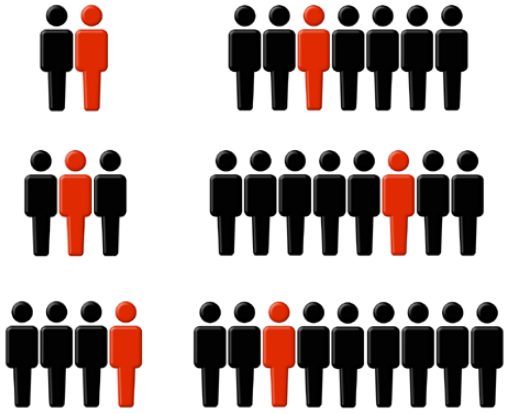
What can I do with a degree in **Statistics?**

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Statistics.



What is Statistics?

We are increasingly becoming a data-driven society with advances in technology and the accumulation of massive data in many fields. Statistics is the profession associated with making meaningful sense of data.

Statistics involves the collection, analysis, interpretation, and presentation of data to answer various important questions across scientific, social, and commercial domains.

Statistics can be used to answer some very important scientific, social and commercial questions such as: How can we monitor the decline rate in endangered animals? What is the impact of government policy on education? How long does mechanical equipment last before it needs repairing? Does group therapy reduce the chance of reoffending?

Statistics is a rapidly advancing science with many avenues open for study and work, from statistical theory to its application in biology, medicine, the social sciences, engineering, physics and economics. There are few disciplines that do not use statistics in some form.

Learn more

It is important to do some research when planning a future career. Speak with, ask questions of, and follow relevant professional bodies, organisations, companies, thought leaders and industry professionals to learn more about:

- Career opportunities, work environments and salary information
- Education and training requirements.

Examples of professional bodies

- New Zealand Statistical Association 💻 www.stats.org.nz
- Te Rōpū Kaiako Pāngarau o Aotearoa New Zealand Mathematical Society 💻 www.nzmathsoc.org.nz
- New Zealand Society of Actuaries 💻 www.actuaries.org
- New Zealand Association of Maths Teachers 💻 www.nzamt.org.nz
- Royal Statistical Society 💻 www.rss.org.uk

Career and study information

Some study pathways and degrees have a recommended school background, and some careers may require further study beyond a first degree or additional experience.

Gather helpful information from:

- Subject-specific content at 💻 www.canterbury.ac.nz/study/academic-study/subjects/statistics
- Job profiles on career websites like 💻 www.careers.govt.nz
- Job adverts/vacancy descriptions
- Industry professional bodies.

This resource is part of a set of brochures focused on subject majors; many can also be studied as minors.

What skills can graduates gain?

Through studying a degree in Statistics, graduates develop a valuable set of skills and competencies that can include:

- Practical application of statistics
- Collection and analysis of data
- Numerical confidence
- Interpretive and analytical thinking
- Logical and quantitative thinking
- Critical evaluation
- Problem solving
- Decision making
- Computing literacy
- Teamwork
- Able to communicate with variety of audiences
- Able to comprehend abstract concepts.

Applied learning

Applied learning opportunities are available such as consulting projects and internships with potential employers are available. These experiences deepen graduates' skillset, awareness of others, working knowledge, and employability.

What do employers look for?

Many employers look for generic skills such as communication, client/customer-focus, bicultural competence, cultural awareness, teamwork and initiative.

With technology, globalisation, and other drivers changing society, skills such as resilience, problem solving, and adaptability are important.

Skills that are likely to grow in importance include analytical and creative thinking, systems thinking and technological literacy.*

**World Economic Forum: www.weforum.org/agenda/2023/05/future-of-jobs-2023-skills*

How can these skills be developed?

- Some skills are gained through studying
- Extra-curricular activities can help, such as getting involved in clubs, mentoring, cultural groups, part-time work or volunteering
- Be open to professional and personal development opportunities, whether it is undertaking work experience, overseas exchange, skills seminar, or joining an industry group.

Where have graduates been employed?

While many are employed by Stats NZ, graduates enjoy a wide variety of destinations. For example, in Aotearoa New Zealand Statistics alumni have been hired within:

- Government bodies and regional authorities e.g. The Treasury, Ministry of Justice, Productivity Commission, Gisborne District Council
- Market research e.g. Buzz Channel, Research First, Nielsen, Colmar Brunton
- Data science e.g. Harmonics Analytics, Plexure
- Financial and professional services e.g. EY, NZX Limited, KPMG, Optiver, IMC Financial Markets, FNZ, Mercer, KVB Kunlan, Accenture
- Transport and tourism e.g. Air New Zealand, Tourism New Zealand
- Health e.g. Compass Health, Te Whatu Ora | Health New Zealand, Ryman Healthcare
- Not-for-profits e.g. World Vision NZ, Givealittle, Pasifika Futures
- Software and technology e.g. Xero, Atlassian, Orion Health, Tenzing, Fulcrum
- Banking sector e.g. ANZ, BNZ, Westpac, Heartland Bank
- Manufacturing e.g. Ford, Tegel, Fonterra
- Research e.g. Manaaki Whenua | Landcare Research, Plant & Food Research
- Insurance e.g. Suncorp Group, IAG, AA Insurance
- Education e.g. New Zealand Institute of Studies, University of Auckland.

What jobs and activities might graduates do?

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

Note: This list is not exhaustive, and some jobs may require further study, training or experience. It is recommended to start with the section 'How can I gain a sense of career direction?'

Data scientist / analyst

- Analyse past and current data to glean insight
- Model techniques and make predictions
- Bridge the gap between IT experts and business analysts

Statistician

- Design data collection methods
- Uses statistical techniques to predict trends
- Present graphs and charts of data

Biostatistician

- Apply statistics to health and public health
- Analyse data that relates to medical problems
- Advise on data collection methodology

Biometrician

- Use statistical models to analyse biological data
- Advise on experimental design, data collection, analysis and presentation
- Train and support other staff in biometrics

Investment analyst

- Undertake fundamental analysis for securities
- Provide buy or sell recommendations

Research analyst / associate

- Coordinate organisational research
- Use mathematical modelling and computer software to improve operations, sales etc

Secondary school teacher

- Prepare and deliver learning experiences in specialised subjects
- Understand the learning needs of rangatahi, observe progress to personalise support
- Promote the wellbeing of rangatahi

Statistical methodologist / analyst

- Plan, design and test data collection methods
- Develop new analytical methods for data analysis
- Draw conclusions and write reports

Actuary, actuarial analyst

- Assess the likelihood of an event occurring
- Look at past trends to predict future outcomes
- Explain implications e.g. possible costs

Risk surveyor / analyst

- Identify and mitigate strategic, operational, and other risks e.g. credit or regulatory risks
- Manage relevant policies and procedures
- Oversee staff engagement and compliance

Examples of other job titles and careers include:

- Banking consultant
- Business / operational analyst
- Content designer
- Financial risk analyst
- Immigration officer
- Laboratory technician
- Market researcher
- Performance analyst
- Policy analyst
- Project coordinator and analyst
- Research assistant
- Scientist
- Survey designer.

Further study options

UC offers postgraduate study in Statistics from honours through to PhD level, which allows more opportunities for independent research. Advanced study can also lead to an academic career. Some Statistics graduates undertake additional training in subjects such as management or teaching.

Further study may facilitate career benefits such as specialist skills, entry into a specific occupation, higher starting salary, faster progression rate, and advanced research capability.

It is important to determine which, if any, further study options align with future career aspirations.

For further UC study options visit:
💻 www.canterbury.ac.nz/study/academic-study

How can I gain a sense of career direction?

Understanding yourself and others is important to gain a sense of direction. This grows with experience; therefore, trying new things and reflecting on an ongoing basis is important.

Career planning checklist

❑ **Discover and reflect on:**

- Your values, interests, strengths, abilities, and aspirations
- Your connection to whānau, people, and places
- Lifestyle preferences and location
- The skills you want to gain, use, or enhance

❑ **Engage in a variety of experiences to learn about:**

- How you want to contribute to society, the environment, and global challenges
- The tasks, responsibilities and work environments you prefer
- Your work values, priorities and interests

❑ **Learn more and gather career and study information**
(refer to page one of this resource)

- Speak with people working in careers that interest you; check the realities of a job/career
- Gather information from various sources

❑ **Identify your next steps**

- Talking to a career consultant can help you to identify your next steps. Visit: 💻 www.canterbury.ac.nz/life/jobs-and-careers

What have other students and graduates done?

Explore career stories of students' university experiences and UC alumni who make a difference globally in varied ways.

Visit: 💻 www.canterbury.ac.nz/about-uc/why-uc/our-students/student-stories

Amanda

Matthew

Amanda

Principal Analyst, Worksafe New Zealand | Mahi Haumaru Aotearoa

Bachelor of Science with Honours in Statistics
Bachelor of Science in Statistics

Why did Statistics appeal to you as a career?

I was interested in Statistics from high school and I ended up taking the paper by chance. I really liked the real-world applications and how Statistics can be used to improve people's lives. It is an excellent area of study to choose, either as a major or as a minor with another subject. The ability to be data savvy is becoming more and more important in today's economy and it is an area where skilled people are in high demand.

What drew you to UC to study Statistics?

UC has one of the best Mathematics and Statistics Departments in New Zealand. I enjoyed the support of the staff at UC; the tutors, senior tutors, and lecturers were really supportive and talented in their fields. I am still in touch with many of my lecturers today. I also enjoyed the range of subjects and interest areas I was able to study and the clubs on campus gave me a great outlet for my interests.

How has your degree helped you in your work?

My study prepared me well for the vast array of different issues I would be faced with; no two days are the same. I get to use modelling techniques on a day-to-day basis and implement these in critical parts of the business. It also prepared me for working with lots of different people, different ages, different experience, and how to manage both up and down in an organisation. I love that my work is making a difference to people's lives.

Matthew

Policy Analyst, Te Tāhuhu o te Mātauranga | Ministry of Education

Bachelor of Science in Philosophy and Statistics
Bachelor of Arts in Economics with minors in Mathematics and Political Science and International Relations

What does your work involve?

As a Policy Analyst, I help advise decision-makers on what they should do and why. That's often a minister, but it can also be leaders at the Ministry. I work on the school funding system, where we decide how much resourcing different schools get. I know that a job done well improves children's lives. That makes work easy to enjoy.

Why a double degree?

I decided to change degrees at the end of my second year. I came to do Engineering, and by the time I changed my mind I was too well settled in to consider anywhere else! I wanted to study something I was really interested in and would lead into fulfilling career. Economics did both.

Has all those subjects helped in your career so far?

Yes, more than I expected! I think Economics provides an essential framework to understand policy and think through what impacts a change might have. My Econometrics and Statistics study has been particularly helpful. Government has a lot of data but using it well is challenging. I've also found the writing style you learn in Philosophy suits policy well.

Career guidance

Career services are available for future and current students, and recent graduates. To learn more, contact:

Te Rōpū Rapuara | Careers
T: +64 3 369 0303
E: careers@canterbury.ac.nz
💻 www.canterbury.ac.nz/life/jobs-and-careers

Helpful career insights

- Speaking with employers is key to finding opportunities; not all jobs are advertised
- Developing an online presence is useful as employers can search for future employees online
- Learning about recruitment patterns and where to find opportunities is important.

Study advice

Student Advisors at UC help with questions focused on starting, planning and changing studies. To connect with Student Advisors, visit:

💻 www.canterbury.ac.nz/study/study-support-info/study-support

Future students – contact:

The Future Students team
T: 0800 VARSITY (0800 827 748)
E: futurestudents@canterbury.ac.nz

First year students – contact:

Kaitoko | First Year Student Advisors
T: +64 3 369 0409
E: firstyearadvice@canterbury.ac.nz

Continuing students – contact:

Te Kura Pāngarau | School of Mathematics and Statistics

T:+64 3 369 2233
E: MathStatsEnquiries@canterbury.ac.nz

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Career profiles and the information in this brochure were correct at the time of creation but are subject to change.