JAMES COOK UNIVERSITY
AUSTRALIA

Online

Master of Data Science

Propel your career through world-class learning

Looking for a future-oriented career in a research or corporate environment?

JCU's 100% online Master of Data Science is your ticket to a bigger career in one of the fastest growing professions worldwide.

- 100% online learning – study to your own timetable with no on-campus classes or exams
- Qualify sooner with one of Australia's fastest part-time Master of Data Science
- Upskill now and capitalise on the data science revolution

The data science landscape

Coined as a job title as recently as 2008, data scientists are qualified professionals who can analyse data to deliver valuable business insights.

Fast-forward to today, and data science is one of the world's fastest growing sectors.

Qualified data scientists are in strong demand across every industry from health, research, marketing, retail, finance, manufacturing, IT and user design to professional and scientific services.

Why earn your Master of Data Science?

A Master of Data Science from JCU Online will provide you with sophisticated skills and knowledge that will open up a wealth of opportunities in today's data-driven world.

Whether you want to progress or kick-start your career in data science, a Master of Data Science will set you apart.

As companies look to unlock the secrets hidden in data, demand for data science professionals who can mine data to deliver valuable business solutions will only increase.

Position yourself for success with a JCU Online Master of Data Science – a higher degree that will put you at the forefront of the data science revolution.

Masters-qualified data scientists command high salaries

Top-level data scientists earn a median salary of $240,000 p/a

The need for data scientists is global and intensifying

Projected annual demand for data scientists increase of 12% (near-term)

Roles are varied and in demand

Data scientist, business analyst and machine learning scientist, and more

Need to know

Fees

A$3,100 per subject.

FEE-HELP is available to eligible students.

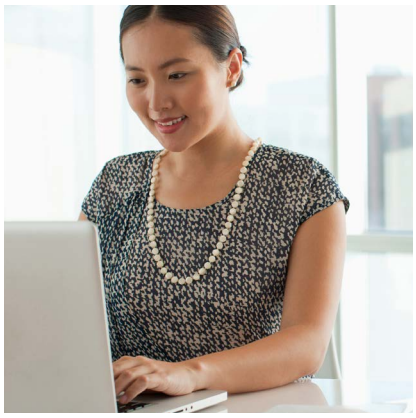
Duration

- 24 – 32 months (duration depends on Recognition of Prior Learning)
- 12 – 16 subjects in total
- Complete up to six subjects per year

Study periods

Enrol in January, March, May, July, September or October

First available study period for 2017 is October.



Need to know

Entry requirements

- A Bachelor degree (whilst not a prerequisite for entry, high numeracy skills equivalent to senior level mathematics that includes algebra and elementary differential calculus is assumed). OR
- At least five years of relevant work experience in a IT or Data Science related industry. Industry experience will need to include some background in computing, data analysis or programming. Application based on relevant industry experience must be supported by a detailed CV and proof of work experience.
- Applicants of non-English speaking backgrounds must meet the English language proficiency requirements of **Band 2 – Schedule II of the JCU Admissions Policy**.

**JCU offers a specified online mathematics subject, which can be completed prior to application if you do not currently meet the mathematical entry requirement level.*

Recognition of Prior Learning (RPL)

The duration of your course is dependent on your previous education and work experience. If you have completed a related undergraduate degree, it could reduce the number of subjects you have to study to gain your Masters degree. Speak with your Enrolment Advisor to discuss your options.

Course overview

JCU Online's Master of Data Science is an innovative, fully online course that puts professionals who recognise the power of data and numbers ahead of the pack, in one of the world's most in-demand sectors.

The program will provide you with sought-after, advanced skills in data science and will prepare you for a future-focused career in a research or business environment.

Subjects

Graduate Certificate

- Foundations for Data Science
- Statistical Methods for Data Science
- Data Visualisation
- Database Systems

Graduate Diploma

- Programming and Data Analytics Using Python
- Essential Mathematics for Data Scientists
- Introduction to Data Mining
- Advanced Statistical Methods for Data Scientists

