



SOC 3811

Basic Social Statistics

T, 5:30-8, Hanson 1-106

Lab 009: Th 4-5:30, Blegen 440

Lab 010: Th 6-7:30, Blegen 440



Ryan Larson

Instructor

lars3965@umn.edu

<https://ryanplarson.github.io>

Office Location: 1082 Social Sciences

Office Hours: T 9am-11am



DeAndre Beadle

TA

beadl030@umn.edu

<https://pop.umn.edu/content/de-andre-beadle>

Office Location: 1052 Social Sciences

Office Hours: MF 10:30am-12:00pm

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write."

- H.G. Wells

Course Description: If the intellectual dividing line of the early 20th century was linguistic literacy, in the beginning of the 21st century, it may be quantitative literacy. Careers spanning business, politics, law, and journalism increasingly demand skills and responsible interpretation of the statistical analysis of data. At the same time, with frequent references to the findings of polls and studies in news reports, quantitative literacy has become essential to informed citizenship.

SOC 3811 is a social science data analysis course designed for sociology majors and other students who wish to gain a foundation in statistical analysis in the social sciences. In this course I will introduce students to the fundamental principles of the logic and execution of social quantitative research methods and statistics. You will develop skills in critically analyzing and producing social

scientific research by examining issues pertaining to research design, sampling, conceptualization and operationalization of measures, data visualization, and a range of quantitative methods including descriptive, bivariate, and multivariate analyses. In addition to these statistical fundamentals, you will also think about where and when these skills are best put to responsible use. Whether you plan to go to graduate school, go into a data-driven job, or just want to be a better consumer of information, these skills will help students engage critically with quantitative information.

Prerequisite(s): SOC 1001 recommended.

Note(s): This course fulfills UMN Mathematical Thinking Core.

Credit Hours: 3

Text(s):

- Lecture Notes
- Various readings uploaded to Canvas

Course Objectives:

At the completion of this course, you will be able to:

1. Explain how researchers use data and statistical evidence to develop sociological insights.
2. Critically evaluate quantitative claims about the social world.
3. Statistically analyze social data in connection with research questions of interest.
4. Responsibly interpret the results of statistical analyses and summarize results effectively.

Grade Distribution:

Labs	33.33%	10 pts. each, 100 pts.
Short Papers	33.33%	50 pts. each
Project	33.33%	100 pts.

Letter Grade Distribution:

>= 93.00	A	73.00 - 76.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
87.00 - 89.99	B+	67.00 - 69.99	D+
83.00 - 86.99	B	63.00 - 66.99	D
80.00 - 82.99	B-	60.00 - 62.99	D-
77.00 - 79.99	C+	<= 59.99	F

Course Policies:

- **General**
 - All class reading materials, R scripts and data, and other resources will be posted to the class Canvas site.
 - This class will be conducted in-person for the time being. However, both I and the TA will zoom the lecture and lab periods for those who cannot make it to class for any reason. This will be a “hands-on” heavy class. As such, large portions of class and lab time will be utilized for coding and learning the statistical software. There is no need to inform either the instructor or TA if you cannot attend a class session in person, but please do your best to be at each session if possible. If an extended absence is needed, please be incontact with me.

- We will be using R and R Studio for data analysis in the semester. R has a fairly steep learning curve as compared to other statistical software packages, but it is open source and is (or is becoming) the modal software for statistical data analysts. With that being said, the goal this semester is not to become and “expert” in using R, but rather learn the basics of the program, how to perform the data analyses needed, and how to interpret the output. I want you to focus more on the interpretation of these analyses and why they are useful, as opposed to the intricacies of statistical programming.
- Labs will be used to workshop the weekly lab assignments, review lecture material, and to ask questions about lab assignments, short papers, and aspects of the final paper.
- Computers will be used extensively in lab. R and R Studio will be available on the computer lab desktop machines, but if you wish to download the software for your own machine, it is open source. I would recommend installing the software on your own computer if you have access to one. We will discuss how to install the software properly in the first week of class.
- Many studies have shown that people are extremely poor multi-taskers. Looking at Facebook, Twitter, Wikipedia, etc. or even doing Google searches that may seem relevant all distract from lecture and discussion. So, if you plan to use a laptop, please stay focused on lecture and discussion and not be using the Internet. Additionally, mobile phones, in particular texting, may not be used in class unless specifically allowed by the instructor.
- This course will include discussions of class, gender, race, ethnicity, sexuality, and criminality. I expect students to show respect toward all the subjects of our study. We will operate under the assumption that at least one person from each of these groups is represented in the classroom. More importantly, I expect you to treat your classmates and your instructor with respect and dignity at all times - especially when you disagree with them.
- I promise to be prepared, engaged, and as helpful as I can be in each class period, as well as outside of class time. We will be wrestling with new and difficult topic matter during the course of the semester, and I understand it can seem daunting especially given your other responsibilities on and off campus. All I ask is that you give your best effort on each assignment and class period and I promise to reciprocate.

