Faculty of Science | Department of Mathematics and Statistics
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COURSE OUTLINE
STAT 260: Introduction to Probability and Statistics I
Summer 2024, Section A01 (CRN: 30896)

General Course Information

Lectures: TWF, 8:30am – 9:20am, in person (ECS 125)

Office Hours: As posted on Brightspace.

Pre-requisites or Co-requisites: Math 101 or Math 208.

Credit Limit: Credit will be granted for only one of STAT 260, STAT 254, STAT 250.

Units: 1.5   **Hours:** 3-0-0

Calendar Description: Descriptive statistics; elementary probability theory; random variables, discrete and continuous probability distributions, expectation, joint, marginal and conditional distributions; linear functions of random variables; random sampling and sampling distributions; point and interval estimation; classical hypothesis testing and significance testing. The mathematical foundations of statistical inference are introduced and illustrated with examples from a variety of disciplines.

Instructors

Lecturer: Laura Teshima   **Office:** DTB A204a   **Email:** LTeshima@uvic.ca

Territory Acknowledgement

We acknowledge and respect the ləkʷəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt, and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

Learning Objectives

(i) To develop an understanding of the reasoning by which findings from sample data can be extended to general cases,

(ii) To develop familiarity with some basic statistical methods,

(iii) To emphasize examples and applications from engineering and the sciences.

Specific Topics

Introduction and Descriptive Statistics, Probability, Discrete Random Variables and Probability Distributions, Continuous Random Variables and Probability Distributions, Joint Probability Distributions and Random Samples, Estimation and Hypothesis Tests based on a Single Sample, Estimation and Hypothesis Tests based on Two Samples.

Office Hours and Extra Assistance

Office Hours: As posted on Brightspace or by appointment (email LTeshima@uvic.ca).

Math & Stats AC: The Mathematics & Statistics Assistance Centre is a large space where students can work, on their own or in groups, and obtain help with math and stats problems. The Centre is staffed with talented Teaching Assistants who are happy to assist with primarily first and second year course material with you. Please see `http://www.uvic.ca/msac` for more information.

Course Materials and Resources

Textbooks: *Essentials of Probability & Statistics for Engineers & Scientists* by Walpole, Myers, Myers, & Ye, 2011. E-Text or physical edition (ISBN 9780321783738). Both the e-text and the physical edition are available at the UVic bookstore for approximately $60-$90 (depending upon license duration) and $275, respectively.

Introduction to Probability and Statistics by Tim Swartz. Free PDF posted to course Brightspace page.

Course Website: Visit your Stat 260 course website on Brightspace (`bright.uvic.ca`) for homework assignment questions and solutions, announcements, sample tests and other information. If you have a general question about the course, please check the Brightspace page first before asking your instructor. We will also use Crowdmark (accessible through Brightspace) for the submission of homework assignments.

Calculator: Only the Sharp EL-510 R/RN/RNB/RTB hand calculator is permitted for use by the Math and Stats Department. It may be purchased at the UVic Bookstore or elsewhere for about $15. Be sure to obtain one of these calculators and use it while doing homework problems so that you are comfortable with it prior to your first examination. During examinations, no other electronic device will be permitted, including cell phones, smart watches, ipods, translators, etc.

Software: You will need to use a computer and the statistical software R for some of the assignments throughout the term. R can be downloaded for free from `http://www.r-project.org/`. While it is not necessary, you are encouraged to use RStudio which is a user interface to R that can be downloaded for free from `https://rstudio.com/`.

Computer Facilities: Locations and operating hours of on campus Computer Facilities are available here `http://www.uvic.ca/systems/facilities`

Evaluation and Grading

Your final percentage grade will be computed according to the following scheme.

