Overview

The Master of Data Science prepares you for a career in data science giving you the skills needed to deal effectively within the areas of data analysis, data engineering and big data processing. The course covers topics in both theoretical and practical perspectives, which include statistical machine learning, exploratory analysis,... For more content click the Read More button below.

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You will be able to apply your learning, knowledge and skills as part of the assessment process and have the opportunity to complete either a research project or an industry experience studio project in a team.

Read Less

about Overview

Mode and location

Expand all

On campus

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Learning outcomes

These course outcomes are aligned with the Australian Qualifications Framework and Monash Graduate Attributes.

Upon successful completion of this course it is expected that you will be able to:

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1.

analyse the lifecycle of data through an organisation

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2.

apply the major theories in the field of data analysis and data exploration to some characteristic problems

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3.

plan, manage and execute a data science project individually and collaboratively on a new application area using knowledge of the data lifecycle and analysis process

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4.

investigate, analyse, document and communicate the core issues and requirements in developing data analysis capability in a global organisation

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5.

demonstrate an understanding of data science to a level of depth and sophistication consistent with senior professional practice

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6.

review, synthesise, apply and evaluate contemporary data science theories through independent research and a research thesis, or by utilising research methods for scholarly or professional purposes.

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7.

document and communicate ethical and legal issues and norms in privacy and security, and other areas of community impact with regards to the practice of data science.

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Professional recognition

This course is provisionally accredited by the Australian Computer Society (ACS) as meeting the standard of knowledge for professional-level membership. The Faculty is in the process of obtaining full accreditation.

Structure

The course comprises 96 credit points structured into three parts: Part A. Foundation studies, Part B. Core studies and Part C. Applied studies.

Part A. Foundation studies

These studies will provide an orientation to the field of data science at graduate level. They are intended for students whose previous qualification is not in a cognate field.

Part B. Core studies

These studies draw on best practices within the broad realm of data science practice and research. You will gain a critical understanding of theoretical and practical issues relating to data science.

Part C. Applied studies

The focus of these studies is professional or scholarly work that can contribute to a portfolio of professional development. You have two options:

- a program of coursework involving advanced study and an industry experience studio project.

- a research pathway including a thesis. If you wish to use this master's course as a pathway to a higher degree by research you should take this first option.

Master's entry points

Depending on prior qualifications you may receive entry level credit which determines your point of entry to the course:

- If you are admitted at entry level 1 you complete 96 credit points, comprising Part A, Part B and Part C.

- If you are admitted at entry level 2 you complete 72 credit points, comprising Part B and Part C.

Note: If you are eligible for credit for prior studies you may elect not to receive the credit and complete one of the higher credit-point options.

Course progression map

The course progression map ([Clayton](#)) [(Malaysia)](#) provides guidance on unit enrolment for each semester of study.

Requirements
96 credit points

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Part A. Foundation studies24 credit points

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You must complete the following units.

FIT9132

6 CP

Introduction to databases

FIT9136

6 CP

Introduction to Python programming

FIT9137

6 CP

Introduction to computer architecture and networks

MAT9004

6 CP

Mathematical foundations for data science and AI

Part B. Core studies48 credit points

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You must complete 48 credit points, comprising:
- the following seven units (42 credit points); and
- one unit (6 credit points) from the Specified elective studies list.

FIT5057

6 CP

Project management

FIT5125

6 CP

IT research and innovation methods

FIT5145

6 CP

Foundations of data science

FIT5147

6 CP

Data exploration and visualisation

[FIT5196](#)

[6 CP](#)

[Data wrangling](#)

[FIT5197](#)

[6 CP](#)

[Statistical data modelling](#)

[FIT5202](#)

[6 CP](#)

[Data processing for big data](#)

Specified elective studies6 credit points

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You must complete one of the following units (6 credit points).

[FIT5149](#)

[6 CP](#)

[Applied data analysis](#)

[FIT5201](#)

[6 CP](#)

[Machine learning](#)

[FIT5212](#)

[6 CP](#)

[Data analysis for semi-structured data](#)

[FIT5230](#)

[6 CP](#)

[Malicious AI](#)

[BMS5021](#)

[6 CP](#)

[Introduction to Bioinformatics](#)

Part C. Applied studies24 credit points

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You must complete either the Industry experience pathway or Research pathway.

Industry experience pathway24 credit points

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You must complete the following units (18 credit points) plus one Level 5 unit (6 credit points). You must have the required prerequisites for the unit you choose.

[FIT5120](#)

[12 CP](#)

Industry experience studio project

FIT5122

6 CP

Professional practice

OR

Research pathway24 credit points

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You must complete the following units.

Note 1: Enrolment in the research units is dependent on available supervisors and projects. Eligible students will be ranked based on their entire academic record and assessed for suitability to undertake the research component of this program.

Note 2: To be eligible for the research pathway - You must have successfully completed at least 24 credit points of level 5 FIT-coded units; and have an overall average of at least 80% across all Level 5 units; and must have achieved at least a distinction (75%) in FIT5125 IT research methods; and achieved an overall course WAM of 70%.

If you have a WAM between 75-79% across all Level 5 units you must have successfully completed at least 24 credit points of level 5 FIT-coded units; and demonstrated research capability with written support from a prospective supervisor; and must have achieved at least a distinction (75%) in FIT5125 IT research methods; and achieved an overall course WAM of 70%.

Note 3: For research projects in Bioinformatics - You must have successfully completed at least 24 credit points of level 5 coded units; and have an overall average of at least 80% across all Level 5 units; and must have achieved at least a distinction (75%) in FIT5125 IT research methods and BMS5021 Introduction to bioinformatics; and achieved an overall course WAM of 70%.

If you have a WAM between 75-79% across all Level 5 units you must have successfully completed at least 24 credit points of level 5 coded units; and demonstrated research capability with written support from a prospective supervisor; and must have have achieved at least a distinction (75%) in FIT5125 IT research methods and BMS5021 Introduction to bioinformatics; and achieved an overall course WAM of 70%.

FIT5126

6 CP

Masters thesis part 1

FIT5127

6 CP

Masters thesis part 2

FIT5128

6 CP

Masters thesis final

FIT5122

6 CP

Professional practice

Alternative exit(s)

You may exit this course early and apply to graduate with one of the following awards, provided you have satisfied the requirements for that award during your enrolment in this master's course:

- Graduate Certificate of Data Science (C4004) after successful completion of 24 credit points of study, including FIT5145 Introduction to data science, FIT5196 Data wrangling and FIT5197 Statistical data modelling and one unit (6 credit points) from Part A or Part B.

- Graduate Diploma of Data Science (C5009) after successful completion of 48 credit points of study comprising all core studies units in Part B and one unit (6 credit points) from Part A or Part B (specified elective studies).

Progression to further studies

Successful completion of this course may provide a pathway to a graduate research degree.

Progression to a graduate research degree will be conditional on you completing the minor thesis research pathway (as described in Part C, Research Pathway) and achieving the minimum entry requirements for either the Master of Philosophy (3337) or the Doctor of Philosophy (0190).