Master of Data Science and Innovation

Postgraduate Course 2021
Contents

02 Deans message
03 Meet the course director
04 Why study the MDSI at UTS?
06 Student testimonials
08 Course information
09 Essential information
10 Industry connections
11 Career options
12 How to apply

UTS at a glance

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>students</td>
<td>46,159</td>
</tr>
<tr>
<td>international students</td>
<td>15,450</td>
</tr>
<tr>
<td>undergraduate students</td>
<td>33,752</td>
</tr>
<tr>
<td>postgraduate coursework</td>
<td>10,208</td>
</tr>
<tr>
<td>higher degree research students</td>
<td>2199</td>
</tr>
<tr>
<td>staff</td>
<td>4174</td>
</tr>
</tbody>
</table>

UTS student diversity

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>female students</td>
<td>49%</td>
</tr>
<tr>
<td>male students</td>
<td>51%</td>
</tr>
<tr>
<td>are 25 or older</td>
<td>29%</td>
</tr>
<tr>
<td>also speak a language other than English</td>
<td>49%</td>
</tr>
</tbody>
</table>

Please note the above numbers are approximate as of January 2020.

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.
As the challenges before us become even more complex, dynamic and networked, people with the capability to conceive of jobs that do not yet exist and to work with and across disciplines become highly prized as agents to envision and enact change.

By studying a transdisciplinary course at UTS, you will build expertise that draws on diverse perspectives and knowledge to solve complex problems. Our vision is to advance learning beyond the traditions of the disciplines, push boundaries and explore how we work in terms of transdisciplinarity to create new solutions for a future world.

We offer a unique style of learning providing the opportunity to engage in collaborative learning across disciplines, work on real briefs from our industry partners and to connect with local, national and global startup cultures.

The Master of Data Science and Innovation (MDSI) will ensure that you gain the adaptability, resilience and creative thinking skills that are required to thrive in the future economy. You’ll gain hands-on experience with data and analytics tools; reflect deeply on the very human issues these can raise, learn how to influence decision making with evidence and become better equipped to lead a data science team.

“Gain the adaptability, resilience and creative thinking skills that are required to thrive.”
Meeting the challenges of the ‘data explosion’ requires organisations to find new ways to work with and think about data. Companies are increasingly looking for people who can make sense of data flows and then clearly translate this information to help 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.

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

Meet the course director

Associate Professor Tony Huang
Course Director, Master of Data Science and Innovation
WE’RE ONE OF A KIND
The Master of Data Science and Innovation (MDSI) is a groundbreaking program of study. This unique 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 real-world projects and actual data sets with coursework and iLab projects. During the course you will solve real client problems provided by industry and program partners or design your own data project. By the time you graduate, you will have a portfolio of challenging and professional project experiences to share with potential employers.

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 one of the many valuable aspects of the program.

TRANSDISCIPLINARY FOCUS
The MDSI course provides flexibility to shape your own data science path. The design of the course structure provides students with the opportunity to select elective subjects from different disciplines across UTS, allowing you to pursue your own particular interests and career aspirations.

Why study the MDSI at UTS?

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

Alex Scriven
MDSI graduate, 2018
Data scientist, NSW Government

“For me, the MDSI program’s innovative teaching practices, tight-knit community and industry connections made it a clear choice for me and, looking back, a life changing experience.

Each course has been built from the ground-up to provide the latest content in blended online and offline modes, at convenient times for postgraduate students and all whilst focusing on real-world, project-based assignments. Within assignments and the built-in internship programs you are constantly using and developing your knowledge in the real world. Throughout my time in the course I worked on real-world machine learning and analytics projects for a variety of organisations including Transport for NSW, Rio Tinto, The Iconic and many others.

From the MDSI program, I started my own Machine Learning and AI consultancy (Madlytics) with a fellow MDSI peer. Being so industry-focused throughout the program has allowed me to gain the skills needed to bridge the gap between deeply complex technologies and business stakeholders. It has been a roller-coaster ride so far but I am excited for what the future holds!”

Yogitha Mariyappa
International MDSI graduate, 2018
Data scientist, 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 3 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 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.”
"Within a month of finishing the degree’s coursework, I had 3 job offers from government, consulting and banking areas – and I hadn’t even started job hunting properly."

YOGITHA MARIYAPPA

William de Azevedo
MDSI Graduate, 2018
Data analyst, NSW Government’s Data Analytics Centre (DAC)

“The MDSI has a strong focus on the technical aspects of data science. However, on the other hand, students are free to choose the elective subjects that fit best with their professional objectives. Therefore, the MDSI program is dynamic and ready to attend to the varied demands of the industry.

Also, the MDSI always challenges students to try new approaches and techniques like blogs, podcasts, videos and hackathons. Hackathons (which are events in which students collaborate to develop a solution for an organisation) helped me to get the experience I needed to start working as a data scientist. These approaches are more interesting than the traditional duo ‘report and presentation’.

The bottom line is that starting a new career is always challenging, but the MDSI has really tested our abilities and prepared us to take on these challenges.”

Kelly Tall
MDSI Graduate, 2018
Data visualisation designer

“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 via the 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.”

