Western Science

Department of Statistical and Actuarial Sciences

Probability & Statistics II

Statistical Sciences 2858B

Course Outline

1. Course Information

Statistical Sciences 2858B
Winter term 2022
Lecture Hours: Monday, 10:30 AM – 11:30 AM, NSC-1
Wednesday and Friday 10:30 AM – 11:30 AM, WSC-55
Please note that lectures, tutorials and office hours will take place online until at least January 31st**.** Some classes may be asynchronous as will be specified on OWL.

Tutorial Hours: Tuesday 3:30 PM – 4:30 PM, TC-141
[No tutorial on January 11th. Each test will be administered during a tutorial hour.]

Prerequisite: A minimum mark of 60% in Statistical Sciences 2857A/B (or the former Statistical Sciences 2657A/B).
Antirequisites: All other courses in Introductory Statistics (except Statistical Sciences 1023A/B and Data Science 1000A/B or the former Statistical Sciences 1024A/B), that is, Biology 2244A/B, Economics 2122A/B, Economics 2222A/B, Geography 2210A/B, Health Sciences 3801A/B, MOS 2242A/B, Psychology 2810, Psychology 2820E, Psychology 2830A/B, Psychology 2850A/B, Psychology 2851A/B, Social Work 2207A/B, Sociology 2205A/B, Statistical Sciences 2035, Statistical Sciences 2141A/B, Statistical Sciences 2143A/B, Statistical Sciences 2244A/B, Statistical Sciences 2037A/B if taken prior to Fall 2010, former Psychology 2885 (Brescia), the former Statistical Sciences 2122A/B, the former Social Work 2205. Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

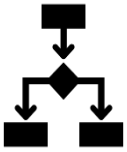
2. Instructor Information

Instructor: Serge Provost, *Ph.D. (McGill)*

Office: WSC 223
Email: sp@uwo.ca
Phone: 519-661-3624
Office hours: via Zoom to be scheduled by appointment until in-person classes resume or preferably you may email me your questions**.**

Teaching Assistants: Yasin Khadem Charvadeh: **ykhademc@uwo.ca**
Yifan Li: **yli2763@uwo.ca**

3. Course Syllabus, Schedule, Delivery Mode



Course Description

An introduction to the theory of statistics as well as its probabilistic underpinnings. We will cover the following topics among others: estimation and hypothesis testing, sampling distributions, linear regression, experimental design, the law of large numbers and the central limit theorem.

Learning Outcomes

This course aims at introducing the mathematical basis of statistical analysis, covering parameter estimation, hypothesis testing and the determination of confidence intervals, among other topics. The successful student will be ready to delve more deeply into the theory of statistical inference and advanced applied techniques.

Classes will begin on Monday, January 10th and end on Friday, April 8th.

Reading Week: February 21st - 25th

Contingency plan for an in-person class pivoting to 100% online learning

While classes, tutorials and office hours are taking place online (at least until the end of January), you will need a stable internet connection and a suitable laptop or computer with a working microphone and webcam. In any event, the grading scheme will not change. When deemed necessary, tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledging that you will be required to provide personal information (including some biometric data) and that the session will be recorded. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: https://remoteproctoring.uwo.ca.
Lectures can be delivered either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience) as deemed most appropriate by the instructor.

4. Course Materials

The recommended textbook is

*A Brief Course in Mathematical Statistics**

by Elliot Tanis and Robert Hogg.

Pearson/Prentice Hall (2008).

*A copy of this book can be borrowed at the Taylor Library's desk.

*This book can be purchased from the Book Store. Note that no electronic copy is available.

Additional course material will be posted to OWL: *http://owl.uwo.ca.*

Students are responsible for checking OWL (http://owl.uwo.ca) for announcements and updates on a regular basis. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be reached by phone at 519-661-3800 or ext. 83800.

5. Methods of Evaluation

The overall course grade will be calculated as follows:

**Four assignments:* 10%

***Two midterm tests* scheduled to take place on February 8th and March 8th, 3:30 PM – 4:30 PM, Talbot college, Room 141, or online as specified on OWL: 40%

***A final exam taking place between April 10th and April 30th (excluding April 15-17th) to be scheduled by the Registrar's Office:* 50%

The tests and final exam are 'closed book' although crib sheets may be allowed as will be specified beforehand on OWL. A nonprogrammable calculator will be required.

The department adopted a policy whereby there will be no make-up exams for missed tests. *If a student legitimately misses a midterm test and provides the required supporting documentation, the evaluation components will be reweighted as follows: the other test: 25%; the final exam: 65%.*

Click (https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=5&SelectedCalendar=Live&ArchiveID=#SubHeading_73) *for a detailed and comprehensive set of policies and regulations concerning examinations and grading.*

6. Student Absences

Academic Consideration for Student Absences

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

(i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:

- an absence must be no more than 48 hours
- the assessments must be worth no more than 30% of the student's final grade
- no more than two SRAs may be submitted during the Fall/Winter term

(ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.

(iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For the policy on Academic Consideration for Student Absences – Undergraduate Students in First Entry Programs, see:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf

and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

https://multiculturalcalendar.com/ecal/index.php?s=c-univwo.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a “Multiple Exam Situation” (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

7. Accommodation and Accessibility

Accommodation Policies
Students with disabilities work with Accessible Education (formerly SSD), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf,

8. Academic Policies

The website for Registrarial Services is http://www.registrar.uwo.ca.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Only nonprogrammable calculator will be allowed during the tests and final exam.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

9. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at (519) 661-2147 if you have any questions regarding accommodations.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mentalhealth) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, http://westernusc.ca/services.