

SS2864B Course Outline for Winter 2025

1. Course Information

Course Information

Course Name:	Statistical Programming
Course Number:	SS2864B
Academic Term:	Winter 2025
Lecture Hours:	MWF 3:30 – 4:30 PM.
Lecture Room:	UCC-37
Tutorial Hours:	Tut 2: Th 1:30 – 2:30 PM, SSC-1032 Tut 4: Th 3:30 – 4:30 PM, HSB-13

List of Prerequisites

A minimum mark of 60% in Statistical Sciences 2857A/B or a minimum mark of 70% in one of Statistical Sciences 2035, Statistical Sciences 2141A/B, Statistical Sciences 2143A/B, Statistical Sciences 2244A/B, Biology 2244A/B, Economics 2222A/B, MOS 2242A/B, or Psychology 2812A/B, and enrollment in a module offered by the departments of Applied Mathematics; Mathematics; and Statistical and Actuarial Sciences.

Pre-or Corequisite(s):

Statistical Sciences 2858A/B for those using Statistical Sciences 2857A to meet the prerequisites.

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Advisors) 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

Instructors	Email	Office	Phone	Office Hours
Hao Yu	hyu@uwo.ca	WSC 217	519-661-3622 (x83622)	TBA
Shiva Mehdipour Ghobadlou	smehdipo@uwo.ca			
Kaize Pan	kpan26@uwo.ca			

Students must use their Western (@uwo.ca) email addresses when contacting their instructors or TAs.

3. Course Syllabus, Schedule, Delivery Mode

This course is an introduction to programming using a high-level language (currently R).

Course Objectives:

- Elementary computer programming as needed in statistics and actuarial science.
- Programming elementary statistical graphics.
- Simulation of random variables and simple stochastic processes.
- Numerical linear algebra.
- Numerical function optimization.

Learning Outcomes

Upon successful completion of this course, students will be able to:

- Use R to import and export datasets and data visualization.
- Use R efficiently to work with general statistical computing problems.
- Conduct Monte Carlo simulation to understand various statistical inferences.
- Use R's optimization to do statistical modeling and estimation.

Classes begin: January 6, 2025

Spring Reading Week: February 15 – 23, 2025

Classes end: April 4, 2025

Exam period: April 7 – 30, 2025

4. Course Materials

Textbook: Braun and Murdoch (2021). A First Course in Statistical Programming with R, Cambridge University Press. 3rd edition.

Reference Books: An Introduction to R and The R Language Definition and other manuals from <http://www.r-project.org>.

Equipment and Software needed: A personal computer/laptop that has R and RStudio installed (Windows, Mac, Linux) is highly recommended since they are required to complete the assignments.

All course material will be posted to OWL: <https://westernu.brightspace.com/>

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Assignments (5)	20%
Midterm	30%
Final Exam	50%

Assignments: There are about 5 assignments, given out roughly every two weeks. All assignments must be done electronically (all assignments must be prepared using RStudio Markdown/Notebook (PDF)) and be submitted to owl before deadline.

Each student has two coupons that can be used for handling assignments after the submission deadline has passed. Each coupon allows an extension of up to 24 hours past the submission deadline. For example, if an assignment is due on Feb 26, 11:59 pm, you can hand in your assignment before Feb 27, 11:59 pm with one coupon used. You can stack two coupons together so that you can hand in your assignment before Feb 28, 11:59 pm.

Late Submissions if two coupons are already used up.

- Assignments that are submitted late will be subject to a 20% penalty per day or portion thereof, including weekends and holidays.
- Assignments that are submitted 5 or more days late will not be graded.

Midterm: There will be one in class midterm test, scheduled on February 28. It will be booked and confirmed through the Exam Central. Exam room info will be posted once it is available.

There is no makeup test if you miss the midterm due to illness or other means. The missing weight will be reassigned to the final exam if you have a valid reason, and it is approved.

Final exam: There will be a 3-hour final exam scheduled by Registrar's Office.

Rounding of marks statement

Across the Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement.

Final grades on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks WILL NOT be bumped to the next grade or GPA, e.g. a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark assigned; requests for mark "bumping" will be denied.

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Midterm.
- Final exam.

When a student mistakenly submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Evaluation Scheme for Missed Assessments

Assignments: Academic consideration requests will be denied if the two coupons are not used up. Further accommodation beyond late coupons and late penalty must be approved via Dean's Office/ Academic Counselling unit of your Home Faculty. Students whose request for academic consideration is approved will have the weight of the missed assignment distributed to further assessments.

Midterm: No makeup midterm is given. If you miss a midterm, you must request academic consideration from Academic Counselling in your Faculty's Dean's Office. The weight will be redistributed to the final exam.

Final Exam: When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

6. Additional Statements

Religious Accommodation

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early

as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://www.edi.uwo.ca>.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, 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.

Academic Policies

The website for Registrar Services is <https://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 their official university address is attended to in a timely manner.

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:

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

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising 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/>.

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

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

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

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at Learning Development and Success (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

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

This course is supported by the Science Student Donation Fund. If you are a student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Advising site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at ssc@uwo.ca.