

What can I do with a degree in Financial Engineering?

Financial Engineering.



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/financial-engineering

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 Financial Engineering?

Want to understand the complexity of capital markets? Or how to manage different types of risks? Interested in achieving a challenging technical degree with flexible career opportunities?

Financial Engineering is a cross-disciplinary field combining financial and economic theory with the mathematical and computational tools needed to design and develop financial products, portfolios, markets, and regulations. Financial engineers manage financial risk, identify market opportunities, design and value financial or actuarial products, and optimise investment strategies.

Initial studies provide a breadth of technical skills and knowledge across finance and economics, mathematics and statistics, and computer science and software engineering. Later on in their degree, students can specialise.



AT A GLANCE

1st

Aotearoa
New Zealand's
first university
to offer Financial
Engineering
programmes

16

16 stock exchanges
in the world that
have a market
capitalisation of
over US\$1 trillion

What skills will UC graduates gain?

Financial Engineering graduates develop a valuable set of skills that include:

- Applied financial, mathematical and statistical problem-solving skills
- Strong quantitative and analytical abilities
- Programming skills
- Ability to critically review new information
- Ability to design and develop a new financial product, instrument or investment strategy
- Communication
- Teamwork.

Where might graduates be employed?

There is currently an employer demand and international growth in financial engineering and related fields like the wider actuarial and business analytics industries.

Employers range from private industries, such as banking, investment, capital industries, security, data analysis, risk management and insurance, to the public sector (eg, the Reserve Bank, Treasury or regulatory bodies).

Past graduates of the contributing departments from related paths of study have been employed by Macquarie Capital, Deloitte, BNY-Mellon, First NZ Capital, Reserve Bank of New Zealand, Vero Insurance, Wynyard Security Group and many government agencies such as the Treasury, Statistics New Zealand and the Ministry of Business, Innovation and Employment.

With global demand increasing apace, there are significant opportunities for New Zealanders to work abroad as a financial engineer.

For more examples of employers who recruit UC students and graduates go to

www.canterbury.ac.nz/recruitingemployers

What jobs and activities could graduates do?

Financial Engineering graduates are ready for the international workplace in the finance and analytics industries. Financial engineers could be involved in derivatives pricing, financial regulation, corporate finance, portfolio management, risk management, trading or structured products.

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

Examples:

Financial engineer

- Keeps abreast of current financial markets and theories, and past market performances
- Develops simulations and predicts behaviour
- Uses modelling to decide on saving, investing, borrowing, lending, and managing risk

Investment broker, investment trader, share broker, financial trader, quant trader

- Develops systems, algorithms, relationships and strategies to maximise assets and minimise financial risk
- Specialises in stock, bond or other markets
- Makes investment transactions and may offer advice to a client or organisation

Actuary

- Assesses the likelihood of a particular event occurring and the possible financial costs
- Looks at past trends to predict future outcomes
- Presents reports, explains implications, and gives advice (often to non-specialists)

Investment analyst

- Does fundamental analysis for securities
- Provides buy or sell recommendations

Quantitative research analyst

- Develops automated trading strategies
- Implements statistical trading models
- Generates research ideas, builds datasets, conducts statistical data analysis

Risk analyst / manager

- Identifies and manages strategic, operational and other (eg, credit or regulatory) risks
- Develops and maintains risk management policies, procedures, and frameworks
- Oversees engagement and compliance, and supports staff in managing risks

Business analyst

- Utilises data and analytical models for organisational information purposes
- Provides insight to inform business decisions
- Liaises with different areas of the business

Statistical analyst, data scientist

- Collects, analyses and interprets data
- Uses statistical techniques and models to identify and forecast results, trends and needs
- Presents information to assist decision-making

Entrepreneur and CEO

- Develops an idea to form their own business
- Gets involved in a start-up
- Offers their services as a freelancer or consultant

Entrepreneurship and innovation are an increasing part of the working landscape. Get started at www.canterbury.ac.nz/careers/Entrepreneurship/getting_started.shtml

UC Careerhub

UC students and alumni can find details of internships, scholarships, job vacancies and employability tips at www.careerhub.canterbury.ac.nz

What professional bodies and organisations can people link to?

As they progress in their studies and into a career, students and graduates often join professional bodies or organisations relevant to their area of interest. These organisations often provide regular communications and offer the opportunity to network with others within the same community.

- The New Zealand Analytics Forum
www.analytics.org.nz
- International Association for Quantitative Finance www.iaqf.org
- Financial Engineering and Banking Society
www.febsociety.org
- New Zealand Society of Actuaries
www.actuaries.org.nz
- Transforming Data with Intelligence
<https://tdwi.org/>
- Institute of Analytics Professionals of Australia
www.iapa.org.au

Social media networks such as LinkedIn, Facebook and Twitter can provide avenues to keep up-to-date with industry knowledge, 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, faster progression rate, and advanced research capability. It is important to determine which, if any, further study will help you in your future career.

UC offers an honours programme and a Master of Financial Engineering for graduates to conduct higher research and learning in the subject. Visit www.canterbury.ac.nz/courses

Useful links

- UC Careers, Internships & Employment
www.canterbury.ac.nz/careers
- UC School of Mathematics and Statistics
www.canterbury.ac.nz/engineering/schools/mathematics-statistics
- Careers New Zealand
www.careers.govt.nz
- Financial Engineering and Banking Society
www.febsociety.org
- Top 50 Graduate Employers
www.top50graduateemployers.co.nz



Bianca Davis



Bachelor of Science majoring in
Financial Engineering

Why did you choose to major in Financial Engineering?

I went to university with the idea that I wanted to do business but I wasn't sure what I wanted to do specifically. So I changed from an Accounting degree to an Economics degree to finally, Financial Engineering, which just seemed to have the right mix of papers that I enjoyed.

What do you enjoy about it?

I enjoy the range of topics I study under this one degree. I love that I am doing Maths, Statistics, Computer Science and Finance. It makes the degree more enjoyable because my courses are diverse and I am not stuck doing variations of the same thing over all of my courses.

What do you like about studying at UC?

I enjoy that UC looks after its students. The lecturers are also very accommodating and helpful, which makes me feel more at ease and comfortable in my classes.

Do you have any advice for new Financial Engineering students?

The range of subjects means that often lecturers will hand a lot of things out at the same time. It can be quite stressful but as long as you manage your time well and study outside of lectures you should be able to keep on top of it.

What are your career goals?

My current goal is to ultimately work at the Reserve Bank of New Zealand.

Read more online

Read Bianca's full story about her university experience on our profiles website. UC alumni like Bianca make a difference in varied ways around the globe. For stories of graduates who are working in finance and analytics related fields visit

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.

School of Mathematics and Statistics
Te Rāngai Pūkaha | College of Engineering

The School is made up of specialists in Data Science, Financial Engineering, Mathematics, and Statistics. Courses within the School are able to be studied alongside other subjects and staff invite students to come and discuss their study programme and goals.

T: +64 3 364 2600

E: enquiries@math.canterbury.ac.nz

www.canterbury.ac.nz/engineering/schools/mathematics-statistics

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

[UC Careers Employment](#)

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