Postgraduate data science and analytics

DEAKIN UNIVERSITY

deakin.edu.au

Postgraduate data science and analytics

Harness the power of big data and work at the forefront of a fast-growing field. Advance your career in any industry by gaining the knowledge and skills required to work with all types of data to identify trends, make predictions, drive innovations, and create a competitive advantage in today's business world.

Why study at Deakin University?

Industry informed teaching

You will be taught by expert academics who conduct top-tier international research in data science and provide data science consultancy services to industry. Courses are regularly reviewed and updated with industry input to ensure the curriculum is up-to-date and reflects workplace needs and industry best practice. You will have opportunities to learn from professional industry guest lecturers, to participate in industry-linked research and to practice your analytics skills during an industry placement.

Professionally accredited

Most of our IT courses are accredited by the Australian Computer Society (ACS), ensuring a high quality of education and providing you with international recognition as an ICT industry professional, so you stand out to future employers.

Strong research links

Deakin's School of Information Technology undertakes both fundamental and applied research in data science and artificial intelligence, hosts several research labs such as the Data to Intelligence Research Centre (D2I), and also links with several strategic research centres, including the Centre for Cyber Security Research and Innovation (CSRI) and the Applied Artificial Intelligence Institute (A^{2}I^2).

Our close links to these research centres means you will have access to, and learn from, some of the most recent innovations in the data analytics space.

Victoria's #1 university for educational experience [1]

Award-winning university career service [2]

Top 1% of universities worldwide [3]

Victoria's #1 university for teaching quality [4]

Victoria's #1 university for student support [4]

Connect with 60,000+ students online

▶ Study no matter your background

You don't need an IT background to study postgraduate data science and analytics at Deakin. We offer tailored degrees that enable you to kick start your career in this exciting field.

Progress your career

Whether you're looking to fill a knowledge gap in your current role, develop a specific set of skills to boost your immediate job prospects, or gradually strengthen your expertise to secure your long-term employability, studying a graduate certificate or graduate diploma is an affordable and accessible way to achieve your career goals.

Graduate Certificate of Data Analytics

The sheer volume and complexity of data already at the fingertips of businesses and research organisations gives rise to challenges that must be solved by tomorrow's graduates. With an increasing emphasis on the use of data to inform day-to-day operations and long-term strategic decisions, modern organisations are reliant on data analysts. This course will equip you with the essential skills and knowledge in data analytics to meet this demand.

With a focus on fundamental data analytics, this course covers foundation skills, security and privacy issues, research and development, and real-world analytics. You will learn to use data to support organisational decision-making, ensuring you graduate ready for employment across a range of industries, or to undertake further studies in IT and data science.

This course is ideal for students without a computing background, as well as those who would like to support their industry experience with a recognised academic qualification.

Course information

Course code: S576
Campus: Burwood (Melbourne), online
Duration: 0.5 years full-time study or part-time equivalent
Intake: March (Trimester 1), July (Trimester 2) and November (Trimester 3)

Course structure

To complete the Graduate Certificate of Data Analytics, students must attain 4 credit points (cp) (one year of part-time study), which includes the following:

▶ **Core units**

Real World Analytics (1cp)

Data Wrangling (1cp)

Mathematics for Artificial Intelligence (1cp)

▶ **Elective**

Level 7 SIT or MIS coded elective (1cp)

Academic Integrity (0cp compulsory unit)

3cp + 1cp = 4cp
Core units   Elective   Total

Entry pathways

Upon completion of the Graduate Certificate of Data Analytics, you could use the credit points you've earned to enter into further study. Those interested in pursuing further study in this field are encouraged to consider the Master of Data Science.

Career opportunities

Deakin's Graduate Certificate of Data Analytics prepares students for professional employment across all sectors as data analytics specialists. Data analysts may find employment with organisations who make data-driven decisions, in areas including software development, pharmaceutical discovery, marketing, consulting, manufacturing, financial services, telecoms, e-commerce, retail, health care, public services, information security and more.

A postgraduate qualification can be undertaken by students who have already completed an undergraduate degree or possess significant, demonstrable work experience. Postgraduate courses include graduate certificates, graduate diplomas, and master's degrees, as well as specialist programs for industry professionals.

Recognition of prior learning

The University aims to provide students with as much credit as possible for approved prior study or informal learning which exceeds the normal entrance requirements for the course and is within the constraints of the course regulations. Students are required to complete a minimum of one-third of the course at Deakin University, or four credit points, whichever is the greater. In the case of certificates, including graduate certificates, a minimum of two credit points within the course must be completed at Deakin.

