BACHELOR OF APPLIED DATA SCIENCE

KPT/JPT (N/0542/6/0002) 10/27 - MQA/PSA 15926

Data science is a highly in-demand field and skilled, qualified data scientists are sought after worldwide.

We live in a time where information and knowledge have never been more abundant. The decisions that shape our future will rely on graduates who can extract meaning from large volumes of data and transmit it to community and industry leaders.

This course develops your technical know-how to approach complex data challenges and provide solutions to a wide range of problems. It will give you the advanced knowledge and technical skills in data science to design, analyse, implement and apply methods to make a positive impact on our daily lives.

You'll learn how to process large volumes of data and turn them into actionable insights across a very wide range of disciplines including biotechnology and pharmaceuticals, biomedical science, genetics and genomics, natural resources and energy.

What sets this course apart?

The Applied studies in science component lets you explore interdisciplinary areas, completing the equivalence of a minor, and enrich your learning experiences.

Course structure

A. DATA CHALLENGES (36 CREDIT POINTS)

These studies will develop your analytical skills and ability to apply key information technology and mathematical concepts and methods. These skills will be elaborated through studio-based learning using authentic case studies sourced from industry partners, and with examples drawn from STEM areas, business, law, the humanities and social sciences. You'll learn to integrate a range of skills including collaborative work practices, communication, leadership and entrepreneurship, which will prepare you for the professions of the future.

B. TECHNIQUES FOR DATA SCIENCE (72 CREDIT POINTS)

Through this theme you'll gain the technical foundation that underpins this course, acquiring the knowledge and skills in mathematics and the capacity to tackle challenging problems in a variety of situations. Through core data science studies, you'll attain the skills needed to effectively use, develop and manage complex data. These two areas are critical for tackling the diverse problems encountered in part A of the course.

C. APPLIED STUDIES (24 CREDIT POINTS)

These studies will provide the foundation required to advance cross-disciplinary analytical thought. You'll undertake a sequence of study in a chosen discipline, exploring new and diverse areas and developing core strengths in studies that relate to data applications. Data applications relating to these subjects can then be incorporated through the learning experiences across part A. Select a discipline below:

- Biological science and genetics
- Chemical Sciences
- Environmental science
- Biotechnology
- Food and nutrition
- Forensic genetics
- Health and human physiology.

D. ELECTIVE (12 CREDIT POINTS)

This will enable you to further develop your technical skills or extend your knowledge in your selected applied studies. Alternatively you can study eligible units from across the University.

Industry placement

In your third year, you'll undertake ADS3001 Advanced data challenges, a project-based unit with heavy industry involvement to gain invaluable work experience. This will give you hands-on, real-world exposure to the workplace environment and will enable you to further develop graduate attributes and employability skills.

SAMPLE COURSE MAP[1] (FEBRUARY INTAKE)

What your course will look like

YEAR 1	UNITS			
Semester 1 24 Credit points	**ADS1001** Data challenges 1 6 Credit points	**MAT1830** Discrete mathematics for computer science 6 Credit points	**ENG1090** Foundation mathematics 6 Credit points	Applied studies 6 Credit points
Semester 2 24 Credit points	**ADS1002** Data challenges 2 6 Credit points	**FIT1045** Introduction to programming 6 Credit points	**ENG1005** Engineering mathematics 6 Credit points	Applied studies 6 Credit points

YEAR 2	UNITS			
Semester 1 24 Credit points	**ADS2001** Data challenges 3 6 Credit points	**FIT1008** Fundamentals of algorithms 6 Credit points	**MTH2019** Multivariate mathematics for data science 6 Credit points	Applied studies 6 Credit points
Semester 2 24 Credit points	**ADS2002** Data challenges 4 6 Credit points	**FIT2086** Modelling for data analysis 6 Credit points	**MTH2051** Introduction to computational mathematics 6 Credit points	Applied studies 6 Credit points

YEAR 3	UNITS			
Semester 1 24 Credit points	**MTH3330** Optimisation and operations research 6 Credit points	**FIT3152** Data analytics 6 Credit points	**MTH3320** Computational linear algebra 6 Credit points	Free elective 6 Credit points
Semester 2 24 Credit points	**ADS3001** Advanced data challenges 12 Credit points		**FIT3181** Deep learning 6 Credit points	Free elective 6 Credit points

■ Data challenges   ■ Techniques for data science   ■ Applied studies   ■ Elective unit

1 This course map is intended as a rough guide. Units listed may vary depending on intake, availability and the latest requirements.