Components	Dates	Note	Weights
R Assignments	see Brightspace		$3 \times 2\% = 6\%$
Online Assignments	see Brightspace		$3 \times 1\% = 3\%$
Written Assignments	most weeks	Best 6 of 8	$6 \times 1.5\% = 9\%$
Term Test 1	Friday June 7	In lecture	18%
Term Test 2	Friday July 12	In lecture	18%
Final Examination	TBA		46%

Required Course Components: To successfully complete Stat 260, students must complete **all** of the following:

(i) Complete the final exam with a minimum grade of 40%.

(ii) Write at least one of the two term tests.

(iii) Complete at least 4 written homework assignments and at least 2 R assignments.

Failure to complete one or more of these elements will result in a grade of "N" regardless of the cumulative percentage on other elements of the course. N is a failing grade and factors into GPA as a value of 0.

Written Homework Assignments: There will be eight short written homework assignments this semester. The topics covered in these assignments will be closely tied to the current materials in lecture, and are designed to encourage you to keep up with the course content. Written assignments will be posted on and submitted to Crowdmark (via Brightspace).

Although you are encouraged to work together on the assignments, each student must write up their own solutions, in their own words, and in reflection of their own understanding. Poorly presented work will have marks deducted. Solutions that appear to be carbon copy identical will be treated as plagiarism.

Your lowest two written assignment scores will be dropped from your final grade. A missed assignment (due to illness or other extenuating circumstances) will count as a dropped score. It is not necessary to provide documentation for missed assignments unless you miss three or more, in which case you should contact your instructor via email immediately. See Brightspace for additional information on assignment submissions.

Online Assignments: There are three online assignments that are to be submitted for marks. These assignments will be completed directly on the Brightspace page. They also serve as practice for the term tests and the final exam. You may complete these assignments multiple times and your highest scores will be used for grade evaluation, however your attempts must be completed before the published deadlines. You may not be able to see feedback on questions that are not attempted.

R Assignments: There will be three R assignments to be completed for marks this semester. These assignments are loosely related to the lecture material and are designed to supplement the lecture material and to introduce you to the statistical software. R assignments will be posted on and submitted to Crowdmark (via Brightspace).

Term Tests: There will be two terms tests, written in-person during lecture Friday June 7 and Friday July 12, each worth 18% of your grade. Details on the coverage and format of each exam will be given in class and posted to Brightspace.

Final Exam: The comprehensive written in-person final examination will be scheduled by Records to occur during the final examination period (August 6 – August 17).

Students are **strongly advised not to make plans for travel or employment during the final examination period** as special arrangements will not be made for examinations that conflict with such plans.

Grading: Percentage scores will be converted to letter grades according to the university-wide standard table (`http://web.uvic.ca/calendar/undergrad/info/regulations/grading.html`).

Supplemental Examinations: The Department of Mathematics and Statistics does not award 'E' grades or offer Supplemental Examinations in any of its courses.

Policies and Ethics

In addition to the following, see the ***University and Departmental Policies Attachment*** and the ***Information for Students Attachment*** on Brightspace.

Specific to Stat 260

Mark Disputes: Contact your instructor via email for any mark disputes. Addition and recording errors can be fixed at any point before final course grades have been submitted. In the case of disputes regarding the grading, submit your argument via email to your instructor within 1 week after the item feedback has been posted. After this time, the recorded mark on Brightspace will be considered as final.

Missing Work: If you miss a term test and/or an assignment due to illness, accident, or family affliction, you should notify your instructor via email as soon as possible (within one week) and provide a written request to be excused. You are not required to have medical or professional documentation to support illnesses or afflictions for the semester.

There are no extra assignments given to make up for missed or low-scoring coursework. Deferrals will only be granted for the final exam, not course work.

- **Assignments:** *No extensions or make ups will be offered.* In the case of a missed excused assignment, the weight of the remaining assignments will increase to cover the missed work.

- **Tests:** *No off-schedule or make up tests will be offered.* In the event of an excused absence for a term test, the weight of the missed test will be distributed between the completed term test and the final exam: the remaining term test will be worth 24% and the final exam will be worth 58%.