▶ **Deakin alumni discount**

If you're a Deakin alumnus commencing a postgraduate award course, you may be eligible to receive a 10% reduction per unit on your enrolment fees.

For more information, visit **deakin.edu.au/alumni-discount.**

Interested in applying?

Entry requirements

Entry will be based on performance in:

- Bachelor degree in any discipline, **OR**
- Two years related work experience, **OR**
- Evidence of academic capability judged to be equivalent.

How to apply

Applications can be made online via **apply.deakin.edu.au/direct-applications.**

For more information about entry requirements, submitting an application or the application process, please visit **deakin.edu.au/courses/how-to-apply.**

▶ For more information about this course, including further course structure and unit details, visit **deakin.edu.au/course/graduate-certificate-data-analytics.**

Graduate Diploma of Data Science

The Graduate Diploma of Data Science covers modern data science concepts, statistical data analysis, descriptive analytics and machine learning to equip you with the theory, methodologies, techniques and tools of modern data science. Through this course, you'll develop the ability to confidently work with any type of data, to identify trends, make predictions, draw conclusions, drive innovations, make decisions and share information that influences people.

The sheer volume and complexity of data already available to businesses gives rise to challenges that must be solved by tomorrow's graduates. Employers are placing increasing emphasis on the use of data to inform day-to-day operations and long-term strategic decisions. This course gives you essential skills in data science and analytics, enabling you to discover insights and support decision-making across a range of industries.

▶ Learn from the world's best

Computer science at Deakin is ranked in the top 1% of universities worldwide^, reflecting teaching excellence in a critical Australian industry.

Course information

Course code: S677
**Campus:** Burwood (Melbourne), online
Duration: 2 years part-time study
Intake: March (Trimester 1), July (Trimester 2) and November (Trimester 3)

Course structure

To complete the Graduate Diploma of Data Analytics, students must attain 8 credit points.

The course is structured in two parts which comprise the following number of credit points (cp):

4cp Part A **+** **4cp** Part B **=** **8cp** Total
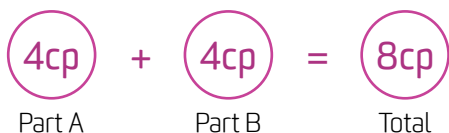
Depending upon prior qualifications and/or experience, you may receive credit for Part A.

▶ Part A – Fundamental Data Analytics Studies

Real World Analytics (1cp)

Data Wrangling (1cp)

Mathematics for Artificial Intelligence (1cp)

Plus one level 7 SIT or MIS coded unit* (1cp)

▶ Part B – Core Data Science Studies

Machine Learning (1cp)

Statistical Data Analysis (1cp)

Modern Data Science (1cp)

Plus one level 7 SIT or MIS coded unit* (1cp)

Academic Integrity (0cp compulsory unit)

* Some exclusions apply
^ 2022 Times Higher Education World University Rankings by Subject

Career opportunities

Graduates of this course are prepared for professional employment across all sectors as data science specialists. Professionals with a solid knowledge in data science and strong skills in the analysis and interpretation of data in today's data-rich economy are in high demand and may find careers as data analysts, data scientists, analytics programmers, analytics managers, analytics consultants, business analysts, management advisors, management analysts, business advisors and strategists, marketing managers, market research analysts and marketing specialists.

Interested in applying?

Entry requirements

Entry will be based on performance in:

- Bachelor's degree in a related discipline, **OR**
- Bachelor's degree in any discipline and two years relevant work experience, **OR**
- Graduate Certificate of Information Technology, **OR**
- Evidence of academic capability judged to be equivalent.

How to apply

Applications can be made online via **apply.deakin.edu.au/direct-applications.**

For more information about entry requirements, submitting an application or the application process, please visit **deakin.edu.au/courses/how-to-apply.**

▶ For more information about this course, including further course structure and unit details, visit **deakin.edu.au/course/graduate-diploma-data-science.**

Master of Data Science

Deakin's Master of Data Science prepares students for professional employment across all sectors. The sheer volume and complexity of data already at the fingertips of businesses and research organisations gives rise to challenges that must be solved by tomorrow's graduates and modern organisations are placing increasing emphasis on the use of data to inform day-to-day operations and long-term strategic decisions.

