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

SOCIOLOGY 315-02 (Introductory Social Statistics II)

Course Outline, Winter 2017

Safewalk/Campus Security: 220-5333, ANYTIME (Campus Security can also be contacted from any of the "Help" phones located around Campus)

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   Office: SS 924   langford@ucalgary.ca
Office Hours: Thursdays, 3:00 to 5:00 p.m., or by appointment (please email a request). NOTE that office hours are **cancelled** on Thursday Feb. 23 and Thursday March 16.

Email guidelines: Please use email to inform me of something important (e.g., you are sick and will be missing the mid-term test), to ask a question that I can answer with a simple Yes or No (e.g., Is the confidence interval for proportions covered on the mid-term test?) or to book an appointment outside of the scheduled times for office hours. For more complicated questions and discussions, please speak to me in person.

Teaching Assistants: Salome Boateng and Wyatt Anton
Contact information and office hours for Salome and Wyatt will be posted on D2L.

COURSE DESCRIPTION

This is the second of two introductory courses on the basic statistical logic and techniques that are employed in quantitative social research using data from survey research. It reviews: (A) inferential statistical logic and techniques; and (B) correlation and simple linear regression. It then covers (C) multivariate cross-tabulation analysis; (D) multiple regression analysis; (E) dummy variable regression (in which nominal-level explanatory variables are included in a regression model through the creation of dummy variables); (F) the whys and wherefores for the multiple indicator measurement of concepts, including checks for measurement reliability and validity; (G) testing whether two explanatory variables statistically interact in affecting a dependent variable, and if they do, how to interpret the statistical interaction (both when conducting a multivariate cross-tabulation analysis or a multiple regression analysis); (H) using path analysis to distinguish indirect causal effects from direct causal effects; and (I) understanding published research that reports multiple regression analyses.

The instructor assumes that students are familiar with the descriptive statistics for one and two variables that are covered in the prerequisite course, SOCI 311, and have been introduced to inferential statistical logic and techniques. Students will learn the material through lectures, readings, problem solving, participation in laboratory sessions and completion of assignments. A major objective of the labs is to increase students' proficiency when analyzing sociological data using statistical software packages. At different points in this course we will use either STATA or the Statistical Package for the Social Sciences (SPSS) to conduct our analyses. (The advantage of using two different packages is that you can list both of them on your resume!)

In general, students should be able to deal with the material in this course if they attend <u>all</u> lectures and labs, approach the readings systematically, complete assigned problems every week, carefully and thoroughly complete the assignments on time, and are sure to ask questions on any points which puzzle them. Students will find that the material in this course gets progressively more difficult throughout the term. Consequently, it is imperative that you do not fall behind in your work.

CLASSROOM DECORUM

We should all conduct ourselves in ways that are respectful of everyone else in our learning environment. How this general principle applies to coming to class late, using electronic devices during lectures, chit chatting with the person next to you, attempting to multitask during lectures, etc., will be discussed at our first class and whenever needed throughout the term. As the lecturer, I will let you know (often right on the spot) if something you are doing disrupts my concentration. In addition, since you should be paying attention to lecture material at all times, I will not hesitate to ask you a question coming out of the flow of the lecture, whether you seem to be paying attention or not! Always be prepared to participate since you never know when I will call upon you.

REQUIRED TEXTS

Healey, Joseph F. and Steven G. Prus. 2016. *Statistics: A Tool for Social Research*, Third Canadian Edition. Toronto: Nelson Education.

Allison, Paul D. 1999, *Multiple Regression: A Primer*. Thousand Oaks, CA: Pine Forge Press.

REFERENCE BOOKS ON USING STATA

You will find pdfs of three STATA reference manuals on D2L:

(1) GETTING STARTED WITH STATA FOR WINDOWS
(2) STATA USER'S GUIDE RELEASE 14
(3) STATA MULTIVARIATE STATISTICS REFERENCE MANUAL RELEASE 14

You will find three books on using STATA on one-hour reserve in the TFDL:
(1) Longest, Kyle C. 2014. *Using Stata for Quantitative Analysis, second edition*. London: Sage Publications. [Note that there is a reasonably priced Kindle version of this book.]
(2) Longest, Kyle C. 2012. *Using Stata for Quantitative Analysis*. London: Sage.
(2) Hamilton, Lawrence C. 2013. *Statistics with STATA, updated for Version 12*. Boston: Brooks/Cole.

STUDENT EVALUATION

(1) **Three Assignments**
    (A) Due Dates: Assignments are due on:
1. Thursday 2 February at 9:30 a.m. at the beginning of class.
2. Thursday 9 March at 9:30 a.m. at the beginning of class.
3. Thursday 6 April at 9:30 a.m. at the beginning of class.
    (B) Working Time: a minimum of nine days, including two lab sessions
    (C) Value: .... 21% (each valued at 7%)

(2) **Mid-Term Test # 1**
    (A) Time: Tuesday 14 February, 15:30 to 18:00
    (B) Content: All readings, lectures, lab material, assignments and exercises up to 14 February
    (C) Value: .... 15% or 25%, whichever is most favourable to you

(3) **Mid-Term Test # 2**
    (A) Time: Tuesday 21 March, 15:30 to 18:00
    (B) Content: All readings, lectures, lab material, assignments and exercises up to 21 March, with an emphasis on material covered after the first mid-term test
    (C) Value: .... 15% or 25%, whichever is most favourable to you

