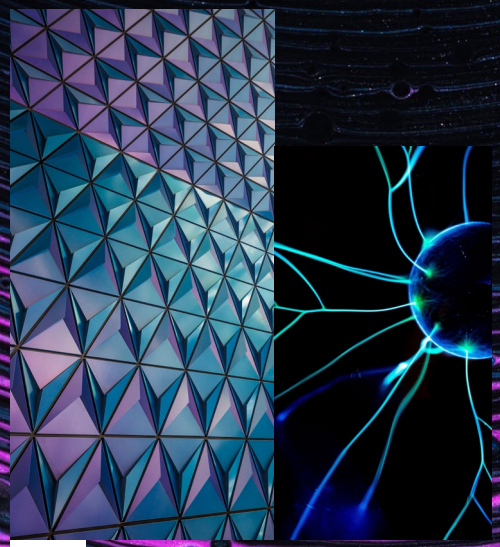
Master of Data Science and Innovation



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*Times Higher Education Young University Rankings 2023

5 star ★★★★★ rated for excellence

QS Stars Rating 2021-2024

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Acknowledgement of Country

UTS acknowledges the Gadigal People of the Eora Nation and the Boorooberongal People of the Dharug Nation upon whose ancestral lands our campuses stand. We would also like to pay respect to the Elders both past and present, acknowledging them as the traditional custodians of knowledge for these Lands.

Meet the Course Director

> "The Master of Data Science and Innovation is the first course of its kind where data science is integrated with creativity and innovation."

Associate Professor Tony Huang
Course Director, Master of Data Science and Innovation

Meeting the challenges of the 'data explosion' requires organisations to find new ways to work with and think about data. Organisations are looking for people who can make sense of data flows and then clearly translate this information to feed innovation. However, manipulating and interpreting data not only requires good technical ability, but also a strong creative element and a clear understanding of business goals.

The Master of Data Science and Innovation (MDSI) is paving the way for the future of data science degrees. It is the first of its kind to offer coursework that integrates creativity and innovation, delivered through a blended mode of face-to-face and online learning.

Students in the course learn how to connect data to business challenges by getting hands-on experience working in teams to solve real-life data science problems. They develop the skills to visualise and communicate business outcomes and generate creative data-driven solutions to help influence key decision makers. And working closely with fellow students, they tap into an invaluable community of data science expertise from across a myriad of sectors and experiences.

Why study the MDSI at UTS?

WE'RE ONE OF A KIND

The Master of Data Science and Innovation (MDSI) is a groundbreaking program of study. This transdisciplinary program is the first of its kind in Australia where creativity and innovation are integral components. You'll develop specialist skills to source, frame, analyse, visualise and communicate business outcomes and generate creative data-driven solutions.

DON'T JUST THINK. CREATE.

This comprehensive course challenges students to gain essential knowledge in:

- Core technical data science skills such as statistics, programming, machine learning and visualisation
- Creative thinking skills such as dealing with ambiguity, problem formulation and future possibility states
- Effective communication and collaboration skills
- Considering ethical concerns and human-centred perspectives in the analysis and use of complex data
- Skills to adapt and stay current in a rapidly evolving field. With an emphasis on critical self-learning, we prepare our students to be lifelong learners.

REAL WORLD WORK FOR REAL WORLD GAIN

You'll have the opportunity to explore and work on real-world data sets with coursework and iLab projects. Over 12 weeks, you'll actively engage with our partners, consulting with them as you explore new ideas, test hypotheses, and solve sector-wide issues using different technical approaches. This hands-on experience will help you build a portfolio of challenging and professional projects, giving you valuable material to share with potential employers when you graduate.

THE COLLABORATION GENERATION

Data science is a collaborative discipline. During the course you will collaborate and build a community with students who have a wide range of skills and backgrounds. Many of our alumni are now working at companies like Google, Commonwealth Bank, Atlassian and the Reserve Bank of Australia and continue to be active members of this community. Students have found the opportunity to connect with this network of expertise just one of the many valuable aspects of the program.

TRANSDISCIPLINARY FOCUS

The MDSI course provides flexibility to shape your own data science path. You can select elective subjects from different disciplines across UTS, allowing you to pursue your own particular interests and career aspirations.

FASTRACK YOUR CAREER

With our fast-tracked Master's option, we recognise relevant industry experience and qualifications. If you're eligible for this option, it means you'll be able to complete the Master's degree in 12 months.

This one of a kind program helps you develop specialist skills to analyse, visualise and communicate business outcomes and generate creative data-driven solutions.