Throughout your studies you'll gain the technical skills to harness the power of data through artificial intelligence and machine learning to develop innovative solutions to the important challenges being faced by industry and governments.

With a growing demand for data specialists, you'll be able to help organisations manage risk, optimise performance and add a competitive advantage through the increasing volumes of data collection.

Course information

Course code: S777
Campus: Burwood (Melbourne), online
Duration: 1-2 years full-time study, or part-time equivalent
Intake: March (Trimester 1), July (Trimester 2) and November (Trimester 3)

Course structure

To complete the Master of Data Science, you must attain 8, 12 or 16 credit points, depending on your prior experience. Typically, full-time students choose to study four units per trimester and usually undertake two trimesters each year.

The course is structured in four parts which comprise the following number of credit points (cp):

(4cp) Part A + (4cp) Part B + (4cp) Part C + (4cp) Part D = (16cp) Total

Depending upon prior qualifications and/or experience, you may receive credit for Part A (and complete 12cp of study to attain the Master of Data Science) or credit for both Part A and Part B (and complete 8cp of study to attain the Master of Data Science).

▶ Part A – Foundation Information Technology Studies

Object-Oriented Development (1cp)

Database Fundamentals (1cp)

Software Requirements Analysis and Modelling (1cp)

Web Technologies and Development (1cp)

▶ Part B – Fundamental Data Analytics Studies

Real World Analytics (1cp)

Data Wrangling (1cp)

Mathematics for Artificial Intelligence (1cp)

Plus one level 7 SIT or MIS elective (1cp)

▶ Part C – Core Data Science Studies

Machine Learning (1cp)

Statistical Data Analysis (1cp)

Modern Data Science (1cp)

Professional Practice in Information Technology (1cp)

▶ Part D – Mastery Data Science Studies

Bayesian Learning and Graphical Models (1cp)

Deep Learning (1cp)

Team Project (A) – Project Management and Practices (1cp)

Team Project (B) – Execution and Delivery (1cp)

Academic Integrity (0cp compulsory unit)

▶ For more information about this course, including further course structure and unit details, visit **deakin.edu.au/course/master-data-science**.

'I'm attracted to data science since there are so many opportunities in the developing world that allow you to work with data and create insightful information and applications from it.'

Alex Vuong
Master of Data Science student

Professional industry experience

Industry placements provide students with an opportunity to develop the practical and job-ready skills employers are looking for and build professional networks before graduating. As a student enrolled in the Master of Data Science, you can choose to undertake an industry placement or internship as part of your degree.

Professional recognition

The Master of Data Science is professionally accredited with the Australian Computer Society (ACS).

Career opportunities

Deakin's Master of Data Science prepares students for professional employment across all sectors as specialists in analysing data. Data science professionals with solid knowledge in data science and strong skills in the analysis and interpretation of data in today's data-rich economy are in high demand.

Graduates may pursue careers as data scientists, data analysts, analytics programmers, analytics managers, analytics consultants, business analysts, management analysts, business strategists, market research analysts, and business intelligence (BI) specialists.

Data science professionals are employed across a broad range of industry sectors including banking and finance, retail, marketing, telecommunications, government, technology and others.

Interested in applying?

Entry requirements

You may be eligible to undertake the Master of Data Science over a shorter duration depending on your academic and professional background.

Depending on your prior experience, your course will be:

▶ 2 years full-time (4 years part-time)

Your admission for the 16 credit point Master of Data Science will be based on performance in:

- Bachelor degree in any discipline, **OR**
- Evidence of academic capability judged to be equivalent.

▶ 1.5 years full-time (3 years part-time)

Your admission for the 12 credit point Master of Data Science will be based on performance in:

- Bachelor degree in a related discipline, **OR**
- Bachelor degree in any discipline and two years relevant work experience, **OR**
- Graduate Certificate of Information Technology, **OR**
- Evidence of academic capability judged to be equivalent.

▶ 1 year full-time (2 years part-time)

Your admission for the 8 credit point Master of Data Science will be based on performance in:

- Bachelor degree in a related discipline and two years relevant work experience, **OR**
- Bachelor's degree in a related discipline and Graduate Certificate of Data Analytics or equivalent, **OR**
- Bachelor Honours degree in a related discipline, **OR**
- Graduate Certificate of Information Technology and Graduate Certificate of Data Analytics, **OR**
- Evidence of academic capability judged to be equivalent.

