Overview

Data Science is the study of methods for organising, modelling and analysing large and complex data relevant for businesses, governments or other organisations. The information gleaned from the data analysis is intended to improve business decisions and inform policies.

The program provides an advanced technical background in mathematics, statistics, computer science and economics. The Computational Data Science major enables a student to specialise further in computational methods to manipulate, understand and predict data.

The program and this stream open a pathway to exciting careers in data science and data analytics.
Faculty
Faculty of Engineering

School
School of Computer Science and Engineering

Study Level
Postgraduate

Minimum Units of Credit
30

Specialisation Type
Specialisation
Learning Outcomes

1. Be able to apply advanced computational techniques to real-world problems involving complex data sets.
   - Professionals
   - Scholars

2. Be able to apply the highest ethical standards to their professional and personal lives.
   - Professionals
   - Global Citizens

3. Demonstrate knowledge and skills in formulating problems involving both qualitative and quantitative data.
   - Scholars
   - Professionals

4. Demonstrate an advanced working knowledge of scientific criteria and methods of investigation, and a concern for objectivity and precision.
   - Professionals
   - Scholars

Graduate Capabilities:

For more information on Graduate Capabilities, please click on this link.
Specialisation Structure

Students must complete 30 UOC.

Core Courses

Students must take 24 UOC of the following courses. Note that two of COMP9020, COMP9021, COMP9417 can be counted to the program core; this allows for 6 UOC from the one-of core group, and 6 UOC from the Prescribed Electives list below).

COMP9020  |  6 UOC
Foundations of Computer Science

COMP9021  |  6 UOC
Principles of Programming

COMP9024  |  6 UOC
Data Structures and Algorithms

COMP9417  |  6 UOC
Machine Learning and Data Mining

One of the following:
COMP4444  |  6 UOC
Neural Networks

COMP6714  |  6 UOC
Information Retrieval and Web Search

COMP9313  |  6 UOC
Big Data Management

Prescribed Electives

Students must take at least 6 UOC of the following courses.

ACTL3142  |  6 UOC
Actuarial Data and Analysis
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON5206</td>
<td>6</td>
<td>Financial Econometrics</td>
</tr>
<tr>
<td>ECON5321</td>
<td>6</td>
<td>Managerial Economics</td>
</tr>
<tr>
<td>ECON5324</td>
<td>6</td>
<td>Behavioural Economics</td>
</tr>
<tr>
<td>ECON6202</td>
<td>6</td>
<td>Policy Evaluation Methods</td>
</tr>
<tr>
<td>ECON6307</td>
<td>6</td>
<td>Health Economics</td>
</tr>
<tr>
<td>ECON6310</td>
<td>6</td>
<td>Experimental and Behavioural Economics</td>
</tr>
<tr>
<td>FINS5548</td>
<td>6</td>
<td>Financial Technology</td>
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<tr>
<td>FINS5555</td>
<td>6</td>
<td>Behavioural Approaches in Finance</td>
</tr>
<tr>
<td>INFS5700</td>
<td>6</td>
<td>Introduction to Business Analytics</td>
</tr>
<tr>
<td>INFS5831</td>
<td>6</td>
<td>Information Systems Consulting</td>
</tr>
<tr>
<td>MARK5822</td>
<td>6</td>
<td>Marketing Analytics in a Big Data World</td>
</tr>
<tr>
<td>MATH5165</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
Optimization

MATH5171  |  6 UOC
Linear and Discrete Optimization Modelling

MATH5425  |  6 UOC
Graph Theory

MATH5806  |  6 UOC
Applied Regression Analysis

MATH5836  |  6 UOC
Data Mining and its Business Applications

MATH5845  |  6 UOC
Time Series

MATH5895  |  6 UOC
Nonparametric Statistics

MATH5945  |  6 UOC
Categorical Data Analysis

MATH5960  |  6 UOC
Bayesian Inference and Computation

**Enrolment Disclaimer**

Unless advised otherwise by your program authority, you should follow the rules for the handbook for the year you commenced your program. You are also responsible for ensuring you enrol in courses according to your program requirements. myUNSW enrolment checks that you have met enrolment requirements such as pre-requisites for individual courses but not that a course will count towards your program requirements.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)
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University will try to avoid or minimise any inconvenience, changes may also be
made to programs, courses and staff after enrolment. The University may also set
limits on the number of students in a course.

Authorised by Deputy Vice-Chancellor (Academic)
CRICOS Provider Code 00098G
ABN: 57 195 873 179