

**SYA 6407 Quantitative Research Methods &  
CCJ 6705 Research Methods in Crime, Law and Justice**  
Spring 2024

Thursdays 3:00 – 6:00 pm

Class Location:  
Turlington 2342

Professor Edo Navot  
Department of Sociology and Criminology & Law  
Office: Turlington Hall, Room 3356  
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Office hours:  
Tuesdays, 3:00 pm – 4:00 pm  
Wednesdays, 3:30 pm – 4:30 pm  
*or by appointment*

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INCLUDE “SYA 6407” OR “CCF 6705” IN SUBJECT OF YOUR EMAIL  
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**Required Readings:**

Gordon, Rachel A. Applied Statistics for the Social and Health Sciences. Routledge; 1st edition (May 9, 2012).

Any other readings will be provided as pdf files on Canvas.

**Course Description:**

This course serves as an overview of the principles, interpretation, and application of multivariate regression. Most of the semester will focus on the types of regression used when the dependent variable is continuous. In the last third of the class we will introduce the type of regression utilized when the dependent variable can only take the values of “0” and “1.” The course will build upon your previous knowledge of statistics and probability. In addition, the course is structured to continue your previous work developing research projects. A secondary goal of the course is to teach you how to think statistically. By this I mean at least three things: First, thinking about how social phenomena can be conceptualized through probability theory and modeled using regression. Second, thinking about how human behavior and institutions complicate statistical inference and helping you develop a critical eye for the limits of statistical practice. Finally, we will begin touching upon how to analyze data in a way that will allow you to make causal arguments (in effect, how to try to overcome the limits in point 2).

**Overview of the class, schedule, and due dates:**

Week	Date	Chapter	Topic	HM	Rsrch Proj Due
1	11-Jan	1 & 2	Organizational meeting, "statistical thinking", quantitative research projects		
2	18-Jan	3.3.2-3.3.4 & 4.3-4.6	Setting up data, coding, setting up research proj <i>HM1 given</i>		
3	25-Jan	6 & 7	Sample vs. population, sampling distributions, and intro to inferential stats.		Research proposal
4	1-Feb	8	Bivariate regression <i>HM2 given</i>	HM1 due	
5	8-Feb	9	Multiple regression		
6	15-Feb	10	Dummy variables <i>HM3 given</i>	HM2 due	
7	22-Feb	11	Interactions		
8	29-Feb	12	Non-linearity <i>HM4 given</i>	HM3 due	
9	7-Mar	13	Indirect effects & omitted variable bias		Proposal revisions
10	14-Mar		<i>No Class - Spring Break</i>		
11	21-Mar	14	Relaxing assumptions: outliers, heteroskedasticity & multicollinearity <i>HM5 given</i>	HM4 due	
12	28-Mar	<i>PDFs</i>	Intro Causality		Data and methods
13	4-Apr	15	Generalized Linear Models I	HM5 due	
14	11-Apr	15	Generalized Linear Models II		
15	18-Apr	16	Dichotomous Outcomes		
	28-Apr				Research results writeup

**Research results writeup (i.e. your final project) is due at 10pm on April 28<sup>th</sup>.**

\*\*\*NOTE\*\*\*

The above schedule should be considered aspirational. As we progress through the semester and I learn your capabilities and needs, we may need to revise the schedule, most likely spending more time than allotted above for certain topics. Please expect changes in response to how we progress and manage.

### **Statistical Software**

Our primary statistical tool will be Stata, which can be accessed through [UF Apps](#) or purchased at a student discount from [Stata Corp at various price points and conditions](#). We will be learning to use Stata because it is by far the dominant tool for empirical analysis and statistical programming in the social sciences. It also provides an environment that is incredibly powerful and relatively approachable. By learning applied statistical analysis using Stata, you can devote more energy to understanding statistical concepts and less time focusing on how to implement those concepts in computer code.

Our textbook will teach both Stata and SAS side-by-side. We will focus our attention on Stata when doing demonstrations in class, when doing homework and performing applied analysis. If you wish, you can follow and review the SAS code independently. The main reason to do so is because SAS remains a very common tool in the private sector and government. If you think you might consider jobs in these sectors, you should consider independently reviewing SAS code.