- **Final Exam** Off-schedule final examinations (i.e. deferred examinations) are given only in accordance with the university policy as outlined in the Calendar. Please note that family reunions, weddings, vacations, and employment do NOT meet the calendar requirements necessary to qualify for deferred status. A student will not be granted deferred status if they have not successfully completed term work equivalent to at least 30% of the final grade, or if they have been absent from class for a substantial portion of the term.

  If you are unable to write a final examination due to illness, accident or family affliction, please refer to the following webpages for detailed instructions how to proceed: `http://web.uvic.ca/calendar/undergrad/info/regulations/concessions.html`

Recordings: Lectures are not recorded. Audio and/or video recording is not permitted during lecture without the express consent of the instructor.

Unclaimed Evaluations: Any paper evaluations that are not collected by the first day of the exam period (August 6) will be recycled.

General Policies

Academic Integrity: Students are required to abide by all academic regulations set as set out in the University calendar, including standards of academic integrity. Violations of academic integrity (e.g. cheating and plagiarism) are considered serious and may result in significant penalties.

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 offenses.

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 students transcript, or a suspension.

It is your responsibility to understand the University's policy on academic integrity:
http://web.uvic.ca/calendar/undergrad/info/regulations/academic-integrity.html#

Violations of the University of Victoria Policy on Academic Integrity will not be tolerated. The Department will be closely monitoring for signs of plagiarism, use of unauthorized resources, etc., and will seek the strongest available academic sanctions in these cases.

What you can and cannot do:

- Assignments: Work in this course is to be done individually. You are encouraged to discuss problems with your instructor and other students in the class, but your final write-up must be in your own words. Do not copy homework verbatim.
- Exams: Any form of collaboration or communication during exams between persons within or outside the class is not permitted. Use of any aids other than those specifically permitted on an exam is forbidden.

You **must not** use homework help websites. Use of any web resources, **including AIs**, outside of your course Brightspace or Crowdmark page in answering assignment or exam questions is prohibited. If you use resources from the web in answering assignments, any such usage **must** be explicitly cited. Failure to do so is a violation of the Academic Integrity Policy, and will lead to referrals to the Dean, and may lead to expulsion from the University of Victoria.

By submitting your assignments and tests you agree that you have read and understood the Policy on Academic Integrity, and that you have not in any way violated the Policy in constructing or presenting your solutions.

Please note that ALL course materials provided throughout the term, including course notes communicated during lectures, tutorial materials, assignments, and all examinations are intellectual property provided to you for instructional purposes only. **You are not permitted to distribute any of this material without permission of your instructor**, such as through note-sharing or other online sites. To do so would be in violation of UVic's Policy on Academic Integrity.

Some students may be selected for individual follow-up interviews after the submission of an assignment or test. Such students will be contacted via email after the submission and will be requested to participate in a short interview about their conduct during the assignment/test and how they arrived at specific answers they submitted.

Copyright Statement: All course content and materials are made available by instructors for educational purposes and for the exclusive use of students registered in their class. The material is protected under copyright law, even if not marked with a ©. Any further use or distribution of materials to others requires the written permission of the instructor, except under fair dealing or another exception in the Copyright Act. Violations may result in disciplinary action under the Resolution of Non-Academic Misconduct Allegations policy (AC1300).

Important administrative dates in Spring 2024

Registration, holidays, and exams :

    First day of classes: Wednesday May 8, 2024

    Last day for adding courses: Thursday May 23, 2024

    Reading Break (no classes): Monday July 1-3, 2024

    Last day of lectures: Friday August 2, 2024

    Examination period: Tuesday August 6 - Saturday August 17, 2024

Drop Dates :

    100% fee reduction: Monday May 20, 2024

    50% fee reduction: Sunday June 9, 2024

    Academic drop deadline: Wednesday July 3, 2024