

School of Engineering and Computer Science

Te Kura Mātai Pūkaha, Pūrorohiko



Prescription

Mathematical techniques employed by cybersecurity and software engineers, including methods of combinatorics, logic, probability, and decision theory. The course emphasises engineering applications.

Course learning objectives

Students who pass this course should be able to:

1. Know the important definitions and results in introductory logics and statistics.
2. Understand their significance to computer science and dealing with data.
3. Demonstrate your understanding by stating definitions and results, and solving simple problems.

Course content

The course is primarily offered in-person, and the tests will require in-person attendance for all students in the Wellington region. There will also be a remote option and there will be online alternatives for all the components of the course for students who cannot attend in-person.

Students taking this course remotely must have access to a computer with camera and microphone and a reliable high speed internet connection that will support real-time video plus audio connections and screen sharing. Students must be able to use Zoom; other communication applications may also be used. A mobile phone connection only is not considered sufficient. The computer must be adequate to support the programming required by the course: almost any modern windows, Macintosh, or Unix laptop or desktop computer will be sufficient, but an Android or IOS tablet will not.

If the assessment of the course includes tests, the tests will generally be run in-person on the Kelburn campus. There will be a remote option for students who cannot attend in-person and who have a strong justification (for example, being enrolled from overseas).

The remote test option will use Zoom for online supervision of the tests, and you must be able to use Zoom with a camera, microphone, and screen-sharing. Students who will need to use the remote test option must contact the course coordinator in the first two weeks to get permission and make arrangements.

This course covers ideas in logic, combinatorics, probability and statistics. On the logic combinatorics side, we will study propositional logic, introductory graph theory, proofs, sets and relations, and induction and recursion. On the probability and statistics side, we will study data and sampling, probabilities and random variables, estimation and confidence intervals, and model fitting.

Withdrawal from Course

Withdrawal dates and process:

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

Lecturers

Dr Steven Archer (Coordinator)

steven.archer@vuw.ac.nz 04 886 4493

CO 363 Cotton Building (All Blocks), Gate 7, Kelburn Parade, Kelburn

David Cox

david.cox@vuw.ac.nz 04 463 6788

CO 547 Cotton Building (All Blocks), Gate 7, Kelburn Parade, Kelburn

Prof Noam Greenberg

noam.greenberg@vuw.ac.nz 04 463 6778

CO 438 Cotton Building (All Blocks), Gate 7, Kelburn Parade, Kelburn

Teaching Format

During the trimester, there will be four lectures per week. Students attend one two-hour lab every other week, and students should also attend one tutorial session each week. Sign-ups for labs and tuts will be in the first week of lectures using myAllocator. Labs and tuts start in week two.

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: 11 July 2022 - 14 October 2022
- Break: 22 August 2022 - 04 September 2022
- Study period: 17 October 2022 - 20 October 2022
- Exam period: 21 October 2022 - 12 November 2022

Class Times and Room Numbers

11 July 2022 - 21 August 2022

- **Monday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Tuesday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Wednesday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Friday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn

05 September 2022 - 16 October 2022

- **Monday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Tuesday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Wednesday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Friday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn

Set Texts and Recommended Readings

Required

There are no required texts for this offering.

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

This course will be assessed through assignments, labs and tests.

Assessment Item	Due Date or Test Date	CLO(s)	Percentage
Assignments (6)	TBC	CLO: 1,2,3	25%
Two in-course tests (1 hour each)	Week 6, 12	CLO: 1,2,3	40%
Lab reports (4)	TBC	CLO: 1,2,3	25%
Two multi choice tests	Assessment period	CLO: 1,2,3	10%

Penalties

See either Blackboard or the course homepage for details.

Extensions

Extensions can be granted in exceptional cases. All extension requests should be submitted through ECS extension system.

Submission & Return

See the course website or blackboard for details of when assignments are due.

Workload

Students should expect to spend at least 12 hours a week – including time spent in lectures, labs and tutorials, completing assignments and reviewing notes.

Teaching Plan

Communication of Additional Information

Announcements, class notes, and assignments will be posted on the website (either through blackboard or the course homepage), which will be updated frequently.

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: [27044](#)

Points: 15

Prerequisites: ENGR 121;

Restrictions: the pair MATH 161, (MATH 177, QUAN 102 or STAT 193)

Duration: 11 July 2022 - 13 November 2022

Starts: Trimester 2

Campus: Kelburn