

Mathematical Statistics

Statistical Sciences 3858B

Course Outline

1. Course Information



Statistical Sciences 3858B

Winter term 2022

Lecture Hours: Monday and Friday 11:30 AM – 12:30 PM, B&GS-0153
Wednesday 11:30 AM – 12:30 AM, NS-7

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: Wednesday 5:30 PM – 6:30 PM, WSC-55

[No tutorial on January 12th. Note that each test will take place during a tutorial hour.]

Prerequisite: A minimum mark of 60% in Statistical Sciences 3657A/B. Unless you have either the requisites 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. You can be deregistered at any time even after writing the final exam. 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

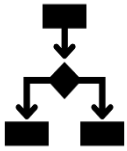
Email: sp@uwo.ca

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
Dechen Gao: dgao28@uwo.ca

3. Course Syllabus, Schedule, Delivery Mode



Course Description

We will cover the following topics among others: point estimation, sufficiency, completeness, consistency, unbiasedness, the Cramer-Rao inequality, the Rao-Blackwell theorem, hypothesis testing (uniformly most powerful tests, likelihood ratio tests).

Learning Outcomes



To provide an advanced introduction to the basic concepts of statistical inference and to develop optimal procedures to solve a variety of problems arising in data analysis. In particular, consideration will be given to applying appropriate tests of hypotheses.

Classes will begin on January 10th and end on 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

*Introduction to Mathematical Statistics**, 8th or previous editions

by R.V. Hogg, J. W. McKean and A.T. Craig.

Pearson/Prentice Hall (2019).

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

*This book can be purchased from the Book Store. An electronic copy is also 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 16th and March 16th, 5:30 PM – 6:30 PM, Western Science Centre, Room 55, 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 ([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](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>.