



MECH 580 A04 – Experimental Techniques and Uncertainty

Summer 2024 (202405)

Instructor

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Office Hours

TBA

Assessment	%
Computational Assignments <ul style="list-style-type: none"> • 4 to 5 Assignments 	50
Test <ul style="list-style-type: none"> • Thursday, June 27th 	25
Project <ul style="list-style-type: none"> • Report: 20% and due end by 11:59 on Thursday, August 1st. Students must design an experiment that tests a hypothesis or achieves an objective of their choice. The project must outline the question/objective/prototype and then describe the experimental design, expectations and uncertainty analysis. • Presentation: 5% 	25

Tentative Course Topic Schedule

Module	Topics
1, 2, 3, 4, 5	Introduction: Classical Approaches to Experimental Design Objectives for Experimental Designs; Planned Experimentation versus use of Observational Data; Basic Design Concepts; Steps for the Design of Experiments; Types of Experimental Designs; analysis of Means; Missing Data; Experimental Designs and Six Sigma; Quasi-Experimental Design; Completely Randomized Design. Full Factorial Designs with Two Levels; Fractional factorial Designs with Two-Levels. Designs With More Than Two Levels; Nested Designs; Robust Designs; Split-Unit, Split-Lot, and Related Designs. Response Surface Designs; Repeated Measure Designs; Multiple Responses.
6, 7, 8, 9	Degree of Goodness and Uncertainty Analysis; Model Conception, Calibration, Validation Designing Experiments to Test Mathematical Models; Data Coveg Spl.5 (l57 0 Td()4.7 1n0 0 117.12 4S(:)Tj3

Sexualized Violence Prevention and Response at UVic:

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and how to respond.

activity, tutorial or other learning activity set out in the course outline because of lateness, misconduct, inattention or failure to meet the responsibilities of the course set out in the course outline. Students who neglect their academic work may be assigned a final grade of N or debarred from final examinations. Students who do not attend classes must not assume that they have been dropped from the course by an academic unit or an instructor. Courses that are not formally dropped will be given a failing grade, students may be required to withdraw and will be required to pay the tuition fee for the course. Read the policy [here](#).

Academic Integrity

Academic integrity is intellectual honesty and responsibility for academic work that you submit individual or group work. It involves commitment to the values of honesty, trust, and responsibility. It is expected that students will respect these ethical values in all activities related to learning, teaching, research, and service. Therefore, plagiarism and other acts against academic integrity are serious academic offences.

The responsibility of the institution: Instructors and academic units have the responsibility to ensure that standards of academic honesty are met. By doing so, the institution recognizes students for their hard work and assures them that other students do not have an unfair advantage through cheating on essays, exams, and projects.

The responsibility of the student: Plagiarism sometimes occurs due to a misunderstanding regarding the rules of academic integrity, but it is the responsibility of the student to know them. If you are unsure about the standards for citations or for referencing your sources, ask your instructor. Depending on the severity of the case, penalties include a warning, a failing grade, a record on the student's transcript, or a suspension. It is your responsibility to understand the University's policy on [Academic Integrity](#)

Equality

This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate