Bachelor of Data Science (BDataSc)

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Dive deep into big data

Data is everywhere. The data we generate is growing exponentially and increasing in complexity day by day. Data science is helping us make sense of it. Te Whare Wānanga o Waitaha | University of Canterbury's Bachelor of Data Science takes you deep into the world of 'big data'. You'll learn how to analyse past and current data, reveal patterns and trends, and provide valuable insights that can improve lives and change the world.

UNIVERSITY OF CANTERBURY | Science Pūtaiao

The science of data

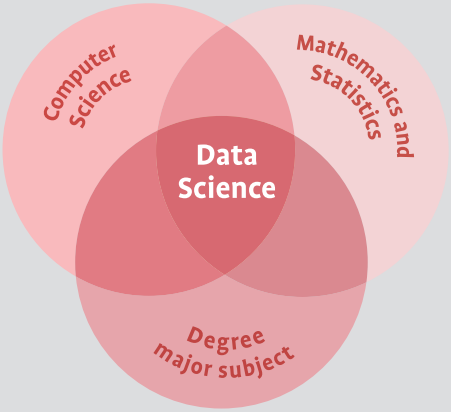
‘Big data’ refers to the vast amounts of data generated and collected by people and organisations every second. This data is valuable. It can help improve lives, change behaviours and influence decision-making at the highest level.

What is data science?

Data science combines the power of mathematics, statistics and computer science to extract meaning and value from the ever-expanding volumes of data being collected. It can reveal patterns, trends and associations on a large scale and provide predictions and insights into everything from social behaviours to the natural environment.

Why data science?

Data science is a massive emerging growth area globally and considered one of the essential skills of the 21st century. If you’re creative, inquisitive, interested in science and technology, and looking for a career at the forefront of technical innovation in the digital world, then this could be the career for you.



Data science is one of the most essential and employable professions of the 21st century*.

In 2019, LinkedIn ranked ‘Data Scientist’ as the No.1 most promising job*, with job openings for data scientists rising 56% on the previous year.

*Based on US data on job openings, salary, career advancement opportunities
www.techrepublic.com/article/why-data-scientist-is-the-most-promising-job-of-2019/

A career for the future

Data science is an exciting field to get into and one of the world's fastest growing professions, making it a great career choice.

Where can it take me?

There's a growing demand for data scientists across all employment areas, driven by the exponential growth of data and a desire by industry and governments to use that data for better outcomes. As organisations all over the world recognise the value of 'Big data' and what it can reveal, they're increasingly needing people who can make sense of it.

Some places you could work:

- technology, finance or insurance companies
- research and science organisations
- healthcare and medical sector
- start-up and consulting businesses
- government agencies
- iwi and other Māori organisations.

Bachelor of Data Science

Study the Bachelor of Data Science (BDataSc) at UC and gain the skills and knowledge employers are looking for in a data-focused world. Be prepared for an exciting career in a fast-growing and evolving field of science.

Study data science at UC and you will:

- gain in-depth knowledge of the data science skills of programming, mathematics and statistics as used by many disciplines
- study at the forefront of modern practices surrounding big data
- learn how to extract information and value from data to inform decisions
- use specialised computational and statistical techniques for data analysis
- study issues in the digital world – from ethics to strategy and security
- gain an internationally recognised degree in the unique setting of Aotearoa New Zealand, where your engagement with biculturalism will foster transferable intercultural competence skills.

About the degree

The BDataSc is a 3-year degree that will set you up with the skills, knowledge and competencies you'll need for a successful career in data science. It is a practical, work-focused degree developed in response to industry demand, with input from potential employers of data science graduates.

Bachelor of Data Science Degree Plan

SCIE 101	MATH 102	DATA 101	COSC 121	COSC 122	MAJOR	MAJOR	Elective
DATA 201	DATA 203	STAT201 or STAT202	COSC 262	PHIL 240	MAJOR	MAJOR	Elective
DATA 301	DATA 303	STAT 315 or STAT 318	MAJOR	MAJOR	MAJOR (30 points)		Elective

Planning your degree

The BDataSc degree contains a core of maths, data science and computer science. Along with these core subjects, students choose a 'major' subject to specialise in.

You can specialise in one of the following six majors:

- **Bioinformatics**. Use a wide range of applications and tools to understand and manage the vast amounts of complex biological data generated from scientific research.
- **Business analytics*.** Business analytics is a fast growing field of study that uses data to make industry work better and adjust to change. Learn how to collect, read, and report on data to help make better business decisions, growth strategies, and customer services.
  **subject to CUAP*
- **Computational linguistics**. Apply computer science to the analysis, synthesis and comprehension of written and spoken language. Used in everything from speech recognition systems to search engines.
- **Data science**. Analyse past and current data to provide predictions and valuable insights into everything from social behaviours to the natural environment.
- **Spatial data science**. Use location-based data and tools like geographic information systems to find patterns and tackle complex problems.
- **Population health data science**. Find data-driven solutions to disease prevention and improve public health and wellbeing on a large scale.

The BDataSc degree plan outlined above illustrates the core compulsory degree courses, the major course requirement components and the elective course options. In year 3 of the degree, you will also undertake a research project aimed at solving a particular industry or community problem.

More study options

As a graduate of BDataSc, you can develop your independent research skills, or boost your career and earning potential with postgraduate qualifications in data science or other specialist fields, including:

- Master of Applied Data Science (MADS)
- Professional Master of Geospatial Science and Technology (PMGST)
- Master of Spatial Analysis for Public Health (MSAPH)
- Postgraduate Diploma in Science (PGDipSc)

See our postgraduate science degrees on our website:
www.canterbury.ac.nz/science/qualifications-and-courses/postgraduate/

‘Data science can be applied in a wide range of sectors, ranging from business, energy, government to healthcare, security, and logistics for different goals such as extracting insights from data, predicting trends and development, or suggesting best actions for a desired outcome.’

Sy Trinh
Studying towards a Master of Applied Data Science

Why study Data Science at UC?

Compact city and campus

Our campus is in the heart of the beautiful, friendly and vibrant city of Ōtautahi Christchurch which sits within the takiwā, area, of Ngāi Tūāhuriri - a hapū who hold mana whenua rights of occupation in the Ōtautahi city area.

Learn from the best

UC is the top university in the country for the proportion of researchers that teach, so you will be taught by scientists who are at the forefront of advances in their field. Learn from internationally recognised experts in biology, computing, data science, geography, linguistics, mathematics and more.

We collaborate with a range of specialist, internationally recognised organisations working in the data science area; including:

- Biomolecular Interaction Centre
- Food, Policy and Wellbeing Research Cluster
- Gateway Antarctica
- Te Taiwhenua o te Hauora | GeoHealth Laboratory
- The Materials Cluster@UC
- Toi Hangarau | Geospatial Research Institute
- Waterways Centre for Freshwater Management
- Wireless Research Centre

Purpose-built facilities

UC’s laboratories, research centres, and field stations are internationally renowned. Added to this is a brand new regional research centre, that embraces the Ngāi Tahu cultural narrative of Whatukura in its design, and ensures students are at the forefront of contemporary science. Learning and research spaces in the centre have state-of-the-art equipment, high-tech computing systems and technology.

Learn by doing

You will have hands-on learning experiences in lectures, labs, and at our field stations. You can ‘do’ science right from the first semester of your first year.

Thinking about a career in Data Science?

Whakapā mai, get in touch today and find out how you can take the first step. Learn about degree options, campus life, how to enrol, and more. Karawhiua!

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