbury.ac.nz/careers

UC College of Science
www.canterbury.ac.nz/science

Careers New Zealand
www.careers.govt.nz

Future in Tech
www.futureintech.org.nz

UC Careerhub — internships, jobs and tips
www.careerhub.canterbury.ac.nz

Callum Margetts



Bachelor of Science in Geology
Master of Hazard and Disaster
Management*
Natural Hazards Analyst, Environment
Canterbury

* Now the Master of Disaster, Risk and Resilience

What motivated you to continue your studies?

I decided that it would bolster my job prospects in the fields I was interested in. I wanted to broaden the skills and understanding I had developed during my BSc but I wanted to focus more on how society and the environment interact. I think the Christchurch Earthquakes really highlighted the importance of natural hazards for everyone – our society is really at the mercy of the environment.

What are your daily activities as a Natural Hazards Analyst?

Supporting Environment Canterbury's role in natural hazard management by gathering and maintaining natural hazards information, conducting technical investigations and using this to provide advice to staff, the public and territorial authorities.

How did your studies prepare you for your job?

My qualifications were really a perfect match for my current work. My job fundamentally relies on understanding and communicating earth processes and it would be impossible to conduct my day-to-day duties without solid GIS skills and resource management understanding.

My degree also included more than five weeks total time in the field. I think the field work has

been extremely important for developing a range of skills that you simply can't get in a classroom.

What is interesting about your work?

My work spans the whole region and I get to visit and build an understanding of the rivers and plains across Canterbury. I also get to work with a range of interesting people – hydrologists, engineers, planners and developers.

What are your career goals?

I set out to work in a job focused on sustainability and resilience – I want the work I do to be a net positive for the society and the environment. I am really excited that I have a position where this is the case, and I think I'll be happy as long as I can work in line with these goals.

Read more online

Read Callum's full story about his university experience on our profiles website. UC alumni like Callum make a difference in varied ways around the globe. Find out where Geology graduates are now at www.canterbury.ac.nz/profiles

The information in this brochure was correct at the time of print but is subject to change.

More information

UC students seeking study advice.

Department of Geological Sciences
Te Rāngai Pūtaiao | College of Science

The Department of Geological Sciences at UC is one of the top geoscience research departments in the country and not surprisingly, we are leading the world in our studies of earthquakes.

First-year students have their own laboratory for practical classes and teaching staff are readily contactable. Field sciences are a distinctive feature of the subjects offered at UC and are supported through a range of field facilities.

T: +64 3 364 2700

E: geology@canterbury.ac.nz

www.canterbury.ac.nz/science/schools-and-departments/geological-sciences

Anyone seeking careers advice.

Careers, Internships & Employment
Te Rōpū Rapuara

CIE offers intending and current students and recent graduates a wide range of services, including individual career guidance, seminars, career resources and student and graduate employment opportunities.

T: +64 3 364 3310

E: careers@canterbury.ac.nz

www.canterbury.ac.nz/careers

[UCCareersEmployment](#)

Prospective students seeking study advice.

Student Liaison
Te Rōpū Takawaenga

Student Liaison provides intending students with information about the university system in general and the courses, qualifications, support and facilities available at UC.

Ōtautahi | Christchurch

T: 0800 VARSITY (0800 827 748)

E: liaison@canterbury.ac.nz

Tāmaki-makaurau | Auckland

T: 0800 UCAUCK

E: auckland@canterbury.ac.nz

Te Whanganui-a-Tara | Wellington

T: 0800 VARSITY (0800 827 748) ext 93231

E: wellington@canterbury.ac.nz

www.canterbury.ac.nz/liaison