School of
Engineering and Computer Science
Te Kura Mātai Pūkaha, Pūrorohiko

Prescription

This course explores a range of machine learning tools and techniques for analysing data and automatically generating applications. The course will address tools for classification, regression, clustering and text mining, and techniques for preprocessing data and analysing the results of machine learning tools. Students will gain practical experience in applying a range of tools to a range of different data sets from different domains.

Course learning objectives

Students who pass this course will be able to:

1. Describe a range of standard AI problems, algorithms and tools.
2. Classify a particular problem into the appropriate category of AI problem.
3. Choose and apply an appropriate AI algorithm or tool to solve a particular problem, choose appropriate values for the parameters of the algorithm or tool, and be able to evaluate the quality of the solution.
4. Evaluate the input data for a problem and apply the appropriate tools and techniques to prepare the data for an AI tool.

Withdrawal from Course

Withdrawal dates and process:
https://www.wgtn.ac.nz/students/study/course-additions-withdrawals

Lecturers

Will Browne (Coordinator)

will.browne@vuw.ac.nz 04 4635233 ext 8489

418 Alan MacDiarmid Building, Kelburn

Bing Xue

bing.xue@vuw.ac.nz 04 4635542

352 Cotton, Kelburn

Teaching Format

This course will be offered in-person and online. For students in Wellington, there will be a combination

of in-person components and web/internet based resources. It will also be possible to take the course entirely online for those who cannot attend on campus, with all the components provided in-person also made available online.

The course will be taught by a combination of online content, in-person lectures (that will be recorded) and tutorials (during the lecture slots). Turorials will be used to enable students to use the tools and techniques from the lectures and assignments. Online forums will be available to ask questions to tutors remotely and help desks will be available in-person. The assignments and project will allow students to explore and apply their knowledge to practical data problems, where working at home or in laboratories is permitted. The project use in-person marking where possible, while all other assignments are submitted online and marked remotely. The project can be marked remotely where the onus is on the student to provide functioning code including the machine learning models.

Student feedback

Student feedback on University courses may be found at:
www.cad.vuw.ac.nz/feedback/feedback_display.php

Dates (trimester, teaching & break dates)

- Teaching: 13 July 2020 - 18 October 2020
- Break: 17 August 2020 - 30 August 2020
- Exam period: 19 October 2020 - 25 October 2020

Class Times and Room Numbers

13 July 2020 - 16 August 2020

- **Monday** 14:10 - 15:00 – LT122, Cotton, Kelburn
- **Wednesday** 14:10 - 15:00 – LT122, Cotton, Kelburn
- **Friday** 14:10 - 15:00 – LT122, Cotton, Kelburn

31 August 2020 - 18 October 2020

- **Monday** 14:10 - 15:00 – LT122, Cotton, Kelburn
- **Wednesday** 14:10 - 15:00 – LT122, Cotton, Kelburn
- **Friday** 14:10 - 15:00 – LT122, Cotton, Kelburn

Set Texts and Recommended Readings

Required

There are no required texts for this offering.

Mandatory Course Requirements

In addition to achieving an overall pass mark of at least 50%, students must:

- submit reasonable attempts for at least three of the four assignments, and
- submit a reasonable attempt at the final project.

If you believe that exceptional circumstances may prevent you from meeting the mandatory course requirements, contact the Course Coordinator for advice as soon as possible.

Assessment

Assessment Item	Due Date or Test Date	CLO(s)	Percentage
Assignment 1: Introduction to data mining tools	week 4	CLO: 1,3	16%
Assignment 2: Real-World Data Handling, Modelling and Visualisation	week 6	CLO: 1,2,3,4	16%
Assignment 3: Kaggle Competition	week 7	CLO: 2,3	16%
Assignment 4: Performance Metrics and Optimisation	week 10	CLO: 1,4	16%
Project (5 weeks) (Code, scripts, and report on a solution to a problem)	assessment week	CLO: 1,2,3,4	36%

Penalties

The penalty for assignments that are handed in late without prior arrangement is one grade reduction per day. Assignments that are more than one week late will not be marked.

Extensions

Individual extensions will only be granted in exceptional personal circumstances, and should be negotiated with the course coordinator before the deadline whenever possible. Documentation (eg, medical certificate) may be required.

Submission & Return

All work is submitted through the ECS submission system, accessible through the course web pages. Marks and comments will be returned through the ECS marking system, also available through the course web pages.

Workload

Although the workload will vary from week to week, you should expect to spend approximately 10–12 hours per week on the course to give a total of 150 hours study time for the course.

Teaching Plan

See https://ecs.wgtn.ac.nz/Courses/COMP309_2020T2/LectureSchedule

Communication of Additional Information

All online material for this course can be accessed at https://ecs.wgtn.ac.nz/Courses/COMP309_2020T2/

Links to General Course Information

- Academic Integrity and Plagiarism: https://www.wgtn.ac.nz/students/study/exams/integrity-plagiarism
- Academic Progress: https://www.wgtn.ac.nz/students/study/progress/academic-progess (including restrictions and non-engagement)
- Dates and deadlines: https://www.wgtn.ac.nz/students/study/dates
- Grades: https://www.wgtn.ac.nz/students/study/progress/grades
- Special passes: Refer to the Assessment Handbook, at https://www.wgtn.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf
- Statutes and policies, e.g. Student Conduct Statute: https://www.wgtn.ac.nz/about/governance/strategy
- Student support: https://www.wgtn.ac.nz/students/support
- Students with disabilities: https://www.wgtn.ac.nz/st_services/disability/
- Student Charter: https://www.wgtn.ac.nz/learning-teaching/learning-partnerships/student-charter
- Terms and Conditions: https://www.wgtn.ac.nz/study/apply-enrol/terms-conditions/student-contract
- Turnitin: http://www.cad.vuw.ac.nz/wiki/index.php/Turnitin
- University structure: https://www.wgtn.ac.nz/about/governance/structure
- VUWSA: http://www.vuwsa.org.nz

Offering CRN: 30098

Points: 15
Prerequisites: COMP 261 or (DATA 201 and DATA 202) or NWEN 241 or SWEN 221
Duration: 13 July 2020 - 25 October 2020
Starts: Trimester 2
Campus: Kelburn