AMSI Online: Honours and Masters Subject Guide

Deep Learning

Semester 1, 2026

Administration and contact details

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Subject details

Handbook entry URL	https://handbook-guide.unisq.edu.au/course/2026/CSC6201
Subject homepage URL	https://handbook-guide.unisq.edu.au/course/2026/CSC6201
Honours student hand-out URL	https://handbook-guide.unisq.edu.au/program/2026/BITC
Teaching period (start and end date):	16 Feb 2026 – 15 May 2026
Exam period (start and end date):	**No Exam**
Contact hours per week:	**4 hours teaching per week**
AMSI Online enrolment closure date:	
Lecture day(s) and time(s):	**To be confirmed**
Description of electronic access arrangements for students (for example, LMS)	

Subject content

1. **Subject content description**
   Deep learning is a game-changing data science and artificial intelligence technique. It allows computers to learn complex concepts by building them out of a hierarchy of simpler ones. Computer vision, image and video recognition, natural language processing, and medical diagnosis have all benefits from deep learning approaches. In this course you will explore key deep learning techniques and models behind state-of-the-art approaches to problems in a variety of areas. This course will provide you with sound understanding of how deep learning is used to construct data-driven enabling applications, thereby providing you with valuable insights into how to conduct doing research into deep learning. You will develop practical knowledge of deep learning such as Convolution Networks, Recurrent and Recursive Networks, Generative Adversarial Networks, Deep Reinforcement Learning and their associated applications in this course.

2. **Week-by-week topic overview**
   Foundation knowledge of deep learning (10%)
   Convolution Neural Networks (10%)
   Recurrent Neural Networks (10%)
   Generative Adversarial Networks (10%)
   Reinforcement Learning (10%)
   Deep learning model building, training and evaluation (20%)
   Supervised and unsupervised deep learning applications (20%)
   Future vision of deep learning (10%)

3. **Assumed prerequisite knowledge and capabilities**
   Has completed CSC6003 – Machine Learning, or demonstrates knowledge equivalent to completing a machine learning course.

4. **Learning outcomes and objectives**

- Analyse a real-world complex data science problem using deep learning models and estimate the performance
- Evaluate the situational requirements of various deep learning applications and justify the appropriate choice of deep learning model
- Given various constraints, rationalise a given deep learning model
- Make and justify appropriate ethics, professional codes of conduct, and culture awareness in deep learning practice

AQF specific Program Learning Outcomes and Learning Outcome Descriptors (if available):

AQF Program Learning Outcomes addressed in this subject	Associated AQF Learning Outcome Descriptors for this subject
Insert Program Learning Outcome here	Choose from list below

Learning Outcome Descriptors at AQF Level 8

Knowledge

K1: coherent and advanced knowledge of the underlying principles and concepts in one or more disciplines

K2: knowledge of research principles and methods

Skills

S1: cognitive skills to review, analyse, consolidate and synthesise knowledge to identify and provide solutions to complex problem with intellectual independence

S2: cognitive and technical skills to demonstrate a broad understanding of a body of knowledge and theoretical concepts with advanced understanding in some areas

S3: cognitive skills to exercise critical thinking and judgement in developing new understanding

S4: technical skills to design and use in a research project

S5: communication skills to present clear and coherent exposition of knowledge and ideas to a variety of audiences

Application of Knowledge and Skills

A1: with initiative and judgement in professional practice and/or scholarship

A2: to adapt knowledge and skills in diverse contexts

A3: with responsibility and accountability for own learning and practice and in collaboration with others within broad parameters

A4: to plan and execute project work and/or a piece of research and scholarship with some independence

5. Learning resources

Text Book: Buduma, Nithin, Nikhil Buduma, and Joe Papa. Fundamentals of deep learning. " O'Reilly Media, Inc.", 2022.

6. Assessment breakdown

Exam	0%
Assignments	100%
Class work	0%

Assignment due dates	**Exam date (approximate)**
Report 1 (30%) due day: 20 March 2026	No exam
Report 2 (30%) due day: 17 April 2026	
Report 3 (40%) due day: 15 May 2026	

Institution honours program details

Weight of subject in total honours assessment at host department	
Thesis/subject split at host department	
Honours grade ranges at host department	
H1	Enter range %
H2a	Enter range %
H2b	Enter range %
H3	Enter range %

Institution masters program details

Weight of subject in total masters assessment at host department	
Thesis/subject split at host department	
Masters grade ranges at host department	
H1	Enter range %
H2a	Enter range %
H2b	Enter range %
H3	Enter range %