COURSE OUTLINE

CSC300 Practical Machine Learning

School: School of Science, Technology and Engineering

2026 | Trimester 1

UniSC Moreton Bay | BLENDED LEARNING | Most of your course is on campus but you may be able to do some components of this course online.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This course gives you a practical introduction to machine learning and deep learning. It introduces you to a variety of learning algorithms and how to use them. You will learn about the key stages of the machine learning process such as algorithm selection, feature selection, model building, diagnostics, cross-validation, and testing.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Pre-recorded concept videos and associated activity	2hrs	Week 1	12 times
Tutorial/Workshop 1 – On-Campus Computer workshop	2hrs	Week 1	12 times

1.3. Course Topics

- Machine learning pipelines
- Supervised and unsupervised learning
- Classification and recommendation systems
- Neural networks and deep learning

2. What level is this course?

300 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...		GRADUATE QUALITIES Completing these tasks successfully will contribute to you becoming...
1	Explain common models and processing pipelines in machine learning applications	Knowledgeable
2	Apply machine learning algorithms to design solutions for real problems	Creative and critical thinker Empowered
3	Compare benefits/drawbacks of different models and algorithms regarding real use cases	Knowledgeable Creative and critical thinker Empowered
4	Analyse results and solutions to verify their correctness and impact on decision making	Engaged
5	Report model selection, implementation, and evaluation in written communication.	Creative and critical thinker Empowered

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

CSC201 and MTH212

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Students will complete individual weekly workshop activities under the guidance of the workshop facilitator, providing opportunities for rapid formative feedback throughout the trimester.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Examination - not Centrally Scheduled	Individual	10%	2 hours	Week 6	Online Assignment Submission with plagiarism check
All	2	Artefact - Technical and Scientific, and Written Piece	Individual	40%	1500 words including code and brief report	Week 11	Online Assignment Submission with plagiarism check
All	3	Artefact - Technical and Scientific, and Written Piece	Individual	50%	Code implementation plus 1500 words	Exam Period	Online Assignment Submission with plagiarism check

All - Assessment Task 1: Examination

GOAL:	The exam will develop your ability to independently apply your skills and knowledge to solve familiar problem-based questions with confidence within a set time limit.
PRODUCT:	Examination - not Centrally Scheduled
AUTHORSHIP STATEMENT:	
FORMAT:	This examination consists of a set of questions on the use of machine learning models and algorithms. The questions are based on tutorial activities and course learning materials.
CRITERIA:	

No.		Learning Outcome assessed
1	Selection, adaption and design of solutions using principles of machine learning models and algorithms	2 3
2	Comparison, analysis and evaluation of given learning solutions and models	1 3 4

GENERIC SKILLS:	Problem solving, Applying technologies

All - Assessment Task 2: Data modeling

GOAL:	Apply machine learning tools to learn and evaluate models from data sets related to a specific challenge.
PRODUCT:	Artefact - Technical and Scientific, and Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	Individual assessment. Online submission of code (in format specified on Canvas) and report (in PDF or Word)
CRITERIA:	

No.		Learning Outcome assessed
1	Comparison of common machine learning models and algorithms	1
2	Selection and development of learning models for the given data	2
3	Analysis, interpretation and evaluation of the learned models	4

GENERIC SKILLS:	Problem solving, Applying technologies

All - Assessment Task 3: Machine learning project

GOAL:	You will explore a case study and apply your knowledge of machine learning to design, justify and develop an application to meet the case study requirements.
PRODUCT:	Artefact - Technical and Scientific, and Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	1 software application (code) satisfying the requirements of the case study and 1 report with 1500 words on design decisions justifying the chosen learning models.

CRITERIA:

No.		Learning Outcome assessed
1	Selection, adaption and design of solutions using principles of machine learning models and algorithms	3
2	Development of an executable learning program to satisfy the requirements in the case study	2
3	Analysis and evaluation of the proposed solution regarding the case study	4
4	Accurate communication and reporting of the proposed model.	5

GENERIC SKILLS:	Communication, Problem solving, Applying technologies

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

You need regular access to the resource(s) below. Many texts are available as ebooks through the Library at no additional cost.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	Aurélien Géron	2022	Hands-On Machine Learning with Scikit-Learn, Keras, and Tensorflow	3	n/a

8.2. Specific requirements

Not applicable

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- UniSC Student Central
- UniSC Adelaide Student Central