

SS 3860B Generalized Linear Models / SS 9155B Statistical Modelling II Winter 2019 Course Syllabus

1. Course Information

Description: In this course we will use the R statistical software package to study both applied and theoretical aspects of different extensions to the linear regression model framework. Course topics include: logistic regression, Poisson log-linear models, contingency tables, multinomial regression, mixed effect models, and nonparametric regression. Additional topics may include generalized additive models, trees and neural networks as time allows.

Objectives - By the end of this course you should be able to:

1. Select an appropriate statistical method for analyzing data with a continuous, count, binomial, or multinomial response variable.
2. Explain maximum likelihood inference for the generalized linear model framework.
3. Conduct different analyses in R including computing parameter estimates and confidence intervals, conducting hypothesis tests, selecting variables, comparing competing models, and assessing goodness of fit.
4. Summarize and report your results for statistical and general audiences.

Hours and location:

Tuesdays: 9:30 to 11:30 am, TC-204

Wednesdays: 10:30 to 11:30 am, TC-204

Prerequisites for SS 3860B: SS 3859A/B with at least 60%

Prerequisites for SS 9155B: SS9159A

2. Instructor Information

Instructor Camila P. E. de Souza
Department Statistical & Actuarial Sciences

Office hours Wednesdays, 1 to 2pm in WSC 225

Email: use OWL messages (contact “Instructor Role”) – **not** UWO email

3. Communicating with the instructor

Use the OWL messages (to “Instructor Role”) tool when asking a personal administrative question (i.e. confidential questions about marks, participation, progress, absences, etc.) that requires a brief response. Course content related questions or non-personal questions should be posted to the OWL

course Forums. You can expect a response to a message to the instructor or a posting to the Forum within **approximately 48 hours** (during busy times, it may take a little longer).

Students should check OWL (<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. Students are responsible for checking OWL on a regular basis.

5. Course Materials

Required text: Faraway, J. J. (2016) Extending the Linear Model with R: Generalized Linear, Mixed Effects and Nonparametric Regression Models, 2nd Edition. CRC Press.

R statistical software package: This course is heavily based on R and, therefore, all assignments and final project will require coding in R. Please make sure you have the latest R version installed in our computer (<https://cran.r-project.org/>) as well as R studio (<https://www.rstudio.com/products/rstudio/download/>).

5. Methods of Evaluation

Component	Weight	Deadlines/Due dates
Reading Quizzes	10%	Approximately Weekly on Owl
Assignments	30%	Approximately Weekly
Midterm	30%	Tue Feb 26 in class
Final group project report and presentation	30%	Date and time during final exam period*

*To be scheduled by the Registrar's Office. All students must attend. Project reports should be handed in before presentations start.

6. Accommodation

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in NCB 280, and can be contacted at scibmsac@uwo.ca. For further information, please consult the university's medical illness policy at http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

7. Academic Policies

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

UWO email: In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>,

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.

Non-programmable calculators are permitted for use during the midterm exam. No other aids are allowed (unless otherwise noted). **Cellular phones, iPods, and other similar technology are *not* permitted in the midterm rooms.** This means that cellular phones, iPods, and other similar technology **cannot** be used as a timekeeper/clock, calculator, or for any other purpose.

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.

Attendance: Classroom attendance is viewed as an important part of the learning process. Students are advised that excessive absenteeism may result in the student being disbarred from the Final Exam (see Western Academic Calendar).

Classroom Environment: The Department has adopted a "Mutual Expectations" policy governing the classroom environment and all work submitted by students. The full text of the policy can be found at: <http://www.uwo.ca/stats/undergraduate/mutual-expectations.html>. In summary, the policy was developed under the premise that all interactions between students and faculty should be governed by the principles of courtesy, respect and honesty.

8. Support Services

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 Student Accessibility Services (SAS) at 661-2147 if you have any questions regarding accommodations.

The policy on Accommodation for Students with Disabilities can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.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.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) 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>.