Hear from our students and graduates

"Within a month of finishing the degree's coursework, I had three job offers from government, consulting and banking areas – and I hadn't even started job hunting properly."

YOGITHA MARIYAPPA

Chris Mahoney
MDSI Graduate
Data Scientist (APAC), DB Schenker

"Studying the Masters' of Data Science and Innovation course at UTS has been a phenomenal experience. Challenging at times, but it has been incredibly rewarding and educational along the way.

The thing that drew me to this course originally was that it had no exams! Instead, it has very practical ways of assessment, including reports, presentations, dashboards, code files, blog posts, Kaggle competitions and more. It has taught me to be dynamic and versatile in my own development as a Data Scientist, which has set me up for success in the business environment.

Not only does the degree teach the latest Artificial Intelligence techniques along with the popular Machine Learning algorithms, but it also teaches visualisation, leadership, deep-learning, big-data engineering and data-based decision-making, along with changing your mindset with innovative and statistical thinking. The MDSI pulls all this learning together in the best classroom possible: real life. The iLab classes provided me the opportunity to apply all my skills in a practical and realistic environment and I learnt the most from this experience.

This course has taught me so many skills; from technical to practical, from conceptual to deliverable, from theoretical to presentable. It has helped me to develop into the best Data Scientist (and Innovator) that I can be."

Yogitha Mariyappa
International MDSI graduate
Manager Data Science,
Commonwealth Bank of Australia

"What sets the MDSI apart from other Master's degree programs is its transdisciplinary, practice-based approach to learning. There's a large practical component to the program to ensure that students come out of their shells and develop crucial communication skills, collaborating with peers in the community. The iLabs that are part of the MDSI program are also a fantastic opportunity for students to work with live data and solve real-world problems.

Within a month of finishing the degree's coursework, I had three job offers from government, consulting and banking areas – and I hadn't even started job hunting properly! MDSI helped me prepare well enough that, when the opportunity presented itself, I was able to make the most of it. I was at the right place at the right time with the right skills."

" Classes are all after work or on weekends, which allows for students to work during the day and study in their spare time."

AMY YANG

Amy Yang
MDSI student
Research Assistant, UNSW

"The strong sense of community within the course and support from peers is invaluable. Lecturers encourage you to ask questions both in class and after class, and are so generous with sharing their experiences and learning resources. I really love the weekly study sessions, called U:Pass, which is run by senior students and helps you learn and build confidence in the subjects you're studying. There is also a great Slack channel set up by students, where you can connect, ask questions and learn about job opportunities.

One thing that I found really attractive when I was researching courses was the flexibility of the course. Classes are all after work or on weekends, which allows for students to work during the day and study in their spare time. Also, there are many electives in the course, so you can design your learning around your career goals and personal interests."

Kelly Tall
MDSI Graduate
Senior Manager in Data Visualisation, Commonwealth Bank of Australia

"The MDSI had a good mixture of practical and critical engagement with the subject matter. I loved that I was allowed to stretch my electives into the design and communications faculties.

In my role as a data visualisation designer in a large financial institution, I combine data understanding, with design and communication to bring clarity and understanding for various internal audiences. Concepts that I learnt during MDSI have helped me work with internal stakeholders to bring clarity to some ambiguous problem spaces. It has taught me to think critically about the data we work with, and not just take it as an objective source of truth."

Which Master's degree is right for me?

Course Name and Code	CRICOS Code	Duration	Location	Course Structure	Admission Requirements	Recognition of Prior Learning (RPL)
Master of Data Science and Innovation **C04372**	084268K	2 years full-time or 4 years part-time	City campus	96 credit points = – 44CP core subjects – 32CP specified data science-related optional subjects – 20CP elective subjects	Bachelor or above + GPA of at least 4 out of 7, OR; Bachelor or above + 2 years' relevant work experience	Up to 32CP based on prior postgraduate studies
		1.5 years full-time or 3 years part-time	City campus	72 credit points (reduced from 96CP with 24CP automatic RPL) = – 44CP core subjects – 20CP specified data science-related optional subjects – 8CP elective subjects	Cognate Bachelor or above + GPA of at least 4 out of 7, OR; Cognate Bachelor or above + 2 years' relevant work experience, OR; Bachelor or above + GPA of at least 4 out of 7 + 2 years relevant work experience	Up to 32CP based on prior postgraduate studies, including the 24CP automatic RPL
Master of Data Science and Innovation **C04370**	109317G	1 year full-time or 2 years part-time	City campus	48 credit points = – 32CP core subjects – 16CP elective subjects	Cognate Bachelor or above + GPA of at least 4 out of 7 + 2 years relevant work experience within the last five years, OR; Cognate AQF Level 8 degree or above + 2 years relevant work experience within the last five years	No RPL

