



Prescription

Convex optimisation problems are common in science, engineering and economics. The course teaches identifying and solving convex optimisation problems. It discusses convex sets and functions, linear and quadratic programs, semi-definite programming, and duality theory. It uses these concepts to solve practical optimisation problems.

Course learning objectives

Students who pass this course should be able to:

1. Demonstrate an understanding of the fundamental concepts of convex optimization such as convexity, linear, quadratic and semi-definite programs, and duality theory (BE graduate attributes 3(a)).
2. Recognize and formulate convex optimization problems (BE graduate attributes 3(a), 3(b), 3(c)).
3. Solve convex optimization problems by selecting and implementing suitable algorithms (BE graduate attributes 3(f)).
4. Use the CVX package for solving convex optimization problems (BE graduate attributes 3(f)).

Withdrawal from Course

Withdrawal dates and process:

<https://www.wgtn.ac.nz/students/study/course-additions-withdrawals>

Lecturers

Bastiaan Kleijn (Coordinator)

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417 Alan MacDiarmid Building, 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.

2020 detailed format is currently being designed, 2019 details were:

The course will be taught using lectures and assignments. Some lectures will include interactive discussions of assignments.

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

- **Tuesday** 10:00 - 11:50 – 107, Von Zedlitz, Kelburn
- **Thursday** 10:00 - 10:50 – 107, Von Zedlitz, Kelburn

31 August 2020 - 18 October 2020

- **Tuesday** 10:00 - 11:50 – 107, Von Zedlitz, Kelburn
- **Thursday** 10:00 - 10:50 – 107, Von Zedlitz, Kelburn

Set Texts and Recommended Readings

Required

To be able to follow the course the student will need the (cost-free) textbook

- S. Boyd and L. Vandenberghe, *Convex Optimization*, Cambridge University Press. The book is available on-line.

Mandatory Course Requirements

There are no mandatory course requirements for this course.

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
Homework assignments (10) (2 hours each)	each week	CLO: 1,2,3,4	40%
Tests (2) (50 min each)	week 5, week 12	CLO: 1,2,3	60%

Penalties

As we will discuss and grade the assignments in class, you will not receive credit for late assignments.

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

Assignments are handed in and returned at the lectures.

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. A typical workload is three hours for lectures and tutorials, three hours for reading, and four hours for assignments.

Teaching Plan

See: https://ecs.wgtn.ac.nz/Courses/ECEN422_2020T2/LectureSchedule

Communication of Additional Information

All online material for this course can be accessed at https://ecs.wgtn.ac.nz/Courses/ECEN422_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-progress> (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: [29035](#)

Points: 15

Prerequisites: ECEN 321, or ECEN 220 (prior to 2016), or ECEN 320 (in 2016)

Duration: 13 July 2020 - 25 October 2020

Starts: Trimester 2

Campus: Kelburn