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

Prescription

The course introduces the fundamentals of engineering statistics. Topics include probability mass and density functions, random variables and functions of random variables, confidence intervals, statistical tests, and regression, as applied to engineering problems.

Course learning objectives

Students who pass this course should be able to:

1. Identify random variables and use them to model observations in engineering applications.
2. Apply statistical tests to and compute confidence intervals for observed data.
3. Identify relationships between sets of data using linear regression.
4. Use the Matlab programming language to solve problems in statistics encountered by engineers.
5. To select an appropriate standard family of probability mass or density functions, and estimate its parameters.

Course content

The course is primarily offered in-person, but 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 comuputer 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, but the remote option imposes extra costs on the School and will be limited to students with a strong justification (for example, being enrolled from overseas). The remote test option will use the ProctorU system for online supervision of the tests. ProctorU requires installation of monitoring software on your computer which also uses your camera and microphone, and monitors your test-taking in real-time. 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.

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Withdrawal from Course

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

Lecturers

Paul Teal (Coordinator)

paul.teal@vuw.ac.nz 04 4635966

420 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.

Three lectures per week, some taking tutorial format, weekly assignments, and a Lab every second week.

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: 22 February 2021 - 28 May 2021
- Break: 05 April 2021 - 18 April 2021
- Study period: 31 May 2021 - 03 June 2021
- Exam period: 04 June 2021 - 19 June 2021

Class Times and Room Numbers

22 February 2021 - 04 April 2021

- **Monday** 10:00 - 10:50 – 102, Alan MacDiarmid Building, Kelburn
- **Tuesday** 10:00 - 10:50 – 102, Alan MacDiarmid Building, Kelburn
- **Thursday** 10:00 - 10:50 – 102, Alan MacDiarmid Building, Kelburn

19 April 2021 - 30 May 2021

- **Monday** 10:00 - 10:50 – 102, Alan MacDiarmid Building, Kelburn
- **Tuesday** 10:00 - 10:50 – 102, Alan MacDiarmid Building, Kelburn
- **Thursday** 10:00 - 10:50 – 102, Alan MacDiarmid Building, Kelburn

Other Classes

Five labs of three hours each.

Set Texts and Recommended Readings

Required

There are no required texts for this offering.

Recommended

The course closely follows the text below:

- W. Navidi, *Statistics for Engineers and Scientists*. Mcgraw-Hill.

Mandatory Course Requirements

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

- achieve a passing grade in at least four lab reports.

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
Tests (2)		CLO: 1,2,3	60%
Assignments (11)		CLO: 1,2,3,4	25%
Labs (5)		CLO: 1,3,4	15%

Penalties

No credit for assignments handed in after the solutions are posted.

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

Submission of assignments and labs must be done via the ECS online submission system, accessible through the 'Assignments' link on the course web pages: https://ecs.wgtn.ac.nz/Courses/ECEN321_2021T1. Marks and comments will be returned through the ECS marking system, also available through the course web pages.

Workload

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

Teaching Plan

See https://ecs.wgtn.ac.nz/Courses/ECEN321_2021T1/LectureSchedule

Communication of Additional Information

All online material for this course can be accessed at https://ecs.wgtn.ac.nz/Courses/ECEN321_2021T1/

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: 29033

Points: 15
Prerequisites: (ENGR 121, 122) or (MATH 142, 151), 30 200-level ECEN pts
Duration: 22 February 2021 - 20 June 2021
Starts: Trimester 1
Campus: Kelburn