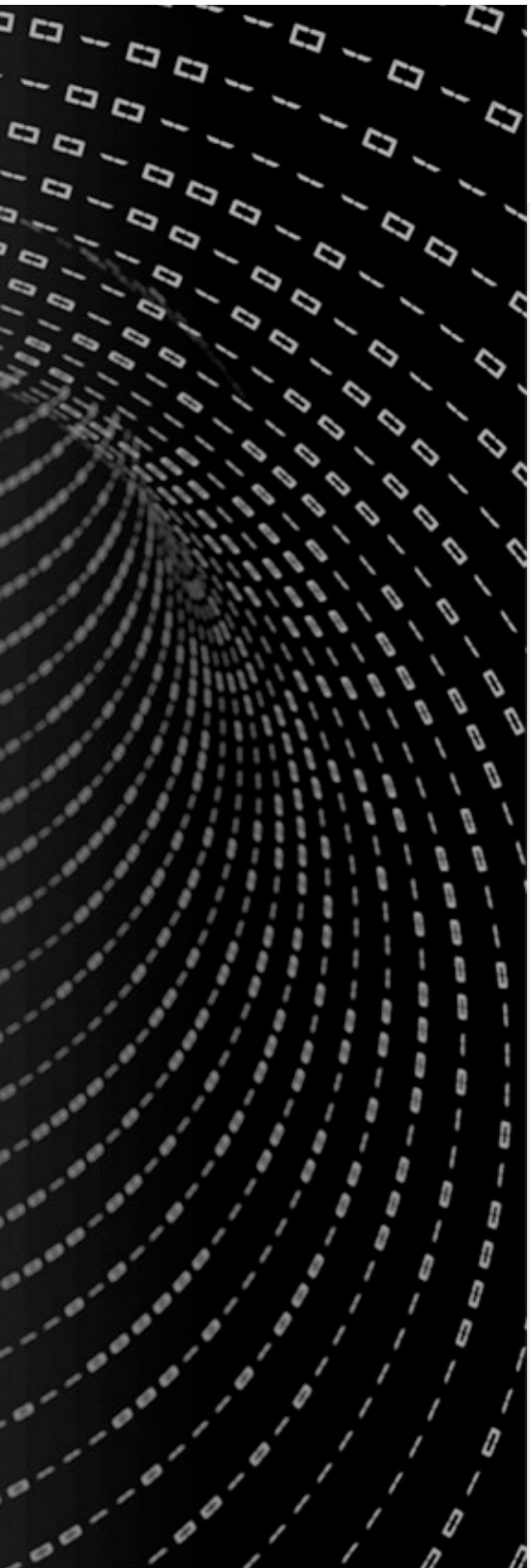
Master

- Data and Information: Management, Security, Privacy and Ethics
- Big Data: Management and Processing
- Data Mining and Machine Learning
- Data Science and Strategic Decision-making
- Data Science Master Classes - Classes 1 and 2
- Data Science Capstone Project – Parts 1 and 2

Subject descriptions

To complete JCU Online's Master of Data Science, you will study up to 16 of the following subjects.

Each subject runs for seven weeks, with six teaching periods per year.



These are the subjects you will study:

Statistical Methods for Data Science

Applying statistical methods the right way can help data scientists make new discoveries and help businesses and managers make better decisions. Learn to apply statistical methods correctly to understand, present and analyse data, and to communicate statistical analysis to specialist and non-specialist audiences.

Foundations for Data Science

Gain a practical overview of data science as a discipline by exploring data visualisation, data wrangling and tidying, algorithm analysis and software practice. Learn to explain the most common forms of data types and to represent and pre-process different forms of data for analysis and visualisation.

Subject descriptions

Data Visualisation

Advances in technology have made it possible to collect data quickly at a low cost. Learn to take advantage of the plethora of data to help business leaders and policy-makers make informed decisions. Gain the skills to communicate data visually using the latest, cutting-edge techniques.

Database Systems

Understand the principles and concepts of database systems and their importance in data science. Learn to critically appraise database management systems, formulate queries using database queries language and develop the techniques and tools to model, design and implement a database system using SQL.

Essential Mathematics for Data Scientists

This subject will provide students with the essential mathematical capabilities required of data scientists. Topics covered include elements of discrete mathematics such as logics, sets, proof, functions, relations, graphs and trees, as well as many elements of linear algebra and how to successfully apply these to data science problems.

Programming and Data Analytics Using Python

A comprehensive introduction to the fundamental principles and practices of computer programming in Python. Learn to apply fundamental application development skills in a modern programming environment, develop and utilise best-practice coding techniques, and to understand and apply Python libraries to data science problems.

Subject descriptions

Introduction to Data Mining

Using a combination of theory and practice and real-data sets, explore a range of widely used algorithms and techniques to automatically extract patterns from data. Learn a range of classical, yet powerful and popular techniques for the most common descriptive and predictive tasks in data mining, including clustering, outlier detection and classification.

Advanced Statistical Methods for Data Scientists

Hone skills in advanced statistical modelling. Learn how to use linear modelling with multiple predictor variables, check model diagnostics and develop a range of techniques for coping with data that are temporally or spatially correlated. Learn to execute advanced statistical modelling theories and processes to solve real-world problems.