1. Courses have the same name with different course codes
2. Cognate Bachelor: Bachelor degree in a discipline of Natural and Physical Sciences, Information Technology, Engineering and related technologies, Accounting, Business and Management, Sales and Marketing, Banking, Finance and related fields, or Economics and Econometrics
3. Relevant work experience: full-time work experience or equivalent in an occupation of Actuaries, Mathematicians and Statisticians, Economists, Intelligence and Policy Analysts, Advertising and Marketing Professionals, or ICT Professionals
4. AQF Level 8 degree: Bachelor Honours Degree, Graduate Certificate, or Graduate Diploma
5. Applicants must meet both the academic admission and minimum English language requirements

Course information

The following example shows a typical full-time program.

Year 1			
Autumn	Data Science for Innovation (8cp)	Data Visualisation and Narratives (8cp)	Data Science Elective 1**
Spring	Statistical Thinking for Data Science (8cp)	Machine Learning Algorithms and Applications (8cp)	Data Science Option 1*
Year 2			
Autumn	Data Science Elective 2**	Data Science Option 2*	Data Science Option 3*
Spring	iLab: Capstone Project (12 cp)	Data Science Elective 3**	Data Science Option 4*

Data Science Options (select 32cp)*

- Applied Natural Language Processing 8cp
- Advanced Machine Learning Application 8cp
- Big Data Engineering 8cp
- Data Science Internship A 6cp
- Data Science Internship B 6cp
- Data Science Internship C 8cp
- Data Science Practice 8cp
- Data and Decision Making 8cp
- Deep Learning 8cp
- Leading Data Science Initiatives 8cp
- iLab: Research Project 12cp

Data Science Electives (select 20cp)**

- Advanced Bayesian Methods 8cp
- Advanced Data Analytics Algorithms 6cp
- Advanced Database 6cp
- Advanced Machine Learning Application 8cp
- Applied Natural Language Processing 8cp
- Big Data Engineering 8cp
- Cloud Computing and Software as a Service 6cp
- Data Processing Using Python 3cp
- Data Processing Using R 3cp
- Data Science Internship A 6cp
- Data Science Internship B 6cp
- Data Science Internship C 8cp
- Data Science Practice 8cp
- Data and Decision Making 8cp
- Database 6cp
- Deep Learning 8cp
- Design, Data, and Decisions 6cp
- Fundamentals of Data Analytics 6cp
- Introduction to Optimisation 6cp
- Leading Data Science Initiatives 8cp
- Project Management Principles 6cp
- Regression and Linear Models 6cp
- Social and Information Network Analysis 6cp
- Special Subject 1 (FTDI) 2cp
- Statistical Design and Models for Evaluation Studies 6cp
- UNIX Systems Programming 6cp
- Understanding Data and Statistical Design 6cp
- Lab: Research Project
- + any postgraduate level subjects from across the University's disciplines (up to maximum of 12cp)

Please note the elective subject list is reviewed every year and is subject to change according to student demand.

Not quite ready to take on the full Master's?

We offer a range of flexible learning options in data science and innovation, allowing you to focus on developing the specific skills you need, when you need them.

Upskill for success with flexible learning options in data science

Graduate Diploma in Data Science and Innovation

Duration: 1 year full-time
2 years part-time

The Graduate Diploma in Data Science and Innovation is a part of nested qualifications for the Master of Data Science and Innovation. Taking a transdisciplinary approach, this course utilises a range of perspectives from diverse fields and integrates them with industry experiences, real-world projects and self-directed study, equipping graduates with an understanding of the potential of analytics to transform practice and core data science skills that they can take to and apply in a wide variety of industries.

FIND OUT MORE

Graduate Certificate in Data Science and Innovation

Duration: 0.5 years full-time
1 year part-time

The Graduate Certificate in Data Science and Innovation is designed for students to gain data science skills in a fast-paced mode. It has a flexible and comprehensive course structure with a group of fundamental and advanced subjects. This allows people with different backgrounds and learning objectives to take the course either as a fast-track pathway into the data science industry, or to develop specialised skills to further enhance their data science career.

FIND OUT MORE

Microcredentials

Duration: 6 weeks

Gain practical skills and explore university level learning in small, flexible pieces with our microcredentials developed with leading data science industry experts. Drawing on content from the Master of Data Science and Innovation program, these dynamic, innovative courses provide hands-on learning and practice and are a perfect way to start your data science journey.