How to apply

Applications can be made online via **apply.deakin.edu.au/direct-applications.**

For more information about entry requirements, submitting an application or the application process, please visit **deakin.edu.au/courses/how-to-apply.**

Master of Data Science (Professional)

The Master of Data Science (Professional) is designed to extend the specialised skills obtained in the Master of Data Science by providing you with the opportunity to undertake a period of industry-based learning or a research project under the supervision of our internationally-recognised staff.

You will also have the opportunity to hone your skills in a specialisation of your choosing, with options ranging from cyber security to blockchain and software development, networking and cloud technologies to AI and more.

You will develop expert knowledge of the technical aspects of data science as well as in-depth skills in your chosen area of specialisation.

Course information

Course code: S770
Campus: Burwood (Melbourne), online
Duration: 2 years full-time study or part-time equivalent
Intake: March (Trimester 1), July (Trimester 2) and November (Trimester 3)

Course structure

To complete the Master of Data Science (Professional), students must attain 16 credit points. Typically, full-time students choose to study 4 units per trimester and usually undertake two trimesters each year.

The course is structured in three parts which comprise the following number of credit points (cp):

8cp + **4cp** + **4cp** = **16cp**
Part A   Part B   Part C   Total

▶ For more information about this course, including further course structure and unit details, visit **deakin.edu.au/course/master-data-science-professional**.

▶ Part A – Core Data Science Studies

Real World Analytics (1cp)

Data Wrangling (1cp)

Mathematics for Artificial Intelligence (1cp)

Machine Learning (1cp)

Statistical Data Analysis (1cp)

Modern Data Science (1cp)

Bayesian Learning and Graphical Models (1cp)

Deep Learning (1cp)

▶ Part B – Specialisation **OR** Course Electives

Four core units from a chosen specialisation (4cp) (refer to next page)

OR

Four course grouped electives (4 x 1cp) (level 7 SIT or MIS coded units)

▶ Part C – Professional Studies

Professional Practice in Information Technology (1cp)

Team Project (A) – Project Management and Practices# (1cp)

Team Project (B) - Execution and Delivery (1cp)

One level 7 SIT elective (1cp)

OR

Career Tools for Employability (0cp)

Professional Practice in Information Technology (1cp)

Professional Practice# (2cp)

One level 7 SIT elective (1cp)

OR

Research Training and Project (2cp)

Research Project (Advanced)# (2cp)

OR

Professional Practice in Information Technology (1cp)

Research Training and Project (2cp)

One level 7 SIT elective (1cp)

Academic Integrity (0cp compulsory unit)

Please refer to course page for specific details regarding unit requirements.

Specialisations

A number of specialisations are available for completion within the Master of Data Science (Professional). Students wishing to undertake a specialisation for Part B of their studies can choose from the list below:

- AI and Computer Vision
- Analytics in Internet of Things
- Blockchain and Software Development
- Business Analytics
- Cyber Security
- Information Systems
- Networking and Cloud Technologies

Professional studies

Gain a competitive edge in the workplace with real-world expertise and practical skills by undertaking one of the following industry-based learning experiences or a research project.

Team projects

The postgraduate capstone units are designed to give you the opportunity to experiment and undertake real-world, industry-relevant IT projects as part of a collaborative team. Increase your understanding and experience of the product development environment by contributing and managing IT projects within a defined scope and schedule.

Professional practice

Get practical experience and hands-on learning by completing a placement as part of the Professional Practice unit. You will gain approximately 300 hours of professional work experience with an approved organisation.

Research projects

Research and development skills and abilities are in-demand in the IT industry. Embark on a research project and develop skills and abilities for informed evidence-based practice that will help further your career.

Career opportunities

In fiercely competitive markets where businesses are constantly striving to increase profit, reduce costs and provide exceptional customer value, the requirement for skilled data professionals is growing at a rapid pace. Graduates of this course may find careers as data analysts, data scientists, analytics programmers, analytics managers, analytics consultants, business analysts, management advisors, management analysts, business advisors and strategists, marketing managers, market research analysts and marketing specialists.

Interested in applying?

Entry requirements

- Bachelor's degree in a related discipline, **OR**
- Bachelor's degree in any discipline and two years relevant work experience, **OR**
- Graduate Certificate of Information Technology, **OR**
- Evidence of academic capability judged to be equivalent.

How to apply

Applications can be made online via **apply.deakin.edu.au/direct-applications.**

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~ Australian Graduate Recruitment Industry Awards 2017-2020 winner for most popular career service in Australia.

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