

## Master of Data Science (ITM001.1)

Please note these are the 2024 details for this course

### Domestic students

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Selection rank

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English language  
requirements

An IELTS Academic score of 6.5 overall, with no band score below 6.0 (or equivalent).

[View IELTS equivalences](#)

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Duration

2.0 years

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UAC code

880261

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Faculty

Faculty of Science and Technology

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Discipline

Academic Program Area - Technology

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Location

UC - Canberra, Bruce

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Fees

2021: \$29,500 per year

2022: \$30,000 per year

**Disclaimer:**

Annual fee rates

The fees shown are the annual fee rates for the course. The annual rate is the fee that applies to standard full-time enrolment, which is 24 credit points. The final fee charged is based on the proportion of 24 credit points in which a student enrolls. Students enrolled in a Commonwealth Support Place (CSP) are required to make a contribution towards the cost of their education, which is set by the Commonwealth Government. Information on Commonwealth Supported Places, HECS-HELP and how fees are calculated can be found [here](#).

### International students

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Academic entry  
requirements

To study at UC, you'll need to meet our academic entry requirements and any admission requirements specific to your course. Please read your course admission requirements below. To find out whether you meet UC's academic entry requirements, visit our [academic entry requirements page](#).

[View UC's academic entry requirements](#)

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<b>English language requirements</b>	An IELTS Academic score of 6.5 overall, with no band score below 6.0 (or equivalent). <a href="#">View IELTS equivalences</a>
<b>CRICOS code</b>	099433A
<b>Faculty</b>	Faculty of Science and Technology
<b>Discipline</b>	Academic Program Area - Technology
<b>Location</b>	UC - Canberra, Bruce
<b>Duration</b>	2.0 years
<b>Fees</b>	2021: \$33,000 per year 2022: \$34,100 per year <b>Disclaimer:</b>  Annual fee rates  The fees shown are the annual fee rates for the course. The annual rate is the fee that applies to standard full-time enrolment, which is 24 credit points. The final fee charged is based on the proportion of 24 credit points in which a student enrolls. Information on how fees are calculated can be found <a href="#">here</a> .

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## About this course

### Learn how to read, interpret and manage the world's information

If you consider yourself a big picture thinker, then the UC Master of Data Science is the course for you, as not only will it introduce you to a whole new world of data interpretation, it will also teach you the skills to recognise, interpret and ultimately manage trends at both a micro and global scale.

Data analysis and modelling underpins all aspects of social and community development and thanks to the internet and smart phones there has been a dramatic growth in the scale and complexity of data that can be collected and analysed across industries including health care, sports, business practices, scientific discoveries and government policy.

To help process and navigate this vast and ever-growing mass of data, the industry desperately needs trained specialists who can understand and interpret vast amounts of data (big data), while providing effective and ethical ways to protect the privacy of that information.

Using a unique combination of interdisciplinary coursework, a strong background in research methodology and comprehensive training via industry-based projects (work-integrated learning), this course will uniquely position graduates of this course to become leaders in this field in either industry, the government sector or academia.

This course offers the chance to specialise in Sports Analytics, Business Intelligence, Artificial Intelligence & Computational modeling.

### Study a Master of Data Science at UC and you will:

- Learn the knowledge and skills to read and interpret Big Data
- Become proficient using state-of-the-art industry tools
- Learn how to critically analyse databases and offer innovative solutions
- Gain practical skills working on real world issues
- Learn and apply professional ethics, teamwork, critical analysis, communication and management skills.
- Build strong industry networks
- Earn an industry recognised and respected qualification
- Be in demand

## Work Integrated Learning (WIL)

WIL is an integral component of the Master of Data Science course as it offers students the opportunity to gain valuable hands-on experience and build professional relationships through real work or work-like placements.

To ensure our students have access to the right people and places, UC works hard to foster close industry connections and regularly engages with industry partners who possess both the skills and experience to provide specialised knowledge and training opportunities.

All course content is reviewed annually by our Course Advisory Group which is made up of a panel of highly qualified and respected industry experts.

## Career opportunities

The amount of digital data being produced daily around the world is phenomenal and as such graduates of the UC Master of Data Science course can expect to find themselves in high demand in any one of the following positions.

- Data scientist
- Data engineer
- Data analyst
- Business analyst
- Statistician
- Software developer
- Data warehouse operator and manager
- Computer network analyst
- Consultant

## Admission requirements

An Australian bachelor degree in any field or equivalent.

## Assumed knowledge

Year 12 mathematics and functional knowledge of using computer systems.

