

# What can I do with a degree in Chemistry?

# Chemistry.



## 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, bicultural competence, 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/chem](http://www.canterbury.ac.nz/subjects/chem)

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](http://www.canterbury.ac.nz/careers)

## What is Chemistry?

Chemistry deals with the composition, structure and behaviour of the atoms and molecules that make up all forms of matter.

Understanding the world at an atomic level is essential to all areas of science. Chemistry interlinks and contributes to medicine, geology, materials science, molecular physics, biology and astronomy. Its central role is emphasised by the fact that chemistry merges with biological sciences (the field of biochemistry) at one extreme and with physics (physical chemistry and chemical physics) at the other.

Chemistry propels advances in modern society and has an important role to play in solving major global challenges such as energy sustainability, food supply, health and the environment. Every day we utilise products developed by experimental chemists such as plastics, fabrics, petrol and pharmaceuticals.



## AT A GLANCE

**\$78,300**

is the average income of a scientist in Aotearoa New Zealand\*

**\$10–30k+**

scholarships of course fees plus \$10–30,000 available for high school teacher trainees#

**800**

members of the New Zealand Institute of Chemistry

## What skills have UC graduates gained?

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

- Analytical thinking
- Problem solving
- Creative, logical and quantitative thinking
- Good planning and organisational skills
- Oral and written communication
- Cooperation, teamwork and leadership
- Mathematical and computer competencies
- Observation, research and development abilities.

Applied learning opportunities are available including laboratory sessions and fieldtrips. These experiences deepen your skillset, awareness of others, working knowledge and employability.

## Where have UC graduates been employed?

Many types of organisations employ Chemistry graduates. They include:

- Government departments and agencies
- Crown Research Institutes (CRIs)
- Other research organisations and laboratories
- Manufacturing firms
- Industrial plants
- Environmental consultancies
- Pharmaceutical companies
- Food and drink producers
- Research and development organisations
- Energy companies
- Secondary schools and universities
- The health sector.

Aotearoa New Zealand's unique mix of primary and secondary industries provides a wide choice of chemistry careers. Expanding industries include:

- New sources of energy
- Development of forestry and dairy resources
- Materials, pharmaceuticals and biotechnology
- Tech sector including nanotechnology, app development and data science.

\* 2020 MBIE Occupational Outlook

# 2021 TeachNZ scholarships

[www.teachnz.govt.nz/scholarships](http://www.teachnz.govt.nz/scholarships)

## What jobs and activities do UC graduates do?

Graduates with this degree are employed in a range of jobs – see some examples below.

*Note: Some of the jobs listed may require further study at postgraduate level. See also 'Further study' on this page.*

### Research scientist / associate

- Designs and conducts research experiments
- Analyses the data and results
- Publishes journal papers, files patents, and presents information at conferences

### Toxicologist, chemical consultant

- Identifies toxic substances and evaluates potential harmful effects
- Conducts laboratory and field experiments
- Produces research reports and advises business, government and industry

### Environmental scientist / technician

- Applies knowledge of atmospheric, water and soil chemistry to the environment
- Carries out field and lab tests and records data eg, measures level of pollutants
- Conducts analysis and writes technical reports
- Develops and oversees policy and procedures
- Interprets regulations and monitors compliance

### Field / laboratory technician

- Plans and carries out research experiments with guidance
- Maintains and calibrates equipment
- Liaises with scientists and industry personnel
- Collects and collates data

### Laboratory manager

- Manages laboratory staff, budgets, workloads
- Maintains and updates lab documentation
- Ensures safety and quality standards
- Reviews methods and validates results

### Secondary school teacher

- Plans and delivers instructional lessons
- Evaluates performance and provides feedback
- Sets and marks assignments and tests

### Science communicator

- Presents science topics to various audiences eg, publicising research findings

- Manages educational programmes eg, exhibitions, outreach events, seminars
- Produces content eg, media releases, videos

### Patent attorney / advisor

- Researches technical or scientific documents, to assess if a product is new and innovative
- Maintains knowledge of laws and regulations
- Writes patent applications for new chemical inventions, including medicines and materials
- Advises businesses, government and industry

### Quality manager

- Ensures that products, processes and systems meet quality standards
- Develops policies and procedures
- Solves problems, makes decisions and supports others to achieve these standards

### Data analyst / technician

- Analyses data and models techniques to solve problems
- Uses software and computer programs, may develop these for new products
- Gains insight for decision-making purposes

### Entrepreneur & self-employment

Entrepreneurship and innovation are an increasing part of the working landscape. Through generating a business idea, or getting involved in a start-up/business venture, you have the potential to create a work opportunity that aligns with your knowledge, skills, values and risk profile. To get started on how to establish, run and grow a new business, go to Te Pokapū Rakahinonga, Centre for Entrepreneurship at the University of Canterbury [www.canterbury.ac.nz/uce](http://www.canterbury.ac.nz/uce)

## What professional organisations can I engage with?

Connecting with professional bodies and organisations can help you to establish

professional networks and learn more about different career options in your area of interest. Gaining valuable insight into a profession can assist in making informed career decisions.

