

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

SOCIOLOGY 611 (Social Statistics: General Linear Model)

Course Outline, Fall 2014

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 924

Office Hours between September 9 and December 4: Monday afternoons (between noon and 5:45 p.m.). It is best to send an email ahead of time to let me know you are coming, BUT feel free to drop in if you see my office door ajar! NOTE: Office hours are cancelled on Thanksgiving (October 13) and on Reading Day (November 10).

Teaching Assistant: Alicia Polachek ajpolach@ucalgary.ca
Office Hours: will be posted on D2L

COURSE DESCRIPTION

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 ... well it just so happens that I have a few "loaners" available to be borrowed. You can borrow one of these books at the first class.

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 nominal or categorical level). Among the topics covered in the course are:

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- (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; and
- (10) how to undertake a logistic regression analysis using STATA.

REQUIRED BOOKS and CHAPTERS

- (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.
- (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) Hamilton, Lawrence C. 2013. *Statistics with STATA*, updated for version 12. Brooks/Cole. [Referred to as HAMILTON in the schedule of required readings.]
- (4) 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.]
- (5) Menard, Scott. 2002. *Applied Logistic Regression Analysis*, second edition. *Quantitative applications in the Social Sciences*, no. 106. Newbury Park, CA: Sage. [Referred to as MENARD in the schedule of required readings.]
- (6) Pedhazur, Elazar. 1997. "Matrix Algebra: An Introduction." Appendix A in *Multiple Regression in Behavioral Research: Explanation and Prediction*, third edition. Fort Worth: Harcourt Brace. [A personal copy of this chapter will be available for photocopying from the Graduate Administrator. In addition I have asked that the Library's copy of this book be placed in the Reserve Room.]
- (7) Pedhazur, Elazar. 1997. "Structural Equation Models with Observed Variables: Path Analysis." Chapter 18 in *Multiple Regression in Behavioral Research: Explanation and Prediction*, third edition. Fort Worth: Harcourt Brace. [Same arrangement as # 6.]

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ASSIGNED READINGS

The schedule of assigned readings can be found on D2L. It is subject to change depending upon how quickly we move through particular course components. 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 September at the beginning of class)
-- worth 5%

First Mid-Term Test (Thursday 9 October at 12:30 p.m. in SS 921)
-- covers all course material between September 9 and October 9
-- worth 20% or 30% (whichever is most favourable to you)

Second Assignment (due Tuesday 28 October at the beginning of class)
-- worth 5%

Second Mid-Term (Thursday 13 November at 12:30 p.m. in SS 921)
-- covers all course material between September 9 and November 13
-- worth 20% or 30% (whichever is most favourable to you)

Third Assignment (due Tuesday 2 December at the beginning of the class)
-- worth 5%

Take-Home Practice Research Study
-- you will be asked to undertake an original secondary data analysis employing multiple regression, path analysis or logistic regression and submit an academic report on your analysis
-- guidelines handed out no later than October 9
-- due date is Monday December 22 (in SS 924 no later than 4:00 p.m.)
-- worth 35%

IMPORTANT CONVENTIONS

(1) Except in the cases of documented illness, or extenuating circumstances brought to the attention of the teaching assistant (in the case of Assignments) or instructor (in the case of the Take-Home Practice Research Study) prior to the due date of a particular course component, there will be a penalty for late work of 5% of the assigned grade per day.

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(2) A student who is unable to write a 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 another Test.

(3) The quality of a student's writing is a factor in the evaluation of a student's work in this course. This is particularly the case in the evaluation of the Take Home Practice Research Study.

(4) The Mid-Term Tests are closed book and will include a mix of True/False, multiple choice, problem solving, short answer and interpretation questions. The instructor will provide a list of formulae and statistical tables that students can consult during the writing of each Mid-Term. The use of calculators is permitted during a Mid-Term although all information in the calculator's memory must be deleted prior to the beginning of a test.

(5) "Intellectual honesty is the cornerstone of the development and acquisition of knowledge" (*Calendar 2014-15*, p. 52). Please review the University of Calgary's policies for dealing with student misconduct, particularly plagiarism and cheating (see pp. 52-55 of the *Calendar*).

(6) The main Sociology Department office does not deal with any course-related matters. You must pass in assignments in class or make a special arrangement with Alicia to give your assignment directly to her. You must pass in your Take-Home Practice Research Study directly to Tom in SS924 either on the afternoon of December 22 or at a mutually agreeable time.

(7) Academic Accommodation

Students who require academic accommodation need to register with Student Accessibility Services (MSC 452, telephone 220-8237). 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

(8) The grades for a course component may be scaled to maintain equity among sections and to conform to departmental norms.

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(9) ***Emergency evacuations.*** In the case of fire or other emergency evacuation of the lecture classroom (SS 921) or the Arts Faculty Lab, please proceed to the assembly point in the Professional Faculties Food Court. The back-up assembly point is the Education Block Food Court.

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+