I know that many students are interested in learning R and the fact that R is free and open source makes it very attractive. I will take this opportunity to explain why we won't be learning R very much in this course. Previously, R was dominant only among academic statisticians. However, with the rising popularity of machine learning, commercial interests have also recently begun a concerted effort to encourage adoption in R in the private sector. While use of R is growing in all sectors, including academic social science, it remains secondary in most sectors. More importantly, the R language is much more difficult to learn than Stata. I have previously taught a masters-level applied econometrics course using R and I found that students struggled to learn both the R language and statistical theory at the same time. Finally, R remains ill-equipped to analyze publicly available survey data, which is the bread and butter of sociology.

### **Statistical Thinking**

Thanks to advances in computing power and the availability of extraordinarily powerful statistical software, empirical analysis has become very easy. To put it bluntly, running a regression requires almost no skill. However, knowing when to run what kind of regression/analysis given your research questions and the nature of your data, identifying the limits of regression and statistical inference, knowing what assumptions are being made in any given circumstance, correctly interpreting your analytical results, checking your analysis for robustness, and other aspects of empirical research are much more difficult. In addition, this list of tasks is more tricky than you will realize when you begin your career as quantitative analysts. This course will therefore emphasize understanding of concepts and correct application of concepts. You will learn to always think critically and reflexively about your own research. I

also encourage you to be careful, cautious, and exercise intellectual humility in attempting quantitative analysis.

### **Attendance**

You are expected to attend every class. If you are unable to attend, please notify me via email before class. Each student is permitted one absence. You must make up all work missed. If extenuating circumstances lead to multiple absences, contact me and we will determine the best course of action together.

### **Professional Conduct**

Sociology and criminology deal with many controversial and contested concepts. As we engage in discussion, critically evaluate theories and empirical findings, and review each other's work, diverse views are inevitable and valuable. Accordingly, I expect each member of this class to treat colleagues with courtesy, respect, and professionalism, even if you disagree with the views or positions they hold. Of course, harassment and intolerant language of any type are not acceptable under any circumstances.

### **Course assignments and requirements**

Course work will consist of homework assignments as well as a research project, described below.

#### ***Homework assignments***

You will do a total of 5 homework assignments throughout the semester, all drawn from the textbook. These assignments are essential for helping you learn both the theoretical and practical aspects of applied statistical analysis. Learning statistics is like learning a language; you will learn it by practicing it. Regular homework assignments, while challenging in pace and rigor, will be the primary way you internalize this knowledge.

Each homework assignment will be graded on a scale of 0-100 and each assignment will count for a total of 10% of your final grade. All the homework assignments together will determine 50% of your final grade.

#### ***Research project***

Over the course of the semester, you will continue developing the research project you began last Fall. There will be three components to your research projects:

##### ***Proposal***

On January 28 you will hand in a written research proposal. The proposal will consist of 10% of your final grade. This proposal should be based upon work started last semester. If you wish to change your project and start fresh, you must discuss this with me. Successfully completing the

research project portion of this class depends in large part on already having a ready data set and a research question formulated before the semester begins. My main concern in considering whether I will approve a change of research topic is its feasibility; your ability to complete the research assignment in the limited time of a single semester.

The proposal will identify the basic research question(s), list the specific aims, describe important theories or conceptual frameworks, identify the data source, and describe the measurement of key concepts for your project.

I will provide you feedback on your proposal and you will hand in a revised version on March 10<sup>th</sup>. The revised proposal will be the basis – the roadmap – of the research you conduct and describe over the course of this semester.

### *Data and Methods*

On March 31<sup>st</sup> you will submit the next component of your research project: a description of the data source and methods you utilize to answer and address the research questions you describe in your proposal. This write-up should be analogous to the “Data,” and “Methods” sections of a published, academic research article. That is:

1. Description of your data source, its content, strengths, and limitations and how these inform your methods and general approach when engaging with the research question. This section will also include a professionally formatted table of descriptive statistics for the variables of interest in your data.
2. The methods you employ in the research project, including the estimand and model you are estimating. The description of methods should be contextualized within and justified by the research question and data.

The data and methods write-up will consist of 20% of your final grade.

### *Results Write-up*

Your final research project during this class will consist of a “write-up” of the analysis and results you describe in your revised research proposal using the techniques and tools you describe in your data and methods write-up. The research project write-up is due on April 28<sup>th</sup>. This write-up should be analogous to the “Data,” “Methods” and “Results” sections of a published, academic research article. The report will have the following elements:

3. *Very* brief introduction of the research question, aims, and agenda.
4. Description of the results you obtain in the course of analyzing the data with the methods you chose. This section should include *both* a table of regression results *and* at least one visualization of the results. This section will also include a narrative explanation and interpretation of the results you obtained and show in your results tables and graphs.

