

**The Department of Sociology and Anthropology**  
**Sociology 5102F, Fall Term 2025**  
**Multiple Regression Analysis**

**Instructor:** Dr. Zhiqiu Lin

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**Class and Lab Meeting Time:**

weekly classes: 11:35 am - 1:25pm, Tuesdays

computer labs: 1:35 pm -2:25 pm, Tuesdays

(the first class is on September 9th; no class on October 21<sup>st</sup> and the last class on December 2<sup>nd</sup>.)

Office Hours: 10:20 -11:20 am, Tuesdays, Loeb 792 or at the classroom

**Method of Delivery:** in person at Carleton University Campus

**Course Description:**

This course is designed to familiarize the students with the basic properties of the general linear models, and to give students the detailed working knowledge of multiple regression analysis including both OLS and logistic regression analysis, as they are the very foundations for studying any other multivariate statistical methods. The course will concentrate on many practical issues concerning the applications of multiple regression analysis, such as regression assumptions, diagnostic procedures, modeling categorical independent and dependent variables (i.e., dummy/binary variables) and statistical interactions.

This is a graduate course in applied quantitative research methods. Therefore, the course materials will be presented based on the assumption that the students who enroll in this course have already completed an undergraduate course in social statistics, such as SOCI 3002, or have good working knowledge of basic statistics. This implies that the students have a thorough understanding of basic statistical concepts such as variance, standard deviation, correlation, and statistical inferences, hypothesis testing, and good working knowledge of simple linear regression analysis. Students who are weak on descriptive or inferential statistics should independently review the related materials in an introductory social statistics textbook before and during the first two weeks of the term. Elifson's Fundamentals of Social Statistics (3rd edition) provides useful discussions of these topics.

Students are expected to learn the course materials through lectures, readings, problem solving and participation in computer laboratory sessions. Computer labs are an important component of this course; they are designed to familiarize students with basic SAS programming and to give each student "hands-on" experience with SAS programming in retrieving, managing, and analyzing social science data using various statistical methods including the general linear models and related statistical techniques.

Please note that as this is a graduate course with a limited class meeting time, the past students have characterized the course works heavy including readings, computer lab works, assignments, and a final research project. Therefore, *students are expected and should prepare to spend a considerable amount of time in studying course materials and SAS, and in completing course assignments and a final research project independently. The instructor will be happy to answer any questions in their studies but will not provide the answers to the assignments. In addition, all the teaching contents described in the course outline are necessary components of the course and any requests to cut course components will not be considered.*

The Chicago author-date citation style (17th edition) is to be used in the assignments and papers of this course. For more information, please see:

[https://www.chicagomanualofstyle.org/tools\\_citationguide/citation-guide-2.html](https://www.chicagomanualofstyle.org/tools_citationguide/citation-guide-2.html)

## **Course Requirements & Methods of Evaluation:**

### **1) Assignments**

- (a) There will be three assignments (worth 15% each). Each assignment is worth 15% of the final grade, which will involve some calculations either by hand (in the first assignment only) or by the computer; and interpretations of the results of statistical analysis are also major components of each assignment. The assignments in hardcopy should be submitted in class.
- (b) Value: 45% in total.
  - Due date for assignment #1: *October 7th*
  - Due date for assignment #2: *November 11th*
  - Due date for assignment #3: *December 2nd*

### **2) Presentation of the final research project proposal (5%)**

**Presentation Date: December 2nd**

During the class on December 2nd, each student will have 5-10 minutes to present her/his research proposals to the class; the instructor and students will have opportunities to provide comments and suggestions regarding the proposals respectively and the presenters may be required to answer some questions about their proposals.

This assignment is designed to encourage students to have a head-start on their final research projects. A research proposal should meet the following requirements:

- (1) The length of the proposal should be no more than 800 words.
- (2) The proposal should contain the following components (which will also be used as the evaluation criteria):
  - (a) A tentative title of your research project, which indicates clearly the substantive content and the focus of the projects.
  - (b) Thesis statements. In this section, a clear definition of research topic should be clearly articulated.
  - (c) Discussions of the significance of your proposed research in terms of theoretical and practical policy implications. In other words, the proposal should discuss how the research issues are related to some major themes and debates in your research areas.
  - (d) Preliminary literature reviews. Through the literature reviews, you can answer the questions of what has been done in the existing research literature regarding the topic. Usually this is the place where one also talks about different arguments/theories regarding your research questions or the pros and cons of various theoretical positions and how your research would relate to the exiting research and debates.

(e) Discussions of the questions such as what contributions your research could make in the context of the existing literature and research.

(f) An indication of sources of data that will be used in your research.

(g) the proposal presentations will be evaluated based on both the written proposal and its in-class presentation.

### **3) Independent take-home practice research project**

(a) the guideline for the project is posted on the Carleton Course webpage.

(b) *Due day: December 20, 2025 in the course webpage drop box*

(c) Value: 50%.

(Please note that if anyone needs an extension after the due date, please contact the course instructor so that we can contact the departmental graduate studies office to arrange for a final paper deferral).