Kelly Tall
MDSI Graduate, 2018
Data visualisation designer

“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 via the 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.”

William de Azevedo
MDSI Graduate, 2018
Data analyst, NSW Government’s Data Analytics Centre (DAC)
Master of Data Science and Innovation

Course Code: C04372
CRICOS Code: Autumn 084268K
Spring 093052G

Duration:
- Autumn intake: 2 years full-time
  4 years part-time
- Spring intake: 2½ years full-time
  4½ years part-time

Location: City campus

Course structure:
Students must complete 96 credit points (CP), comprising 56CP core and 40CP elective subjects. Elective subjects can be selected from specified data science related subjects and from across the University's disciplines.

Enrolment in subjects from other disciplines is dependent on approval from the course director and subject coordinator, and usually requires demonstrated ability to meet prerequisites.

This flexible course structure enables students to pursue their own particular interests and career aspirations.

### COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Master of Data Science and Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>96CP = 56CP + 40CP</td>
</tr>
</tbody>
</table>

**Core subjects**

**Elective subjects**

### The following example shows a typical full-time program.

<table>
<thead>
<tr>
<th>Year 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autumn</strong></td>
</tr>
<tr>
<td>Data Science for Innovation (8cp)</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>Elective 1*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autumn</strong></td>
</tr>
<tr>
<td>Data Visualisation and Narratives (8cp)</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>Elective 5*</td>
</tr>
</tbody>
</table>

**ELECTIVE SUBJECTS (40CP)**

- Big Data Engineering 8cp
- Data Science Practice 8cp
- Data and Decision Making 8cp
- Deep Learning 8cp
- Leading Data Science Initiatives 8cp
- + any postgraduate level subjects from across the University’s disciplines (up to maximum of 24cp)

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

IN YOUR OWN TIME
Designed to accommodate working professionals, the MDSI can be as flexible as you make it. You can choose how fast you go through the degree based on the number of subjects you wish to take on in any given semester.

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 6 or 8 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: timetable.uts.edu.au

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).
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 participate in two iLab projects as part of the MDSI program, providing students with opportunities to:

– Design investigations utilising cutting-edge and advance techniques for large, complex, multi-structure data sets
– Test new data analysis approaches from current research and literature
– Propose new data studies, under the supervision of transdisciplinary staff

Final iLab projects can either be focused on students’ area of interest, their current work environments, or students can work on a project with an industry or program partner in a discipline of interest.

“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 both the skills (especially commercial acumen and communication) to succeed after graduation, as well as interesting project experiences to share with potential employers.

As an 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 future leaders our world desperately needs.”

BLAIRE HUDSON
Analytics executive, Macquarie Group

“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
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

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

Did you know, data analysts and scientists will be the top emerging in demand role by 2022?*

How to apply

THE ACADEMIC YEAR
There are two teaching sessions at UTS:
- Autumn Session: February to May
- Spring Session: August to November
Did you know that taking available subjects in additional short teaching sessions is a great way to reduce your study load.

ADMISSION REQUIREMENTS
All applicants must address all three of the following criteria.

1. Academic qualifications considered:
   - Bachelor degree
   - Graduate diploma
   - Graduate certificate
   - Masters degree
   - Doctoral degree
2. The above qualifications may be in one of the following related disciplines:
   - Mathematical Sciences
   - Information Technology
   - Physics and Astronomy
   - Engineering and related technologies
   - Accounting
   - Banking, Finance and related fields
   - Economics and Econometrics
   Applicants with other academic qualifications may be considered on the basis of general and professional qualifications that demonstrate their potential in the Master of Data Science and Innovation.
3. A minimum of three years professional/industry experience

LOCAL APPLICANTS
Submit your online application via the UTS Online Application System at uts.edu.au/pg-admissions
Find out everything you need to know about upcoming MDSI information sessions at uts.edu.au/tdi-events

BEFORE YOU APPLY:
Keen to apply? You’ll also need to submit the following documents with your application.
- a personal statement explaining why you wish to study the course you are applying for (approx 500 words), AND
- a CV, including details of paid and/or voluntary work or other experiences (eg. special interest groups) relevant to the course.
- If you do not have a bachelor degree or higher qualification in a relevant discipline, you must also provide:
  - a detailed explanation in your personal statement of prior learning and demonstrated capability with quantitative data skills, key mathematical concepts and programming experience, AND
  - detailed evidence in your CV of prior learning and demonstrated capability with quantitative data skills, key mathematical concepts and programming experience.

COURSEWORK APPLICATION CLOSING DATES
If you want to start studying at UTS in either the Autumn or Spring sessions, you need to apply by:
- Spring 2020 session: 25 June 2020
- Autumn 2021 session: 31 January 2021

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
Do you want to study a single subject without committing to a full degree? You can! It’s called non-award study and it’s a great way to upgrade your skills or just learn more about something you enjoy. What’s even more exciting is that any subjects you complete may be recognised in 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.

OFFERS
UTS will begin making postgraduate offers for the Autumn session in 2021 from July 2020.

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
“The innovative teaching practices, tight-knit community and industry connections made it a clear choice for me”

ALEX SCRIVEN, MDSI GRADUATE 2018