- **Labs and Assignments**

- **Labs:** We will have weekly lab assignments (mainly consisting of data analysis in R) that we will work on both inside and outside of class. Each lab will be handed out on Tuesday of each week and will be due the following Tuesday (unless otherwise noted by the class schedule, see below). Any variations in the due date will be discussed in class. These assignments will guide you through how to perform the statistical analyses in R, and will be workshopped during lab time. Each Lab will be a formatted R Markdown file, which you will fill out and turn in via Canvas.
- **Short Paper 1:** Select an empirical article published since 2000 from one of the following journals: *American Journal of Sociology*, *American Sociological Review*, *Social Problems*, *Social Forces*. The paper must have quantitative analyses, and it is essential that it is empirical and not fundamentally theoretical (please see me if you have any questions about this). After carefully reading the article, complete the worksheet below in a new document. Do NOT simply quote the abstract. Write in your own words. This

paper should be 2-3 pages single spaced. Try not to get bogged down by ny technical jargon, focus on getting the big picture of the quantitative methods used. Also, make sure to note where you have questions about the methods.

* Descriptive

- Article Name:
- Author(s):
- Primary Research Question(s):
- Major theories informing research (describe succinctly):
- Hypotheses:
- Sample strategy, size, and make-up:
- Unit of Analysis:
- Type of data collected (survey archival, observation, etc.):
- Analytical strategy (e.g., cross-tabs, regression, etc.)
- Summary of findings (no more than 2 paragraphs):

* Analytical

- Are the data used appropriate for answering the questions raised? If not, what are the primary shortcomings of this work?
- Do these findings tend to support or challenge any social theories?
- What do the findings tell us about how society works?
- Does this research have any implications for social policy or social engagement?

- **Short Paper 2:** Find a statistic mentioned in media (e.g., newspaper, magazine, TV, Internet, radio, etc.) by a politician, public figure, columnist, activist, or even used by a friend on social media. Then, research the origins of that statistic. Who produced the research behind the statistic (e.g., an academic researcher, a think tank, a government agency, a non-profit, etc.)? What is the data source? What was the sampling method? What was the demographic composition of that sample? If applicable, what were the question wordings and response categories? What assumptions or decisions did the researchers make? Write an approximately 750 word report describing your findings and analyzing: a) the strengths and weaknesses of the statistic, b) whether it was accurately represented in the media source, and c) what might be a better means of measurement.

Rubric

1. Introduction: Description of statistic, source, and source. 10 pts.
 2. Sampling: Discussion of sampling strategy and demographics of sample. 10 pts.
 3. Analysis: Discussion of the assumptions/research decisions. 10 pts.
 4. Conclusion: Strengths/weaknesses of the statistic, accuracy evaluation, and discussion of limitations. 10 pts.
 5. Organization/Writing Quality: proper citations, well-organized, and well-written. 10 pts.
- Total: 50 pts.**

- **Research Project:** In order to better understand how quantitative social research is produced, you will conduct a study using the most recent yearly wave of the General Social Survey (GSS) and write a mini research paper in the style of a social science journal article. The purpose of this assignment is to learn 1) to ask a good social science

question, 2) to analyze data and make sense of the findings, and 3) to formulate and support a clear and sophisticated thesis. If you wish to use data other than the GSS, please come see me.

The final paper should have the following sections:

- * Abstract - a summary of the article and its findings in approximately 150 words.
- * Introduction - including clarification of the central question, important subsidiary questions, relevant theories.
- * Literature review - summarizing the main findings of at least ten studies that have been done on your topic or a related one.
- * Methodology - describing the way the data was collected (GSS) and how the variables are measured.
- * Findings/Results - organizing and presenting the data and statistically analyzing the findings.
- * Discussion - explaining the significance of the findings, relating the results to appropriate theories, and exploring possible weaknesses in this particular study.
- * Conclusion - summarizing what the study suggests about the topic, how you answered the central question, and what questions remain unanswered.
- * References
- * Tables/Figures of data should be attached to the back of the paper as an appendix.