- New Zealand Institute of Chemistry <https://nzic.org.nz/>
- Royal Society of Chemistry [www.rsc.org](http://www.rsc.org)
- Royal Australian Chemistry Institute [www.raci.org.au](http://www.raci.org.au)
- Te Apārangi Royal Society of New Zealand [www.royalsociety.org.nz](http://www.royalsociety.org.nz)
- New Zealand Association of Scientists <http://scientists.org.nz>
- Science Communicators Association of New Zealand [www.scanz.co.nz](http://www.scanz.co.nz)
- Association for Women in the Sciences NZ [www.awis.org.nz](http://www.awis.org.nz)

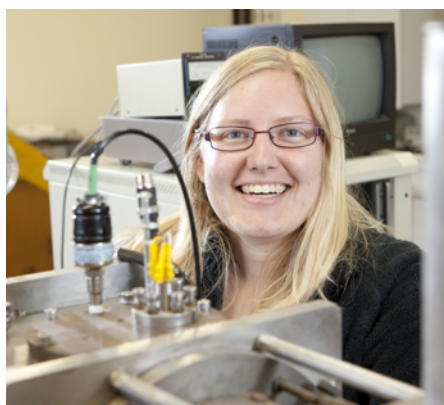
Having a professional presence on social media networks such as [www.linkedin.com](http://www.linkedin.com) and Facebook can help you to keep up to date with important industry developments and trends, networking opportunities, events and job vacancies.

## Why do further study and what are my options?

Postgraduate study can facilitate career benefits such as specialist skills, entry into a specific occupation, higher starting salary, and advanced research capability. It is important to determine which, if any, further study will help you.

Chemistry graduates can progress into a number of programmes from honours through to master's and PhD level. These degrees provide advanced research and writing skills that lead to an academic career.

UC also has a range of conversion degrees eg, in Teaching and Learning, Waterways, Applied Data Science, Engineering Management, and Business Management. [www.canterbury.ac.nz/courses](http://www.canterbury.ac.nz/courses)



## Useful links

Te Rōpū Rapuara UC Careers  
[www.canterbury.ac.nz/careers](http://www.canterbury.ac.nz/careers)

Careers New Zealand  
[www.careers.govt.nz](http://www.careers.govt.nz)

Crown Research Institute careers  
[www.careers.sciencenewzealand.org](http://www.careers.sciencenewzealand.org)

## Joel



Bachelor of Science in Chemistry  
Master of Science in Chemistry  
Studying towards a PhD in Chemistry

### Why did you choose to study Chemistry?

I actually came to UC originally to study some preliminary science papers that I could use towards becoming a veterinarian. It wasn't long before I realised that chemistry was a much stronger interest than biology and so I decided to switch my focus! Completing my Masters is really when I learned to be a scientist as I was able to start applying the fundamental knowledge that I gained from my undergraduate degree. I really enjoy that chemistry offers a mix of practical work and intellectual skills. I find the Chemistry world fascinating which is why I've continued through to my PhD.

### What are some of your highlights in the field so far?

One of the biggest highlights would be a teaching award that I won for teaching 400 level lab classes. I enjoy this work as I get to share my passion with others. My research is also a highlight as it's where I get to discover unknown things and explore things people don't normally think about. You know you're on the right track with research when you can't find it on Google!

### What are some of the important skills you've gained so far?

Along with improving generic skills like reading and writing, I have gained critical thinking and problem solving skills. I feel like I am able to assess why I think what I think which helps me to justify my thoughts and opinions. These are great skills not only for my career, but in everyday life.

### What does your future in Chemistry look like?

My PhD subject is at the forefront of solar cell development. Clean and green energy is a big focus of the science world at the moment and it's great to be a part of ensuring we're doing things better.

### Read more online

Read more stories about our students' university experiences online. UC alumni make a difference in varied ways around the globe. To find out where graduates are now visit [www.canterbury.ac.nz/getstarted/whyuc/student-profiles](http://www.canterbury.ac.nz/getstarted/whyuc/student-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.

Te Kura Matū | School of Physical and Chemical Sciences

The School is made up of over 80 staff and runs an exciting programme of teaching and research using state-of-the-art facilities. Our areas of scholarship are diverse and we collaborate nationally and internationally.

Our teaching staff are all active researchers and very passionate. Dynamic teams are leading research in a wide range of disciplines, from molecular cloning to stellar astrophysics, from the design of new pharmaceuticals to nanotechnology devices.

T: 03 369 4141

E: [scienceugadvice@canterbury.ac.nz](mailto:scienceugadvice@canterbury.ac.nz)

### Anyone seeking careers advice.

Te Rōpū Rapuara | UC Careers

UC 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 3 369 0303

E: [careers@canterbury.ac.nz](mailto:careers@canterbury.ac.nz)

[www.canterbury.ac.nz/careers](http://www.canterbury.ac.nz/careers)

### Prospective students seeking study advice.

Te Rōpū Takawaenga | Student Liaison

The liaison team provide advice to future students who are starting their degree for the first time. They can assist with information on degrees, scholarships, accommodation, and other aspects of university life. We have offices in Christchurch, Auckland and Wellington.

Ōtautahi | Christchurch

T: 0800 VARSITY (0800 827 748)

E: [liaison@canterbury.ac.nz](mailto:liaison@canterbury.ac.nz)

Tāmaki Makaurau | Auckland

T: 0800 UCAUCK

E: [auckland@canterbury.ac.nz](mailto:auckland@canterbury.ac.nz)

Te Whanganui-a-Tara | Wellington

T: 0800 VARSITY (0800 827 748)

E: [wellington@canterbury.ac.nz](mailto:wellington@canterbury.ac.nz)

[www.canterbury.ac.nz/liaison](http://www.canterbury.ac.nz/liaison)

