THE UNIVERSITY OF CALGARY
FACULTY OF ARTS
DEPARTMENT OF SOCIOLOGY
(www.soci.ucalgary.ca)

SOCIOLOGY 611 (Social Statistics: The General Linear Model)

Course Outline, Winter 2018

Safewalk/Campus Security: 220-5333, ANYTIME

This course makes use of Desire2Learn to communicate information to students. To access D2L go to: d2l.ucalgary.ca OR my.ucalgary.ca

Instructor: Tom Langford   langford@ucalgary.ca   Office: SS 1006
Office Hours between January 8 and April 13: Friday afternoons, 1:30 to 3:30 p.m. It is best to send an email ahead of time so that you are guaranteed that I will be there and not busy with another student, BUT feel free to drop in between 1:30 and 3:30 p.m. on Fridays if you see my office door ajar! NOTE: Office hours are cancelled during reading week (Friday February 23) and on the Good Friday holiday (Friday March 30).

Teaching Assistant: Kristen Chaisson   Office Hours: To be listed on D2L

COURSE DESCRIPTION and LEARNING OUTCOMES

Since this is a graduate course in social statistics, I assume that students have some familiarity with statistical logic and techniques. Students who are rusty on the basics of descriptive and/or inferential statistics should independently review the pertinent material in an introductory social statistics text during the first couple of weeks of classes. It is possible that you still own a statistics textbook from an undergraduate course you took in the past. If you liked this book, I encourage you to go back to it and reread pertinent sections. If you don't own an undergraduate statistics textbook, please borrow one from a friend or the library for the balance of this term. At the very least you will need this textbook to consult the tables for the normal, t, F and Chi Square distributions.

This course is designed to give students a general introduction to the use of linear statistical models in social research, a detailed working knowledge of the quantitative technique multiple regression analysis as it is used on data from non-experimental research, and a working knowledge of the quantitative technique logistic regression analysis (used when the dependent variable is measured at the categorical level). Among the topics covered in the course are:

(1) the statistical principles and assumptions underlying multiple regression;
(2) how to check for violations of assumptions, and take corrective action when certain assumptions are violated;
(3) how to include categorical independent variables in a multiple regression equation;
(4) correct interpretations of the output from a multiple regression analysis;
(5) how to test for and interpret interaction effects in multiple regression;
(6) how to undertake a multiple regression analysis utilizing the statistical software package Stata;
(7) the common errors, which are made by those who use multiple regression;
(8) the extension of multiple regression analysis to structural equation models with observed variables (path analysis);
(9) correct interpretations of the output from logistic regression analysis for a binary categorical dependent variable;
(10) how to undertake a logistic regression analysis using Stata; and
(11) introduction to logistic regression analysis for an ordinal categorical dependent variable.

By the end of this course, students will be able to:
* knowledgeably read and comment on published research studies that deploy multiple linear regression analysis or logistic regression analysis for a dichotomous dependent variable;
* accurately interpret all of the descriptive and inferential statistics found in a multiple regression analysis;
* accurately interpret all of the descriptive and inferential statistics found in a logistic regression analysis for a dichotomous dependent variable;
* competently undertake multiple regression and logistic regression analyses using Stata
* explain the assumptions underlying the techniques of multiple regression and logistic regression;
* test for violations of the assumptions of multiple regression and logistic regression
* apply techniques that correct for violations of the assumptions of multiple regression and logistic regression;
* test for and model statistical interaction between two independent variables in both multiple regression and logistic regression analyses; and accurately calculate, present and interpret the coefficients that capture how the effect of one independent variable on the dependent variable is moderated by the second independent variable;
* accurately calculate and interpret the indirect and total effects of a particular independent variable on a dependent variable, as mediated by one or more intervening variables as specified in a path model.

REQUIRED BOOKS

(1) An undergraduate statistics textbook for reference purposes. This book should include the four sampling distribution tables we will refer to: normal curve, t, chi-square and F. I recommend borrowing a textbook if you don't already own one.

(2) Allison, Paul D. 1999. *Multiple Regression: A Primer*. Thousand Oaks CA: Pine Forge Press. [Referred to as ALLISON in the schedule of required readings.]

(3) Fox, John. 1991. *Regression Diagnostics. Quantitative applications in the Social Sciences, no. 79.* Newbury Park, CA: Sage. [Referred to as FOX in the schedule of required readings.]

(4) Long, J. Scott and Jeremy Freese. 2014. *Regression Models for Categorical Dependent Variables Using Stata, Third Edition.* College Station, Texas: STATA Press. [Referred to as LONG and FREESE in the schedule of required readings.]

ASSIGNED READINGS

The schedule of assigned readings will be posted on D2L. My recommendation is to glance at upcoming assigned readings before our lecture period and then read them in detail after the lecture is concluded.

STUDENT EVALUATION

First Assignment (due Tuesday 30 January at the beginning of class)
-- worth 5%

First Mid-Term Test (Thursday 8 February at 12:30 p.m. in Craigie Hall E 106)
-- covers all course material between January 8 and February 8
-- worth 25% or 30% (whichever is most favourable to you)

Second Assignment (due Tuesday 6 March at the beginning of class)
-- worth 5%

Second Mid-Term (Thursday 15 March at 12:30 p.m. in Craigie Hall E 106)
  -- covers all course material between January 8 and March 15
  -- worth 25% or 30% (whichever is most favourable to you)

Third Assignment (due Tuesday 3 April at the beginning of class)
-- worth 5%

Take-Home Practice Research Study
-- you will be asked to undertake an original secondary data analysis employing multiple linear regression, path analysis or logistic regression and submit an academic report on your analysis
-- guidelines will be handed out no later than 15 February
-- due date is Thursday 19 April, 4 p.m., in the D2L Dropbox
-- worth 30%

IMPORTANT CONVENTIONS

(1) **Late Penalty**. Except in the cases of documented illness, or extenuating circumstances brought to the teaching assistant's attention before the due date of an assignment, or the instructor's attention before the 19 April due date of the Take-Home Practice Research Study, a penalty of 20% of the assigned mark per day (prorated for part days) will be assessed on a late assignment, and a penalty of 10% of the assigned mark per day (prorated for part days) will be assessed a late Take-Home Practice Research Study.