Data and Information: Management, Security, Privacy and Ethics

Explore and understand issues around database management, data security, privacy and ethics. Analyse and apply the principles of data warehousing and distributed database management systems, construct and apply advanced data querying including data cubes and OLAP, and critically evaluate the principals of data integrity, sharing, security, ethics and privacy in data management and analysis.

Big Data: Management and Processing

Learn widely used tools and techniques for high-performance and large-scale computing, with a focus on computer models and software designed to handle big data sets in a distributed and/or parallel fashion. This subject has a particular focus on distributed and parallel computing using Map-Reduce /Hadoop and similar models for processing big data sets.

Subject descriptions

Data Mining and Machine Learning

Learn a range of algorithms based on machine learning techniques for advanced data analysis and mining. Gain the skills to describe, choose and apply unsupervised machine learning methods for descriptive data mining tasks, such as clustering and outlier detection, dimensionality reduction via feature selection and supervised machine learning methods for predictive data mining tasks, such as pattern classification and regression.

Data Science and Strategic Decision-making

Learn to help businesses and other organisations make use of the data they collect by analysing trends, patterns and relationships. Develop the integrated knowledge required to understand and manage information resources, interpret business statistics, develop practical decision-making models and integrate data science with associated accounting and finance tools.

Data Science Master Classes – Classes 1 and 2

With data science transforming society and finding application in essentially all domains, these 'master classes' call upon leaders in the field to report on recent industry and/or research advances. Apply your learning to understand and employ new data science skills, knowledge and techniques to solve problems at a career-ready level.

Data Science Capstone Project – Parts 1 and 2

Capstone projects are the culmination of the Master of Data Science, showcasing the skills and knowledge acquired throughout the degree to manage and solve complex data-driven, real-world problems relevant to industry, science, government or society in general. Students work under the guidance of staff members in industry, university or government departments to create a portfolio that demonstrates skills to potential employers.

Why choose JCU Online?

Qualify from a world-class online university

Ranked among the world's top universities, JCU helps students gain the skills they need to propel their careers and make a difference to their local communities.

One of Australia's fastest part-time Masters

Unlike traditional on-campus degrees, at JCU Online you can complete six subjects each year. This means you can complete more subjects per year, making it one of the fastest Masters degrees in this field in Australia.

Qualify-as-you-go study options

Build towards your Masters through flexible entry points and 'qualify-as-you-go' through our nested qualifications; gain a Graduate Certificate of Data Science after completing four subjects, and a Graduate Diploma of Data Science after completing eight subjects.

Receive personalised support

A dedicated Success Advisor will be by your side from enrolment to graduation, assisting you throughout your program of study, and helping you stay motivated and on-track.

Learn from an exceptional teaching staff

JCU's teaching staff have years of experience in research, academia and importantly, industry. Delivered by highly respected and award-winning academics*, this interdisciplinary approach boosts your skills in real-world situations. In a fast-paced field like data science, you can be confident JCU's teaching staff have their fingers firmly on the pulse.

**https://www.jcu.edu.au/learning-and-teaching/awards-grants/awards-and-citations/recipients-of-national-teaching-citations*

Online learning with a personal touch

Be personally supported while earning your degree from JCU Online.

Success Advisors

Benefit from the support of a one-on-one Success Advisor during your online degree.

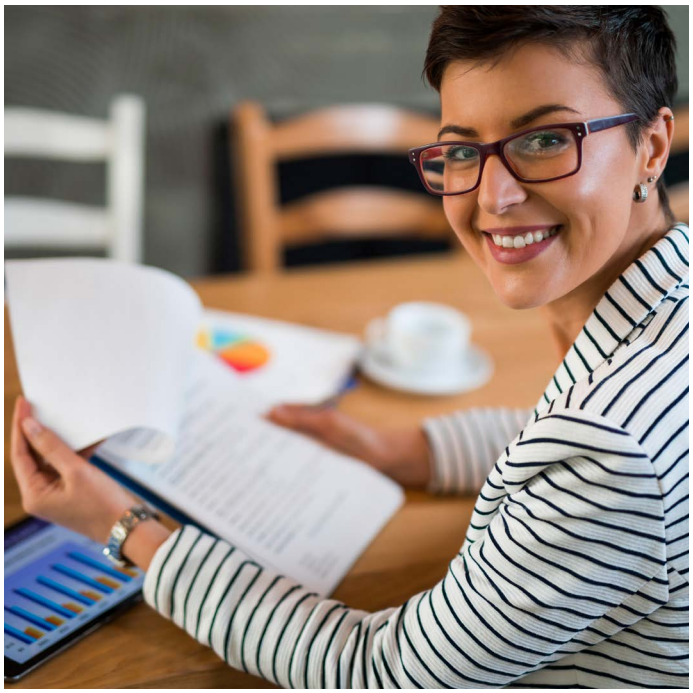
Along with your tutors, your Success Advisor is there for you from your first day as a student with JCU Online. They are readily available to help you navigate your online degree and keep you motivated throughout the duration of your study.

