University of Victoria
Faculty of Science | Department of Mathematics and Statistics
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Course Outline Stat 261 in May - Aug 2023

We acknowledge and respect the lək̓ʷəŋən 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.

Instructor:

Lecturer: Dr. Jianping Yu

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General Information: Stat 261, Introduction to Probability and Statistics II

Prerequisite: STAT 254 or STAT 260; and one of MATH 101, MATH 103, MATH 140, MATH 208.

Description: This is your first real course in Statistical Inference. This course is different from other second courses in Probability and Statistics. Most second courses are recipe books of statistical techniques with special formulae for each type of problem. In those courses, students memorize the techniques and regurgitate them on tests and assignments with no real understanding of them. In this course, you will learn the mathematical/probabilistic foundation for many statistical techniques that are used in practice. With this knowledge, you will have a toolkit so that you can even invent your own methodology for your own statistical models!

Class and Lab Meeting: First day of lecture is 3^{th} May. First day of lab is 10^{th} May.

Time and Location for class meeting: The class meets on Tuesday, Wednesday and Friday: 10:30am-11:20am. Location: ECS 104.

Lab Information: The lab meets on Wednesday: 11:30am-12:20pm. Location: BEC 160.

Course Information

Web Pages. We'll be using Brightspace for our online course material: homework, due dates, solutions, formula sheets, statistical tables and your grades.

Textbook. Lecture Notes for Stat261, by Prof. Mary Lesperance. A PDF is freely available on the Brightspace page.

Reference. Probability and Statistical Inference, Volume 2, Second Edition, by J.G. Kalbfleisch.

Specific Topics. Review of relevant probability theory and distributions, Likelihood methods, two parameter likelihood, tests of significance, confidence interval, normal theory.

Statistical Software. We will use the state-of-the-art statistical software, R and RStudio in this course for computations and simulations. They are available for Mac, Windows and Linux and are free to download. We will also use R Markdown, a notebook interface which weaves together narrative text and code to produce elegantly formatted output.

Calculator. You are permitted to use a Sharp brand calculator with a model number starting with "EL- 510R". The latest such model may be purchased at the UVic Bookstore. No other brands or models of calculator are permitted in tests and exams of this course.

Note that all course materials provided throughout the term, including course notes communicated during lectures, lab materials, and examinations are intellectual properties provided to you for instructional purposes only. You are not permitted to distribute any of this material, such as through note-sharing or other online sites, without written permission from the instructor.

Office Hours and Assistance

Office Hours. As posted on the Brightspace page. (Times are given on a 24-hour clock for the Pacific Time Zone.)
Or by appointment (please send email to book one)

The Mathematics and Statistics Assistance Centre (MSAC). A large space where students can go to work, on their own or in groups, and to discuss math stats problems with talented Teaching Assistants (tutors).

Math Club. Students in Undergraduate Mathematics and Statistics (SUMS).

Computer Facilities. There are several computer labs on campus (for example, in CLE and BEC) available to students for drop-in use. More information can be found here: https://www.uvic. ca/systems/labs/rooms-drop-ins/find-space/index.php.

Assessment Scheme: Assignments are submitted and uploaded to Brightspace and will be marked on presentation **AND** content.

25% Assignments: Best 5 of 6, bi-weekly.

15% Lab Assignments: 4 total, approx. bi-weekly.

20% Midterm: Tuesday, June 13

40% Final Exam: TBA.

Special arrangements will not be made for students who have plans for travel or employment during the final examination period.

Essential Course Components. In order to pass the course it is required to achieve at least 40% on the common final exam and to have attempted course work worth at least 35% of the final grade.

Course Policies

All UVic Policies and all Mathematics & Statistics Policies and Practices described on the attachments apply.

Academic Concessions. Academic concessions for missed course components will not be granted to students who have been absent from class for a substantial portion of the term, or who will not have completed course work worth at least 40% of the final grade by the last day of classes. Late withdrawals are available to students who are able to provide their Associate Dean with documentation showing that accident, illness, or affliction has prevented them from making a serious attempt at the course.

Collaboration. Discussing homework to be submitted for marks with classmates is a useful and mathematically healthy practice. The work that is submitted must be written independently, be in your own words, and reflect your understanding. If you work together on these assignments, it is expected that collaborations be fair in that everyone in a group attempts to do the problems. Straightforward copying is expressly forbidden, and anyone caught doing this will be dealt with severely.

Missing Work. Regardless of the reason, there will be no make-up midterm exams. If you miss a midterm, lab test or assignment due to illness, accident, or family affliction, you should notify me as soon as possible. In such cases, your percentage allocation for a missed assignment will be divided evenly among those you did write; for a missed lab test, the percentage allocation will be added to your final exam and for a missed midterm, divided between assignments and exam (with maximum 60% weight for the exam). If you miss an assignment, midterm or lab test and the absence is not excused, zero marks will be awarded.

Grading. Percentage scores will be converted to letter grades according to the university-

wide standard table.

Accessibility. Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the Resource Centre for Students with a Disability (RCSD) as soon as possible. The RCSD staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations http://rcsd.uvic.ca/. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Uncollected Term Work. Any term work which has not been collected by the start of the next term will be securely disposed of.

Note. The Policy and Information attachments are deemed to be part of this outline.