It should be noted that not all papers will have identical analytical techniques. Statistical analyses are ideally tailored to best answer the specific question to be investigated. This can appear daunting, especially given that some are learning these statistical techniques for the first time. Therefore, I and the TA will have multiple consultations with you throughout the semester to help advise the analytical strategy of your project.

In order to produce high quality papers, you will write and revise your papers over the course of the semester. Thus, the following due dates apply:

- * 2/1 - One paragraph statement of topic with proposed variables.
 - * 3/1 - Six annotated references. (1-2 pages)
 - * 3/15 - Draft of Literature Review (2-4 pages)
 - * 4/19 - Draft of Findings and Tables/Figures (2-4 pages)
 - * 5/10 - Final Paper (7-16 pages) with R script of analyses appended.
- **Extra Credit:** There will be two extra credit opportunities: attending an on campus workshop or presentation that discusses quantitative research. Multiple departments across campus offer opportunities, such as the Sociology Workshop Series and Sociology Research Institute (4/22). If you wish to take advantage of this opportunity, you may write a 1.5-2 page reflection paper consisting of a short summary of the work, its implications for social research and/or social life, and your personal thoughts and reactions to the work. These briefs will be turned in at the end of the semester (5/10). Talks in the Sociology Department Workshop Series and the Minnesota Population Center Methods Workshops are pre-approved sites to complete this extra credit, but please contact me if you wish to attend and cover another event. Each brief will be worth 10 pts., the equivalent of a lab assignment score.

- You are expected to work independently. **Offering** and **accepting** solutions from others is an act of **plagiarism**, which is a serious offense and **all involved parties will be penalized according to the Academic Honesty Policy**. Discussion amongst students is encouraged, but when in doubt, direct your questions to the teaching assistant or myself.

- **Grades**

- Grades will be maintained in Canvas. You are responsible for tracking their progress by referring to the online gradebook.
- If you have questions about how you have been graded on a particular assignment, I have a general policy for handling these situations: please put in writing your thoughts or comments on the grading and see me in the next available office hours. We will then discuss your grade(s).
- In terms of “due dates” and “deadlines”, the TA and I intend to be fairly flexible if a deadline cannot be met for whatever reason. However, please be in contact with both myself and the TA in regards to this, communication here is key. I realize that students have complex and busy lives, and I hope to honor that with flexibility when it is needed. That being said, it will be fairly easy to fall behind in the class if suggested deadlines are repeatedly missed. In sum, please do your best to keep with the class schedule, and be in communication with both I and the TA should anything come up.

Tentative Course Outline:

Week	Content
Week 1 (1/18)	<ul style="list-style-type: none"> • <i>What is Statistics?</i> • None, first day of class. No lab this week.
Week 2 (1/25)	<ul style="list-style-type: none"> • <i>Introduction to R</i> • Reading: Torfs and Brauer 2014. <i>A (very) short introduction to R</i>. Assign: Lab #1.
Week 3 (2/1)	<ul style="list-style-type: none"> • <i>Variables, Measurement, and Frequency Distributions</i> • Reading: Uggen and Larson 2017. <i>“Is the Public Getting Smarter on Crime?”</i> Assign: Lab #2. One paragraph statement of topic with proposed variables (Due 2/8).
Week 4 (2/8)	<ul style="list-style-type: none"> • <i>Central Tendency</i> • Reading: Harris et. al. 2010 <i>Drawing Blood from Stones</i>. Assign: Lab #3, Short Paper #1 (Due 2/22).
Week 5 (2/15)	<ul style="list-style-type: none"> • <i>Measuring Variation</i> • Assign: Lab #4.
Week 6 (2/22)	<ul style="list-style-type: none"> • <i>Standardized Scores</i> • Reading: Poldrack 2021. <i>Z-scores</i>. Assign: Lab #5, Short Paper #2 (Due 3/1)
Week 7 (3/1)	<ul style="list-style-type: none"> • <i>Introduction to Statistical Inference</i>. Assign: Lab #6 (Due 3/22), Six annotated references (Due 3/15)
Week 8 (3/8)	<ul style="list-style-type: none"> • <i>Spring Break</i>
Week 9 (3/15)	<ul style="list-style-type: none"> • <i>Hypothesis Testing</i> • Reading: Peffley and Hurwitz 2007. <i>Persuasion and Resistance</i>. • Assign: Draft of Literature Review (Due 3/29).
Week 10 (3/22)	<ul style="list-style-type: none"> • <i>Bivariate Association</i> • Reading: BJS 2021. <i>Prisoners in 2020 - Statistical Tables</i>. Assign: Lab #7.
Week 11 (3/29)	<ul style="list-style-type: none"> • <i>Analysis of Variance</i> • Reading: Stewart et. al. 2019. <i>The Stakes of Symbolic Boundaries</i>. Assign: Lab #8, Draft of Findings and Tables/Figures (Due 4/19).
Week 12 (4/5)	<ul style="list-style-type: none"> • <i>Bivariate Regression and Correlation</i> • Reading: Jacobs 1979. <i>Inequality and Police Strength</i>. Assign: Lab #9.
Week 13 (4/12)	<ul style="list-style-type: none"> • <i>Multiple Regression</i> • Reading: Harris et. al. 2011. <i>Courtesy Stigma and Monetary Sanctions</i>. Assign Lab #10 (Due 4/26).
Week 14 (4/19)	<ul style="list-style-type: none"> • <i>Multiple Regression cont.</i> • Reading: Light et. al. 2019. <i>How Do Criminal Courts Respond in Times of Crisis?</i>.
Week 15 (4/26)	<ul style="list-style-type: none"> • <i>Review Day/Workshop</i> • Catch up on assignments, questions about papers, etc.
Week 16 (5/3)	<ul style="list-style-type: none"> • <i>Finals Week</i> • Final Paper due 5/10.

