Office hour format: in-person.

This course introduces students to ways of implementing various statistical procedures in R. For computation intensive procedures, C programming and R to C interface will be introduced. The aim is to gain a good understanding of how to efficiently use packages to perform data analysis. The approach will be research-orientated and therefore students will learn in detail how various statistical procedures are implemented. If time permits, SAS macro programming will be discussed. Topics covered though not restrict to those will include:

> Data preprocessing
> MLE, Inference including hypothesis tests, bootstrap, and MCMC
> Regression (simple, multiple, glm, smoothing, etc)
> Statistical Monte Carlo simulation
> Data mining and modelling overfitting/underfitting
> Statistical parallel computing
> SAS macro programming (time permits).

> Upon successful completion of this course, students will be able to use R efficiently to work with advanced statistical computing problems.
> Break down a big and/or complex computing problem into many small and easy handle tasks.
> Interactive with other languages such a C to speed up computation time.

Classes begin: September 8, 2021
Reading Week: November 1–7, 2021
Classes end: December 8, 2021

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, 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). The grading scheme will   change. Any remaining assessments

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

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

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

Google Chrome or Mozilla Firefox are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click here.

The overall course grade will be calculated as listed below:

Assignments (5)   25%
Midterm   35%
Oral Presentation   10%
Final Project   30%

There are about 5 assignments, given out roughly one 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.

 Late Submissions by Graduate Students
        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.

Late Submissions by Undergraduate Students
        Late assignments without illness self-reports will be subject to a late penalty of 20% per day or portion thereof, and assessments that are submitted 5 or more days late will not be graded.
        Late assignments with illness self-reports should be submitted within 24 hours of submission of the last illness self-report, after which they will be subject to a late penalty of 20% per day or portion thereof, and assignments that are submitted 5 or more days late will not be graded.

There will be a 2-hour closed book and in-person midterm, tentatively setting on October 28, 10:00 am to noon. It will be booked and confirmed through the Exam Central. Exam room info will be posted once it is available.

There will be a course project with oral presentation involved. The maximum number of students in each group will be 2 and it might change

Please send me an email once you file your SRA and I will send back an acknowledgement to give you some options if applicable.

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.

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.

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.

Students with disabilities work with Accessible Education (formerly SSD), which provides recommendations for accommodation based o