Your final research project is not a complete academic journal style article. It should not include an extended introduction, literature review, policy (or other) implications, or extended discussion and conclusions from your project. However, the above sections of your write-up will constitute the backbone of a fully fleshed-out quantitative academic research project.

The results write-up will be worth 20% of your final grade for the semester.

### **Grading Policy**

You will be graded and evaluated based on your ability to demonstrate accurate comprehension of the source material. You demonstrate your knowledge by correctly performing calculations based on statistical concepts and theory, correctly summarizing statistical ideas and practice in your own words, correctly applying techniques (which includes correct identification of when a particular technique is appropriate given the nature of the data and research questions), and correctly interpreting the results of applied analysis. You will also be evaluated on clarity of exposition in your writing, particularly of statistical concepts. Finally, you will be evaluated on your ability to translate and synthesize sociological or criminological [or other relevant] theory into applied statistical analysis.

It is my pedagogical belief that it is more important for you to learn the knowledge in this course than to grade you based on limited-time assignments. Our homework will therefore be on a two-week cycle. In the first week of each homework cycle, you will complete your homework individually. In the second week of each homework cycle, you will work in groups to collectively correct, revise, and improve your homework. You will hand in homework at the end of each two-week cycle.

The assignments and the percent of your final grade each represents are as follows:

<b>Assignment</b>	<b>Percent final grade</b>
Homework	5 HM, 10% each, 50% total
Proposal	10%
Data and methods	20%
Results write-up	20%

Research and homework assignments will be given a numeric score ranging from 0 to 100. If an assignment does not receive a passing grade, you will have the opportunity to revise the assignment to achieve a passing score (80). Revisions must be submitted within a week after the assignment is returned. Late assignment will receive a ten-point reduction for each day past the due date. I will provide extensions on weekly assignment when there is [reasonable justification, as outlined in the in the attendance policy](#). Reasonable justification includes health and family emergencies, religious obligations, and your requirement attendance at other UF functions & duties. Other requests for extension will be evaluated on an individual basis; I reserve the right to deny extensions. Finally, you need to request an extension before the due date and time. Final grades will be assigned based on the following thresholds:

Percentage	Final Grade
93-100	A
90-92	A-
87-89	B+
80-86	B
0-79	Fail to Pass**

\*\*NOTE: a grade of “B” or higher is necessary to pass this course.

### **Office Hours**

Office hours are your chance to speak to me individually and I strongly encourage you to take advantage of my office hours. If your schedule does not permit you to visit my office during the scheduled hours for this class, we can set another time for individual discussion. To ask for an appointment outside office hours, please email me!

### **Accommodation for students with disabilities**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### **Course Evaluations**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

## **UNIVERSITY POLICIES**

### **Attendance**

Class attendance is required. Please be aware of the [university attendance policy](#) (link).

In response to COVID-19, the following recommendations are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- If you are not vaccinated, get vaccinated. Vaccines are readily available and have been demonstrated to be safe and effective against the COVID-19 virus. Visit [one.ufl](http://one.ufl) for screening / testing and vaccination opportunities.
- If you are sick, stay home. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 to be evaluated.
- As with any excused absence, you will be given a reasonable amount of time to make up missed work.

## **Grading**

The University of Florida has a set system of grading and which grades corresponding to the number of points you have (i.e. percentages of 100). Please familiarize yourself with the [University grading policy](#).

## **Academic Ethics**

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. [Click here to read the Conduct Code](#). If you have any questions or concerns, please consult with the instructor of this class.

## **Recording Class**

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class



section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040.

## **Campus Resources**

### *Health and Wellness*

*U Matter, We Care:* If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.

*Counseling and Wellness Center:* [Visit the Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.

*Student Health Care Center:* Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).

*University Police Department:* [Visit UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).

*UF Health Shands Emergency Room / Trauma Center:* For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).

*GatorWell Health Promotion Services:* For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the [GatorWell website](#) or call 352-273-4450.

### *Academic Resources*

*E-learning technical support:* Contact the [UF Computing Help Desk](#) at 352-392-4357 or

via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).

*Career Connections Center:* Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

*Library Support:* Various ways to receive assistance with respect to using the libraries or finding resources.

*Teaching Center:* Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

*Writing Studio:* 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

*Student Complaints On-Campus:* [Visit the Student Honor Code and Student Conduct Code webpage for more information](#).

*On-Line Students Complaints:* [View the Distance Learning Student Complaint Process](#).