Live chat sessions

Discuss a topic, ask for help, collaborate with fellow students and get the information and support you need via live chat sessions with peers and tutors – when and where it suits you.

Build a professional network

The opportunity to connect with academics and fellow students – regardless of location – means you'll build a professional network, without even having to leave your lounge room.



Rankings

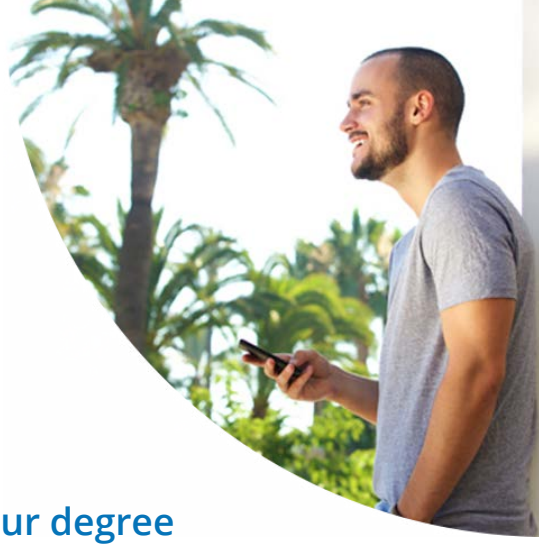
JCU is a world-class university. Our consistent ranking among the world's top universities guarantees that a degree from JCU Online will help your CV shine.

JCU graduates go on to make a positive mark on the world and achieve professional success through further education.

When you qualify from JCU, you'll join a long line of graduates already achieving career success throughout Australia and beyond.

- JCU is ranked in the top 2% of the world's universities, according to the Academic Ranking of World Universities
- JCU is ranked in the top 14 Australian universities
- JCU has received 5 stars for job success in the Good Universities Guide for the past 6 years running

Why study online?



JCU Online makes postgraduate study achievable and manageable.

100% online

JCU Online courses are delivered 100% online, on any device. Maintain work, family and other commitments without the hassle of a fixed timetable, and study whenever and wherever suits you.

Our online learning programs provide access to leading academics, cutting edge research and ongoing support, with materials available at any time of day, from any location.

Enjoyable learning

JCU's interactive, immersive online environment makes learning enjoyable, no matter what topic you're studying.

Video, audio, forums, live chats and practical exercises suit a wide range of personal learning styles and help learning come to life.

Fast track your degree

JCU Online offers six study periods each year, meaning you can complete your Masters in as little as two years, part-time.

- **Enrol in January, March, May, July, September or November**
- **Qualify sooner by completing up to six subjects per year.**

Our innovative online structure means you can focus on a single subject at a time and still complete your Masters ahead of most other university programs.

What's more, you can enrol in a JCU Online degree at any one of the six study periods throughout the year. We're ready whenever you are!

- ✓ Study whenever, wherever suits you using any device
- ✓ Fit study around existing commitments
- ✓ Grow your career in expanding data science field

How to apply

Why wait to start building your brighter future?

Applying to undertake a Master of Data Science with JCU Online is a simple, three-step process.

Step 1: Call or email us

1300 535 919

learn@online.jcu.edu.au

Call us or send us an email to speak to a dedicated Enrolment Advisor who will:

- Discuss your career goals and if this degree is the right choice for you
- Assist you with questions about fees, subject selection and majors
- Help ensure your enrolment experience is a smooth one.

Our team of Enrolment Advisors are available to chat at the following times:

- **Monday and Tuesday:** 8am – 6pm (AEST)
- **Wednesday and Thursday:** 8am – 7pm (AEST)
- **Friday:** 8am – 5pm (AEST)

Step 2: Gather your documents

- **Transcripts and certificates**
  Documents to confirm any past studies
- **Advanced standing documents (if applicable)**
  Your CV, including details of relevant work history and any contact details for previous employers
- **Proof of English language skills (if applicable)**
  If you have completed Year 12 in Australia, that's usually all the evidence you need.

Step 3: Apply online

Once you've completed Steps 1 and 2, you're ready to **apply online** using our straightforward process.