UMN College of Liberal Arts Policy

Grades

University academic achievement is graded under two systems: A-F (with pluses and minuses) and S-N. Choice of grading system and course level (1xxx/3xxx/4xxx) is indicated on the registration website; changes in grade scale may not be made after the second week of the semester. Some courses may be taken under only one system; limitations are identified in the course listings. The Department of Sociology requires A-F registration in courses required for the major/minor. University regulations prescribe the grades that will be reported on your transcript.

A	Represents achievement that is outstanding relative to the level necessary to meet course requirements (4.00 grade points)
A-	3.67 grade points
B+	3.33 grade points
B	Achievement significantly above the level necessary to meet course requirements (3.00 grade points)
B-	2.67 grade points
C+	2.33 grade points
C	Achievement that meets the basic course requirements in every respect (2.00 grade points)
C-	1.67 grade points
D+	1.33 grade points
D	Achievement worthy of credit even though it fails to meet fully the course requirements (1.00 grade point)
F	Performance that fails to meet the basic course requirements (0 grade points)
S	Represents achievement that is satisfactory, which is equivalent to a C- or better.
N	No credit. Its use is now restricted to students not earning an S on the S-N grade base.
I	Incomplete, a temporary symbol assigned when the instructor has a "reasonable expectation" that you 1) can successfully complete unfinished work on your own no later than one year from the last day of classes and 2) believes that legitimate reasons exist to justify extending the deadline for course completion. The instructor may set date conditions for make-up work. If a course is not completed as prescribed or not made up as agreed within the year, the I will lapse to an F if registered on the A-F grade base or an N if registered on the S-N grade base.
W	Official withdrawal from a course after the end of the second week of the semester. You must file a course cancellation request before the end of the sixth week of the semester to ensure that the W, rather than the F, will be formerly entered on your record.

Final Examinations

see schedule on the Calendar web site at: <http://onestop.umn.edu/onestop/Calendars/FinalExams.html>

You are required to take final examinations at the scheduled times. Under certain circumstances, however, you may request final examination schedule adjustment in your college office. Instructors are obligated to schedule make-up examinations within the final examination period for students who have three final examinations within a 16-hour period. Instructors also are encouraged to reschedule examinations for students with religious objections to taking an examination on a given day. You must submit your request for an adjustment in your schedule at least two weeks before the examination period begins. For assistance in resolving conflicts, call the CLA Student Information Office at 625-2020. If you miss a final, an F or N is recorded. You must obtain the instructor's permission to make up the examination. Final examinations may be rescheduled by the instructor only through the official procedure for that purpose (as noted on the above web page). Final

examinations may not be scheduled for the last day of class or earlier or for Study Day. If an examination is rescheduled at the instructor's request, and you have an examination conflict because of it, you are entitled to be given the final examination at an alternative time within the regularly scheduled examination period for that semester.

Class Attendance

As a CLA student, you are responsible for attending class and for ascertaining the particular attendance requirements for each class or department. You should also learn each instructor's policies concerning make-up of work for absences. Instructors and students may consult the CLA Classroom, Grading, and Examination Procedures Handbook for more information on these policies (<http://advisingtools.class.umn.edu/cgep/>) .