## Periods course is open for new admissions

Year	Location	Teaching period	Teaching start date	Domestic	International
2024	UC - Canberra, Bruce	Semester 1	05 February 2024	✓	✓
2024	UC - Canberra, Bruce	Semester 2	29 July 2024	✓	✓

## Credit arrangements

There are currently no formal credit transfer arrangements for entry to this course. Any previous study or work experience will only be considered as part of the application process in accordance with current [course rules](#) and [university policy](#). Credit is not permitted towards completion of a graduate certificate.

## Course requirements

### Master of Data Science (ITM001) | 48 credit points

**Required - Must pass 33 credit points as follows**

[Expand All](#) | [Collapse All](#)

- Introduction to Statistics G (6554) | 3 credit points – Level G
- Regression Modelling G (6557) | 3 credit points – Level G
- Inf. Sc. Research Methodology PG (6797) | 3 credit points – Level P
- Pattern Recognition and Machine Learning PG (11512) | 3 credit points – Level P
- Introduction to Data Science G (11516) | 3 credit points – Level G
- Exploratory Data Analysis and Visualisation G (11517) | 3 credit points – Level G
- Data Capture and Preparations G (11520) | 3 credit points – Level G
- Programming for Data Science G (11521) | 3 credit points – Level G
- Technology Capstone Research Project PG (11522) | 6 credit points – Level P
- AR/VR for Data Analysis and Communication PG (11524) | 3 credit points – Level P

**Restricted Choice - 15 credit points as follows**

**Part A - Must select 1 of the following**

**Sports Analytics specialisation - Must pass 12 credit points as follows**

- Sport Informatics and Analytics PG (9612) | 3 credit points – Level P
- Performance Analysis in Sport G (10155) | 3 credit points – Level G
- Athlete Monitoring PG (10156) | 3 credit points – Level P
- Applied Data Analysis in Sport PG (10157) | 3 credit points – Level P

**Business Intelligence specialisation - Must pass 12 credit points as follows**

- Econometrics G (6551) | 3 credit points – Level G
- Business Intelligence Systems PG (6680) | 3 credit points – Level P
- Database Systems PG (6681) | 3 credit points – Level P
- Data Analytics and Business Intelligence PG (8697) | 3 credit points – Level P

**AI & Computational Modelling specialisation - Must pass 12 credit points as follows**

- Artificial Intelligence Techniques PG (6685) | 3 credit points – Level P
- Soft Computing PG (7197) | 3 credit points – Level P
- Computer Vision and Image Analysis PG (8890) | 3 credit points – Level P
- Data Science Technology and Systems PG (11523) | 3 credit points – Level P

- Awards: To have a specialisation on his or her testamur, a student must complete all units listed in that specialisation. Otherwise, students can choose and mix the units as they prefer.

**No Specialisation - Must pass 12 credit points from the following**

- Econometrics G (6551) | 3 credit points – Level G
- Business Intelligence Systems PG (6680) | 3 credit points – Level P

Database Systems PG (6681) | 3 credit points – Level P  
Artificial Intelligence Techniques PG (6685) | 3 credit points – Level P  
Soft Computing PG (7197) | 3 credit points – Level P  
Data Analytics and Business Intelligence PG (8697) | 3 credit points – Level P  
Computer Vision and Image Analysis PG (8890) | 3 credit points – Level P  
Sport Informatics and Analytics PG (9612) | 3 credit points – Level P  
Performance Analysis in Sport G (10155) | 3 credit points – Level G  
Athlete Monitoring PG (10156) | 3 credit points – Level P  
Applied Data Analysis in Sport PG (10157) | 3 credit points – Level P  
Data Science Technology and Systems PG (11523) | 3 credit points – Level P

**Part B - Must pass 3 credit points from the following**

**G Level Units - May select from**

Database Design G (6672) | 3 credit points – Level G  
Designing Human-Computer Interaction G (6673) | 3 credit points – Level G  
Systems Analysis and Modelling G (6677) | 3 credit points – Level G  
Security and Support in IT G (6689) | 3 credit points – Level G  
Web Design and Programming G (6691) | 3 credit points – Level G  
Discrete Mathematics G (6699) | 3 credit points – Level G  
Software Systems Architecture G (8746) | 3 credit points – Level G  
Systems Software G (8935) | 3 credit points – Level G  
Introduction to Information Technology G (8936) | 3 credit points – Level G  
Mathematical Structures G (8938) | 3 credit points – Level G  
Software Technology 1 G (8995) | 3 credit points – Level G  
Software Technology 2 G (9073) | 3 credit points – Level G  
Introduction to Digital Forensics G (9075) | 3 credit points – Level G  
Mobile Technologies G (9076) | 3 credit points – Level G  
Management Information Systems G (9503) | 3 credit points – Level G  
Introduction to Network Engineering G (10088) | 3 credit points – Level G  
Electronics Systems G (10091) | 3 credit points – Level G  
Enterprise Systems G (11518) | 3 credit points – Level G  
Foundations of Robotics G (11528) | 3 credit points – Level G  
Workflow and Process Management G (11529) | 3 credit points – Level G

- Students may select another suitable G or PG level unit not listed here with Course Convener permission.

