Computational Data Science

Overview

Computational 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 Computational Data Science major enables a student to specialise further in computational data methods.
**Faculty**
Faculty of Engineering

**School**
School of Computer Science and Engineering

**Study Level**
Undergraduate

**Minimum Units of Credit**
66

**Specialisation Type**
Major
Available in Program(s)

Program(s) in which this major is available

Bachelor of Data Science and Decisions - BDataSci
3959 Data Science and Decisions
Faculty: Faculty of Science
Campus: Kensington
Units of Credit: 144
Typical Duration: 3 Years
Specialisation Structure

Students must complete 66 UOC.

Level 1 Core Courses

Students must take 18 UOC of the following courses.

COMP1511 | 6 UOC
Programming Fundamentals

MATH1081 | 6 UOC
Discrete Mathematics

MATH1131 | 6 UOC
Mathematics 1A

Level 2 Core Courses

Students must take 12 UOC of the following courses.

COMP2041 | 6 UOC
Software Construction: Techniques and Tools

COMP2521 | 6 UOC
Data Structures and Algorithms

Level 3 Core Courses

Students must take 18 UOC of the following courses.

COMP3121 | 6 UOC
Algorithms and Programming Techniques

COMP9313 | 6 UOC
Big Data Management

COMP9417 | 6 UOC
Prescribed Electives

Students must take at least 18 UOC of the following courses.

ACTL3141  |  6 UOC  
Actuarial Models and Statistics

ACTL3142  |  6 UOC  
Actuarial Data and Analysis

COMP3411  |  6 UOC  
Artificial Intelligence

COMP4121  |  6 UOC  
Advanced and Parallel Algorithms

COMP4418  |  6 UOC  
Knowledge Representation and Reasoning

COMP6441  |  6 UOC  
Security Engineering and Cyber Security

COMP6714  |  6 UOC  
Information Retrieval and Web Search

COMP6771  |  6 UOC  
Advanced C++ Programming

COMP6841  |  6 UOC  
Extended Security Engineering and Cyber Security

COMP9315  |  6 UOC  
Database Systems Implementation
<table>
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<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>COMP9318</td>
<td>6</td>
<td>Data Warehousing and Data Mining</td>
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<tr>
<td>COMP9319</td>
<td>6</td>
<td>Web Data Compression and Search</td>
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<td>COMP9418</td>
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<td>Advanced Topics in Statistical Machine Learning</td>
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<td>ECON1102</td>
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<td>ECON2101</td>
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<td>ECON2111</td>
<td>6</td>
<td>Introduction to Economic Development</td>
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<tr>
<td>ECON2206</td>
<td>6</td>
<td>Introductory Econometrics</td>
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<tr>
<td>ECON2209</td>
<td>6</td>
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<td>ECON3107</td>
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<td>ECON3123</td>
<td>6</td>
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<tr>
<td>ECON3130</td>
<td>6</td>
<td>Real Estate Economics and Public Policy</td>
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</tbody>
</table>
ECON3206  |  6 UOC  
Financial Econometrics

ECON3208  |  6 UOC  
Applied Econometric Methods

INFS1602  |  6 UOC  
Digital Transformation in Business

INFS3603  |  6 UOC  
Introduction to Business Analytics

MARK1012  |  6 UOC  
Marketing Fundamentals

MARK3054  |  6 UOC  
Marketing Analytics and Big Data

MARK3085  |  6 UOC  
Digital Marketing and Web Analytics

MATH2011  |  6 UOC  
Several Variable Calculus

MATH2111  |  6 UOC  
Higher Several Variable Calculus

MATH2831  |  6 UOC  
Linear Models

MATH2871  |  6 UOC  
Data Management for Statistical Analysis

MATH2931  |  6 UOC
Higher Linear Models

MATH3041 | 6 UOC
Mathematical Modelling for Real World Systems

MATH3161 | 6 UOC
Optimization

MATH3411 | 6 UOC
Information, Codes and Ciphers

MATH3821 | 6 UOC
Statistical Modelling and Computing

MATH3871 | 6 UOC
Bayesian Inference and Computation

MATH5836 | 6 UOC
Data Mining and its Business Applications

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.
Note

- Students enrolled in program 3959 will complete MATH1131/1141, MATH1231/1241, and COMP1511 as part of the core requirement for their program.
- Most of the elective courses have prerequisite requirements. These requirements may be completed by courses from the core or by other courses from the elective list.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions
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Authorised by Deputy Vice-Chancellor (Academic)
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