Best of all, microcredentials can also count towards further degree courses if you choose to pursue further postgraduate study.

FIND OUT MORE

Career options

Data experts are in high demand in all manner of industries, from oceanography to health policy work to market research. The MDSI prepares students to work professionally in a variety of emerging fields, including:

- data science
- data analysis
- data art and visualisation
- data journalism
- mobile behaviour analysis
- data-driven policy work
- advertising and marketing
- online community management.

Did you know, data analysts and data scientists are one of the most in-demand jobs across industries?

Source: Future of Jobs Report, 2020, World Economic Forum

Industry connections

At UTS, we care about making connections that count. Industry partnerships and engagement are a core part of the MDSI program, preparing students to tackle complex real-world challenges.

Here are just some of the industry partners we've worked with in the course:

Atlassian, Batyr, Cancer Council NSW, CBRE, Huber Social, International Convention Centre Sydney, Investible, Lion, National Heart Foundation, Origin Energy, Rugby Australia, NSW State Insurance Regulatory Authority.

INNOVATE WITH iLABS

Students have the opportunity to participate in iLab projects as part of the MDSI program, where they can:

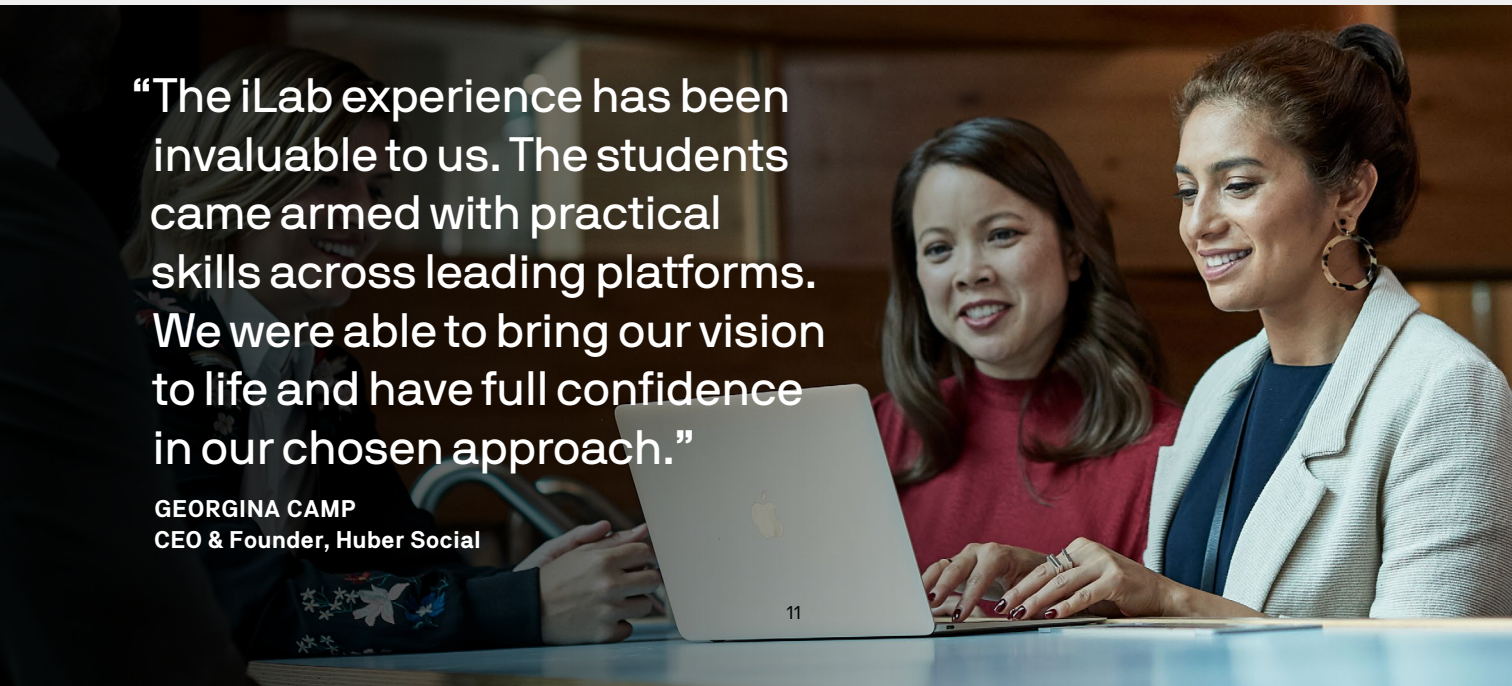
- Design investigations utilising cutting-edge and advance techniques for large, complex, multi-structure data sets
- Test new data analysis approaches from current research literature and industry standards
- Design and implement a self-directed and reflective learning process in a professional practice context.