**PG Level Units - May select from**

Information Security PG (6682) | 3 credit points – Level P  
Knowledge Management Systems PG (6688) | 3 credit points – Level P  
High Speed Networks PG (6692) | 3 credit points – Level P  
Client-Server Computing PG (6693) | 3 credit points – Level P  
Computer and Network Security PG (6697) | 3 credit points – Level P

Business Informatics Case Studies PG (7106) | 3 credit points – Level P

Graphics Visualisation Techniques PG (7108) | 3 credit points – Level P

Information Systems Management PG (7109) | 3 credit points – Level P

Game Programming Techniques PG (7191) | 3 credit points – Level P

Social Informatics PG (7196) | 3 credit points – Level P

Information Sciences Internship PG (7900) | 3 credit points – Level P

Project Management PG (8427) | 3 credit points – Level P

Programming Natural User Interfaces PG (8891) | 3 credit points – Level P

Network Architecture PG (10099) | 3 credit points – Level P

Wireless Networks PG (10100) | 3 credit points – Level P

Enterprise and Cloud Computing PG (11510) | 3 credit points – Level P

Internet of Things PG (11513) | 3 credit points – Level P

System and Network Administration PG (11515) | 3 credit points – Level P

Advanced Robotics PG (11525) | 3 credit points – Level P

Advances in Information Sciences and Engineering PG (11526) | 3 credit points – Level P

Cloud Computing Architecture PG (11527) | 3 credit points – Level P

Information Sciences Internship (Extended) PG (11531) | 3 credit points – Level P

In addition to course requirements, in order to successfully complete your course you may need to meet the inherent requirements. Please refer to the [inherent requirements statement](#) applicable to your course

## Typical study pattern

### UC - Canberra, Bruce

Standard Full Time, Semester 1 Commencing

#### Year 1

##### Semester 1

Data Capture and Preparations G (11520)

Exploratory Data Analysis and Visualisation G (11517)

Introduction to Data Science G (11516)

Introduction to Statistics G (6554)

##### Semester 2

AR/VR for Data Analysis and Communication PG (11524)

Pattern Recognition and Machine Learning PG (11512)

Programming for Data Science G (11521)

Regression Modelling G (6557)

#### Year 2

##### Semester 1

Two Restricted Choice Part A units

Inf. Sc. Research Methodology PG (6797)

Restricted Choice Part B unit

##### Semester 2

Technology Capstone Research Project PG (11522)

Two Restricted Choice Part A units

Standard Full Time, Semester 2 Commencing

#### Year 1

## Semester 2

[Inf. Sc. Research Methodology PG \(6797\)](#)

[Introduction to Data Science G \(11516\)](#)

[Introduction to Statistics G \(6554\)](#)

[Programming for Data Science G \(11521\)](#)

## Year 2

### Semester 1

[Data Capture and Preparations G \(11520\)](#)

[Exploratory Data Analysis and Visualisation G \(11517\)](#)

One Restricted Choice Part A Unit

One Restricted Choice Part B Unit (G or PG Level)

### Year 3

### Semester 1

Two Restricted Choice Part A units

[Technology Capstone Research Project PG \(11522\)](#)

### Semester 2

One Restricted Choice Part A Unit

[AR/VR for Data Analysis and Communication PG \(11524\)](#)

[Pattern Recognition and Machine Learning PG \(11512\)](#)

[Regression Modelling G \(6557\)](#)

## Course information

## Course duration

Standard 2 years full-time, or part-time equivalent. Maximum duration - 6 years.

## Learning outcomes

Learning outcomes	Related graduate attributes
Demonstrate an advanced and fully operational set of specialised skills and knowledge in the underpinning mathematics and statistics to enable understanding of the appropriate tools to analyse data.	UC graduates are professional: Employ up-to-date and relevant knowledge and skills. UC graduates are global citizens: Make creative use of technology in their learning and professional lives. UC graduates are lifelong learners: Evaluate and adopt new technology.
Have an advanced and integrated understanding of the common tools for programming, development and data management to enable basic database querying for data access, data processing, visualisation, and machine learning.	UC graduates are professional: Employ up-to-date and relevant knowledge and skills. UC graduates are global citizens: Make creative use of technology in their learning and professional lives. UC graduates are lifelong learners: Evaluate and adopt new technology.