(2) **Completion of Assignments is Mandatory.** Except in the cases of documented illness, or extenuating circumstances brought to the instructor's attention at the earliest possible date, a student who fails to hand in an assignment, with all questions answered, within one week of the due date, will not only receive a mark of "0" on that assignment because of the late penalty (see above) but will receive a letter grade of "F" for the entire course.

(3) A student who has a legitimate reason for being unable to write a scheduled mid-term test must discuss an alternative course of action with the instructor. At his discretion, the instructor will transfer the percentage weight to another component of the course, or set a make-up test. Make-up tests must be written as soon as possible at a scheduled Department of Sociology make-up test session.

(4) All requests for deferral of a course component due to health reasons must be accompanied by written documentation as outlined in the University Calendar and should be obtained while the student has the health issue rather than after recovery. Please note that travel arrangements, holiday plans, misreading the syllabus, and scheduling conflicts with other classes or employment are not normally valid reasons for requesting a deferral. A deferral will not be granted unless, in the instructor's opinion, a just cause for the deferral has been shown and documented by the student.

(5) How to arrange for deferred work at the end of a term.

Deferred Term Work Form: Deferral of term work past the end of a term requires a form to be filled out. It is available at https://www.ucalgary.ca/registrar/student-forms. Once an extension date for deferred term work has been agreed between instructor and student, the form should be taken to the Arts Students' Centre (SS 102) for approval by an Associate

Dean (Students).

(6) The quality of a student's writing is a factor in the evaluation of a student's work in this course.

(7) "Intellectual honesty is the cornerstone of the development and acquisition of knowledge" (see section K.4 of the Academic Regulations in the 2017-18 *Calendar*, found on the U. of C. website). Please review the University of Calgary's policies for dealing with student misconduct, particularly plagiarism and cheating, found in section K.5 of the Academic Regulations in the *Calendar*.

(8) Handing in assignments outside of class, return of tests and assignments, and release of final grades.

1. When students are unable to submit assignments as scheduled in class, they should make arrangements to hand in the assignments directly to the teaching assistant. Papers will not be accepted in the main Sociology Department office.
2. Assignments and mid-terms will not be returned through the main Sociology Department office. The Freedom of Information and Privacy (FOIP) legislation disallows the practice of having students retrieve assignments from a public place (i.e. outside an instructor's office, the department office etc.). Students who want any of their work returned by mail must supply a stamped, self-addressed envelope to the instructor. Otherwise unclaimed assignments or mid-terms will be available for pick-up only at a scheduled class/lab or from the instructor's office during scheduled office hours or by appointment.
3. Final grades are not posted by the Sociology Department. They are available only online.

(9) **Ethics of Research:** Students are advised that any research with human subjects -- including any interviewing (even with friends and family), opinion polling, or unobtrusive observation -- must have the approval of the Faculty Ethics Committee. In completing course requirements, students must not undertake any human subjects research without discussing their plans with the instructor, to determine if ethics approval is required.

(10) *Emergency evacuations.* In the case of fire or other emergency evacuation of our classroom in Craigie Hall, please proceed to the emergency assembly point at Professional Faculties -- Food Court. In the case of fire or other emergency evacuation of the Arts Faculty Computer Lab, please proceed to the emergency assembly point at Professional Faculties -- Food Court. You can check the emergency assembly point locations for all of your classes at: http://www.ucalgary.ca/emergencyplan/assemblypoints

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(11) Academic Accommodation
Students who require academic accommodation because of a disability or health condition need to register with Student Accessibility Services (MSC 452, telephone 220-8237) in accordance with the Student Accommodation Policy found at:
http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy
Academic accommodation letters need to be provided to course instructors no later than fourteen (14) days after the first day of class. It is a student's responsibility to register with Student Accessibility Services and to request academic accommodation, if required.

Students needing an Accommodation based on a Protected Ground other than disability or health condition should communicate this need, preferably in writing, to the course instructor.

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(12) **Student Representation**. The 2017-18 Students' Union VP Academic is Tina Miller (suvpaca@ucalgary.ca). For more information, and to contact other elected officials with the Student's Union, please visit this link: https://www.su.ucalgary.ca/about/who-we-are/elected-officials/ You may also wish to contact the Student Ombudsperson for help with a variety of University-related matters: http://www.ucalgary.ca/ombuds/contact

(13) **Safewalk**. The University of Calgary provides a "safe walk" service to any location on Campus, including the LRT, parking lots, bus zones, and campus housing. For Campus Security/Safewalk call 220-53333. Campus Security can also be contacted from any of the "Help" phones located around Campus.

LETTER GRADE ASSIGNMENT

At the end of the term numerical marks are totaled and a final letter grade is assigned on the following basis:

Percentage Range	Letter Grade	Percentage Range	Letter Grade
49 or less	F	62-69	B-
50-55	D	70-75	B
56-61	C	76-81	B+
		82-87	A-
		88-93	A
		94 or higher	A+