In iLab, student teams work on diverse data-driven solutions for complex real-world challenges presented by industry or academic partners. iLab projects can either be focused on students' area of interest, industry partners' current work environments, or students can work on a project in the lab environment suitable for adaption in a work context.

BLAIR HUDSON
Analytics executive, Macquarie Group

"Strong ties between university and industry are so valuable and important in the rapidly changing field of data science. It's really important for graduates to be equipped with the skills (especially commercial acumen and communication) to succeed after graduation, as well as have interesting project experiences to share with potential employers.

As a MDSI partner, I like to think that by engaging students in real-world problems through competitions, projects and discussion we can develop the data science leaders our world desperately needs."



"The iLab experience has been invaluable to us. The students came armed with practical skills across leading platforms. We were able to bring our vision to life and have full confidence in our chosen approach."

GEORGINA CAMP
CEO & Founder, Huber Social

Essential information

CLASS SCHEDULE

Classes are usually held after 5.30pm during the week and/or during the day on Saturdays. Students studying the course full-time can expect to be on campus on average six or eight times a month during semester and may have some study obligations during semester breaks.

To get an idea for what subjects are offered next session and at what time, visit the **UTS Timetable Planner.**

TEACHING STYLE

The MDSI is delivered via a blended learning mode, integrating the best of online and face-to-face experiences. Classes are held on campus, where students get the opportunity to network and learn the latest methods and insights from academics and industry experts. Students also engage with online content outside of class working both independently and collaboratively in teams.

FEES

You can find out more about what your degree will cost at **uts.edu.au/tuition-fee-calculator**

If you do have to pay a fee and you're a local student, you may be eligible for FEE-HELP, an Australian Government loan scheme. Using FEE-HELP means you don't have to pay for your tuition fees up front. More information can be found at **uts.edu.au/government-help-schemes**

You can choose to repay your FEE-HELP loan simply by notifying your employer who will then withhold your payments through the PAYG tax system. You can also make payments directly to the Australian Taxation Office (ATO).

How to apply

THE ACADEMIC YEAR

There are two teaching sessions at UTS:

- Autumn Session: February to May
- Spring Session: August to November.

LOCAL APPLICANTS

Apply online via the UTS Student Portal at **student-portal.uts.edu.au/s/login**

You can also visit the **Applying for a Postgraduate Coursework Degree** page for a step-by-step application guide.

Find out everything you need to know about upcoming MDSI information sessions at **uts.edu.au/about/td-school/events**

COURSEWORK APPLICATION CLOSING DATES

If you want to start studying at UTS in either the Autumn or Spring sessions, you need to apply by:

- Autumn 2024 session: 28 January 2024
- Spring 2024 session: 30 June 2024.

INTERNATIONAL APPLICANTS

If you're an international student, head to **uts.edu.au/international** to find the course information, fees and application details relevant to you.

NON-AWARD STUDY

Not ready to commit to a full degree? Start with a single subject. This is a great way to learn more about something you are interested in or enjoy and upgrade your skill set. Subjects completed may be recognised towards any future study.

To apply, visit **uts.ac/non-award-study**

ENGLISH LANGUAGE PROFICIENCY

There are English language proficiency requirements for all courses. These requirements may apply to you, even if you are not an international student.

Visit **uts.edu.au/english-language-requirements** to find out more.

ALUMNI ADVANTAGE

If you've already completed a degree at UTS then you're eligible for the exclusive Alumni Advantage program, which offers a 10% saving on full fee paying degree programs. Find out if you're eligible for the Alumni Advantage at **alumni.uts.edu.au/advantage**

To learn more about MDSI, our student experiences and how to apply, visit our website: **mdsi.uts.edu.au**

Have questions? schedule a one-to-one consultation with our student advisors' team on the **DSI Consultation portal** or contact us via email at **innovation@uts.edu.au**

mdsi.uts.edu.au

Disclaimer: Courses and electives are offered subject to numbers. The information in this brochure is provided for Australian and New Zealand Citizens and Australian Permanent Residents. If you are an international student, please consult the International Course Guide available from UTS International. Information is correct current as of November 2023 and is subject to change without notice. Changes in circumstances after this date may alter the accuracy or currency of the information. UTS reserves the right to alter any matter described in this brochure without notice. Readers are responsible for verifying information that pertains to them by contacting the university.

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