<p>Interact with databases to query for relevant info, store data and deal with big data: mining massive amounts of information.</p>	<p>UC graduates are professional: Employ up-to-date and relevant knowledge and skills.</p> <p>UC graduates are global citizens: Make creative use of technology in their learning and professional lives.</p> <p>UC graduates are lifelong learners: Evaluate and adopt new technology.</p>
<p>Demonstrate an advanced and integrated understanding of, and advanced abilities to utilise: Information technology and statistical tools in collecting, processing, analysing and extracting meaning from such diverse and extensive data sources.</p>	<p>UC graduates are professional: Employ up-to-date and relevant knowledge and skills.</p> <p>UC graduates are global citizens: Make creative use of technology in their learning and professional lives.</p> <p>UC graduates are lifelong learners: Evaluate and adopt new technology.</p>
<p>Ability to transform raw data into features that are useful for predictive models.</p>	<p>UC graduates are professional: Employ up-to-date and relevant knowledge and skills.</p> <p>UC graduates are lifelong learners: Evaluate and adopt new technology.</p>
<p>Through appropriate research, be able to apply established theories to produce quantitative analyses and data-driven / evidence-based predictions on real-world data.</p>	<p>UC graduates are professional: Employ up-to-date and relevant knowledge and skills; and use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems.</p> <p>UC graduates are global citizens: Adopt an informed and balanced approach across professional and international boundaries.</p> <p>UC graduates are lifelong learners: Evaluate and adopt new technology.</p>
<p>Advanced ability to apply data science solutions, data visualisation tools, data analysis skills and data mining tools to enable deep and effective analysis of data and information.</p>	<p>UC graduates are professional: Employ up-to-date and relevant knowledge and skills; communicate effectively; and use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems.</p>
<p>Evaluate predictive models: how well do models predict a phenomenon?</p>	<p>UC graduates are professional: Use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems.</p> <p>UC graduates are lifelong learners: Adapt to complexity, ambiguity and change by being flexible and keen to engage with new ideas.</p>



<p>Visualise data for exploratory and confirmatory analysis and visualise model evaluations to assess business value / usefulness.</p>	<p>UC graduates are professional: Communicate effectively.</p>
<p>Design, implement and evaluate data analysis projects that address contemporary and complex issues and effectively interpret and communicate skills and ideas to specialist and non-specialist audiences.</p>	<p>UC graduates are professional: Use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems; and take pride in their professional and personal integrity.</p> <p>UC graduates are lifelong learners: Reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development; and evaluate and adopt new technology.</p>
<p>Critically apply knowledge and skills relevant to Data Science to new and developing professional practice scenarios through working with industrial and professional partners.</p>	<p>UC graduates are professional: Communicate effectively; use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems; work collaboratively as part of a team, negotiate, and resolve conflict; and take pride in their professional and personal integrity.</p> <p>UC graduates are global citizens: Think globally about issues in their profession.</p> <p>UC graduates are lifelong learners: Reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development; and adapt to complexity, ambiguity and change by being flexible and keen to engage with new ideas.</p>
<p>Ability to design and work within data driven projects that reinforce, enhance and evolve organisational and strategic goals.</p>	<p>UC graduates are professional: Display initiative and drive, and use their organisational skills to plan and manage their workload; and take pride in their professional and personal integrity.</p> <p>UC graduates are global citizens: Communicate effectively in diverse cultural and social settings; and behave ethically and sustainably in their professional and personal lives.</p> <p>UC graduates are lifelong learners: Reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development.</p>

## Awards

Award	Official abbreviation
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Master of Data Science	MDS
Master of Data Science in Sports Analytics	MDS SportAnalytics
Master of Data Science in Business Intelligence	MDS BusIntelligence
Master of Data Science in AI and Computational Modelling	MDS AICompModelling

## Enrolment data

2020 enrolments for this course by location. Please note that enrolment numbers are indicative only and in no way reflect individual class sizes.

Location	Enrolments
UC - Canberra, Bruce	76

## Enquiries

Student category	Contact details
Prospective Domestic Students	Email <a href="mailto:study@canberra.edu.au">study@canberra.edu.au</a> or Phone 1800 UNI CAN (1800 864 226)
Prospective International Students	Email <a href="mailto:international@canberra.edu.au">international@canberra.edu.au</a> or Phone +61 2 6201 5342
Current and Commencing Students	In person, Student Centre Building 1 or Email <a href="mailto:Student.Centre@canberra.edu.au">Student.Centre@canberra.edu.au</a>

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University of Canberra, Bruce ACT 2617 Australia

+61 2 6201 5111

ABN 81 633 873 422

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UC acknowledges the Ngunnawal people, traditional custodians of the lands where Bruce campus is situated. We wish to acknowledge and respect their continuing culture and the contribution they make to the life of Canberra and the region. We also acknowledge all other First Nations Peoples on whose lands we gather.