(4) **Computer Quiz**
    (A) Time: Tuesday 11 April, 15:30 to 16:15
    (B) Location: Arts Faculty Computer Lab
    (C) Content: All computer work covered in labs between 10 January and 4 April
    (D) Value: 4%

(5) **Registrar-Scheduled Final Examination**
    (A) Time: To be scheduled by the Registrar's Office. Please do not make plans for mid- to late-April until after the Registrar's exam schedule is released. No requests to write the final examination in a special time slot will be entertained.
    (B) Content: The final examination is cumulative. You will be tested on all readings, lectures, lab material, assignments, exercises and test questions from the beginning of the course until the end, with an emphasis on material covered after the second mid-term test.
    (C) Value: .... 25%, 35% or 45%, whichever is most favourable to you

LETTER GRADE ASSIGNMENT

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

Percentage Range	Letter Grade
49 or less	F
50-53	D
54-58	D$^+$
59-62	C-
63-66	C
67-71	C$^+$
72-75	B-
76-79	B
80-84	B$^+$
85-89	A-
90-94	A
95 or higher	A$^+$

IMPORTANT NOTES

(1) Late Penalty. Except in the cases of documented illness, or extenuating circumstances brought to a teaching assistant's attention before the due date of an assignment, a penalty of 20% of the assigned mark per day (prorated for part days) will be assessed on late assignments.

(2) 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.

(3) 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.

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

Deferred Final Exam Form: Please note that requests to defer a Registrar-scheduled final exam are dealt with through the Registrar's Office. Further information about deadlines, and where paperwork should be taken, is available on the form, which can be found at: https://www.ucalgary.ca/registrar/student-forms

Deferred Term Work Form: Deferral of term work past the end of a term also requires a form to be filled out. It's 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).

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

(6) "Intellectual honesty is the cornerstone of the development and acquisition of knowledge" (see section K.4 of the Academic Regulations in the 2016-17 *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 *Calendar*.

(7) 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 one of the teaching assistants. 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 will be available for pick-up only 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.

(8) 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 Departmental 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.

(9) Academic Accommodation
Students with a disability, who require academic accommodation, need to register with Student Accessibility Services (MSC 293, telephone 220-8237) in accordance with the Procedure for Accommodations for Students with Disabilities available at http://ucalgary.ca/access/. 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.

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

(11) *Emergency evacuations.* In the case of fire or other emergency evacuation of one of our classrooms in Math Sciences, please proceed to the emergency assembly point at Social Sciences -- 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

(12) **Student Representation**. The 2016-17 Students' Union VP Academic is Alicia Lunz (suvpaca@ucalgary.ca). The Faculty of Arts has four SU representatives who may be contacted at any of the following email addresses: arts1@ucalgary.ca, arts2@ucalgary.ca, arts3@ucalgary.ca, and arts4@ucalgary.ca. You may also wish to contact the Student Ombudsperson for help with a variety of University-related matters: http://www.ucalgary.ca/provost/students/ombuds/role

(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.

ASSIGNED READINGS

It is recommended that you skim an assigned reading prior to the lecture(s) when it is covered, and read it in detail shortly after the lecture. The "due dates" for assigned readings will be added on D2L as we go through the course. Note that all page numbers for Healey and Prus are for the Third Canadian Edition.

(A) Inferential Statistical Logic and Techniques
(1) Healey and Prus, Chapter 5, pp. 144-158. (review)
(2) Healey and Prus, Chapter 6, pp. 162-178 and 180-188. (Skip section 6.10 "Determining Sample Size"). (review)
(3) Healey and Prus, Chapter 7, pp. 195-225 (skip section 7.8 at the end of the chapter). (review)
** Note. The null hypothesis on p. 212 is incorrect. See if you can come up with the correction.
(4) Healey and Prus, Chapter 8, sections 8.1 to 8.3 only, pp. 235-244. (review)
(5) Healey and Prus, Chapter 8, sections 8.4 to 8.7, pp. 245-256. (review)
(6) Healey and Prus, Chapter 9, pp. 268-273 and pp. 276-283 (skip sections 9.4, 9.5 and 9.9).

(B) Correlation and Simple Linear Regression
(7) Healey and Prus, Chapter 13, pp. 404-429. (review)
(8) Paul Allison, Chapter 5, "How Does Bivariate Regression Work?" pp. 97-115.

(C) Multivariate Cross-tabulation Analysis
(9) Bonus Healey and Prus chapter, "Elaborating Bivariate Tables," pp. 1-10 only (Pdf available on D2L).

(D) Basics of Multiple Regression Analysis
(10) Paul Allison, Preface and Chapter 1, "What is Multiple Regression?"
(11) Healey and Prus, Chapter 14, pp. 451 to 470 only.
(12) Paul Allison, Chapter 3, "What Can Go Wrong With Multiple Regression?"

(E) Dummy Variable Regression
(13) Bonus Healey and Prus chapter, "Linear Regression with Dummy Variables" (Pdf available on D2L)
(14) Paul Allison, pp. 80-81 on creating a set of dummy variables

(F) Multiple Indicator Measurement of Concepts
(14) Handout by Dr. Langford to be posted on D2L

(G) Statistical Interaction
(15) Paul Allison, section 8.6, "What is Interaction?" pp. 166-169 and section 8.7, "How Do I Interpret Interactions With Dummy Variables?" pp. 169-171.

(H) Path Analysis
(16) Paul Allison, section 9.5, "What is Path Analysis?" pp. 177-178.

(I) Understanding Published Research that Reports Multiple Regression Analyses
(17) Paul Allison, Chapter 2, "How Do I Interpret Multiple Regression Results?"