Course Performance and Grading

Instructors establish ground rules for their courses in conformity with their department policies and are expected to explain them at the first course meeting. This includes announcement of office hours and location, the kind of help to be expected from the instructor and teaching assistants, and tutorial services, if available. The instructor also describes the general nature of the course, the work expected, dates for examinations and paper submissions, and expectations for classroom participation and attendance. Instructors determine the standards for grading in their classes and will describe expectations, methods of evaluation, and factors that enter into grade determination. The special conditions under which an incomplete (I) might be awarded also should be established. The college does not permit you to submit extra work to raise your grade unless all students in the class are afforded the same opportunity.

Classroom Behavior

You are entitled to a good learning environment in the classroom. Students whose behavior is disruptive either to the instructor or to other students will be asked to leave (the policies regarding student conduct are outlined in the CLA Classroom, Grading, and Examination Procedures on-line at <http://advisingtools.class.umn.edu/cgep/>).

Electronic Devices

University instructors may restrict or prohibit the use of personal electronic devices in his or her classroom, lab, or any other instructional setting. For the complete policy, visit:

<http://www.policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Scholastic Dishonesty

The University Student Conduct Code defines scholastic dishonesty as follows:

*Scholastic Dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. **Students cannot evade (intentionally or unintentionally) a grade sanction by withdrawing from a course before or after the misconduct charge is reported. This also applies to late withdrawals, including discretionary late cancellation (also known as the "one-time-only drop").*** For the complete policy, visit: http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Student Mental Health and Stress Management

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. University of Minnesota services are available to assist you with addressing these and other

concerns you may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via: <http://www.mentalhealth.umn.edu/>.

A Reminder of Relevant Policies and Procedures: Sociology Department Policies

Grade Information

Grades are due in the Office the Registrar within 3 business days after the final examination. No information regarding grades will be released by the department office staff to anyone except designated personnel in Records and college offices. Students may access their own grades through their computer account. They may do this by following the directions on the One Stop web site at <http://onestop.umn.edu/>.

Make-Up Examinations

Arrangements for special examinations must be made directly with the instructor who taught the course and who is responsible for approving and supervising the examination or making individual arrangements. Circumstances for missing an exam include, but are not necessarily limited to: verified illness, participation in athletic events or other group activities sponsored by the University, serious family emergencies, subpoenas, jury duty, military service, and religious observances. It is the responsibility of the student to notify faculty members of such circumstances as far in advance as possible.

Grade Changes

Grades properly arrived at are not subject to renegotiation unless all students in the class have similar opportunities. Students have the right to check for possible clerical errors in the assignment of grades by checking with the instructor and/or teaching assistant. Students with justifiable complaints about grades or classroom procedures have recourse through well-established grievance procedures. You are expected to confer first with the course instructor. If no satisfactory solution is reached, the complaint should be presented in writing to the department Director of Undergraduate Studies or the Coordinator of Undergraduate Advising (909 Soc Sci). If these informal processes fail to reach a satisfactory resolution, other formal procedures for hearing and appeal can be invoked. See the departmental advisor in 923 Social Sciences to explore options.

Disability Services

Students with disabilities that affect their ability to participate fully in class or to meet all course requirements are encouraged to bring this to the attention of the instructor so that appropriate accommodations can be arranged. For more info contact Disabilities Services in 230 McNamara.

Sexual Harassment

University policy prohibits sexual harassment as defined in the December 1998 policy statement, available at the Office of Equal Opportunity and Affirmative Action. Questions or concerns about sexual harassment should be directed to this office in 419 Morrill Hall.

Sociology Programs Information

The Sociology Department offers two options for the Bachelor of Arts degree and a Bachelor of Science degree. We also have an Honors Program. Students interested in majoring in Sociology should view the online-information session about the major. Further information can be obtained from the following persons and offices or online at <http://www.soc.umn.edu/undergrad/>.

- General information, Sociology Department, 909 Social Sciences - 624-4300
- Coordinator of Undergraduate Advising, Bobby Bryant, 923 Social Sciences – 624-4300
- Director of Undergraduate Studies, Professor Teresa Swartz, 1172 Social Sciences - 624-2310

- Sociology Honors Advisor, Professor Kathleen Hull, 1131 Social Sciences - 624-4339
- Director of Graduate Studies, Professor Ann Meier, 1074 Social Sciences – 624-9828 and/or
- Graduate Program Associate, Becky Drasin, 927 Social Sciences - 624-2093

Undergraduate jobs, internships, volunteer and research opportunities, scholarships, and much more can be found in the Undergraduate Resources site - <http://z.umn.edu/socugrad>.