SBS 204
Survey Data Analysis and Stats (Lecture and Lab)
Spring, 2022
Lecture: T, Th 9:30-10:50am
Harbert 327
Lab: Th 3:30pm-4:50pm
Harbert 301

Professor Clinton Jenkins
Harbert 315
Office Hours: Th 3:30 – 5:30pm & by appointment
205-226-4829
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Course Overview and Goals
This course provides an introduction to statistics as applied in the social sciences, as well as an introduction to data management and analysis. Knowing how to evaluate the arguments and claims made by others is important to being an educated member of society. Understanding statistics better will help you do this. You will also need to understand statistics in order to read scholarly and professional literature in the social (and other) sciences. Thus, there is no downside to learning statistics.

This course has four objectives:

- Achieve a basic statistical literacy and understand the fundamentals of statistical analysis. This includes: levels of measurement; graphic and tabular presentations of data; measures of central tendency and variability; theoretical distributions; t-tests; ANOVA; chi-square; correlation and regression.

- Be familiar with Stata statistical software for data entry, management, and analysis.

- Evaluate, critique and question statistics, research, and things assumed to be facts.

- Effectively communicate quantitative findings in written format.

This is also a QA (Quantitative Analysis) designated course. As such, students will also be able to:

- Frame a problem quantitatively by transferring information or data into a mathematical or
- statistical model or formal notation
- Solve the problem using mathematical concepts and strategies, with the aid of technology
- where appropriate
- Think critically about the results
- Interpret the results in the context of the original problem
- Communicate the findings

COVID-19 Policies – Spring 2022

You are required to properly wear a face covering (covering both nose and mouth) during the entire duration of class. Per college guidance, if you do not have a face covering on, I must ask you to leave class and you will only be able to return once you have one on. Please help remind each other to bring and wear face coverings so that this moves smoothly for everyone.

Readings

Most readings will come from the text assigned for the course. Occasionally, I will assign additional readings. These will usually be posted on Moodle at least one week prior to the class you need them for. It is your responsibility to obtain the readings listed for the class period if they are not posted on blackboard.

There is one text assigned for the class. It is available online and from the bookstore. The textbook is available for free at the following link: openintro.org/os

I recommend using and bringing to class you physical copy of the text as we will refer to it extensively.

Diez, David M., Mine Cetinkaya-Rundel, and Chrisopher D. Barr. 2019. *OpenIntro Statistics*, 4th edition.

Other Items

You will also need a standard calculator for the exams, in class work, problem sets, etc. You may use a graphing or scientific calculator, however, any calculator that can add, divide, subtract, and multiply will be sufficient. **You may not use your phone as a calculator on exams.**

Evaluation

Your grade will be determined based on the following (weights in parentheses):

- Lab Assignments (6 @ 5 points each) (30%)
- Mid-term Exam (20%)
- Final Exam (20%)
- Problem Sets (4 @ 5 points each) (20%)
- Attendance, Participation, and In-Class Group Work/Quizzes (10%)

Lab Assignments – This course has an associated lab, SBS204L. You will be assigned 6 lab projects as part of the lab. You may work on these independently or with peers. However, you must complete your write-up of the lab on your own. These are due by 11:59pm on the due date (typically after the second lab period we set aside to work on them). Part of the labs will be dedicated to giving you time to work on these assignments. If you don't finish it during the lab, it is your responsibility to work on it and complete it outside of lab. The lab guide will have the due dates for each lab, any unposted dates will be provided at least one week before they're due.

Mid-term Exam – This exam may include a combination of multiple choice, short answer, and essay questions focusing on material from the readings, lecture, and discussions. You will

also be expected to perform calculations as part of these exams. I will provide more information as we get closer.

Final Exam – There will be an in-class final exam during finals period. The final will be cumulative in the sense that this material builds on each other. However, the exam won't be explicitly cumulative in that the topics from the mid-term won't be expressly asked about. The exam may include a combination of multiple choice, short answer, and essay questions focusing on material from the readings, lecture, and discussions. You will be asked to perform calculations, solve word-problems, or perform other sort of problem-solving skill. I will provide more information as we get closer.

Problem Sets – Four times during the semester you will be assigned a short problem set to complete. These are designed to give both you and I a chance to assess your (and the entire class') understanding of the material as the course progresses, and before the exams. These will involve tasks such as defining terms, solving problems, performing calculations, using the Stata software, and being asked to interpret results of data analysis.

Attendance, Participation, and In-Class Group Work + Mini-Quizzes –
Katy Perry is attributed as having said 80% of success is showing up.[1] I believe this is true. Part of being a good colleague and college citizen is showing up to do your part. This means showing up to class, listening respectfully to what your fellow students have to share, and offering your own perspectives on the subject matter. We all benefit by having robust discussions surrounding the topics we cover in class. Not only will participating in discussions help reinforce material from class, but it will also help you think about the world in different ways. But, in order to participate you must be there. You are allowed three absences per-semester. Every absence after that will see your final participation and attendance grade reduced by five percentage-points. I do not excuse absences – it is your responsibility to decide when it is appropriate or inappropriate to use one of your "free" absences or to take the grade reduction. If you have a unique situation, such as an extreme illness or other circumstance, that will cause you to miss a large number of classes during the semester come speak with me.

During some class periods you will be asked to break out into groups of 2 to 4 to work on practice problems to help you master the concepts. Other times, there will be mini quizzes given, intended to test your understanding of the concepts and ideas we've been discussing. Individually and together, these aren't meant to make up a large portion of your grade. Rather, their job is to be a low-stakes way to help both you and I develop a better understanding of the ideas and concepts you've mastered and those to which we should devote more time.

Your attendance and participation grade will be based on the following: the average of your grades on the in-class worksheets, group work, and mini-quizzes. From this average, I will subtract 5-points for each unexcused absence beyond three. For example, if your average on the in-class work and group work is an 80 and you have four unexcused absences in total,

[1] Katy Perry didn't say this. Woody Allen is attributed as saying this, but students got tired of seeing the same person in all my syllabi. Also, Woody Allen's creep level has increased with time.

your "Attendance, Participation, and In-Class Group Work + Mini-Quizzes" grade would be a "75" (80 average, minus 5 points for the 4th absence).

Spring 2022 Covid Attendance Policy:
Being subject to quarantine or self-isolation measures due to suspected, diagnosed COVID-19 or novel coronavirus infection, or contact with someone who has been diagnosed with it, will count as a unique situation, for which you will not be penalized. We will work out a plan for how to handle this situation should it arise. If you're sick, don't come to class. Email me and we'll figure it out.

For Labs: I have no attendance policy regarding the labs. However, should you miss a lab you are responsible for obtaining notes and other materials from a classmate and completing and turning in any labs by their due date. There are no makeups.

Final Grade
At the end of the semester your final grade will be calculated using your grades on each of the items above and their respective weights, and you will receive a letter grade based on the following grading scale:

A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D (60-69), and F (0-59).

Here are some final notes about grading in the class:

- If you have questions about the grade you received on an assignment please come see me during office hours or send me an e-mail to schedule an appointment to meet in person. I do not discuss grades over e-mail, but am more than happy to sit down with you in person and help you understand why you earned the grade you did and help you get the grade you wish next time.
- If you do not believe that the grade you received is not indicative of your work I will regrade your assignment for you. You must contact me in writing, sending a memo about why you believe you did not deserve the grade that you received. You must contact me within one week of receiving back your work, if you do not you waive the right for me to reconsider your grade for that assignment. Once I receive your petition in writing I will regrade your work, and the resulting grade, whether higher or lower than your original, will be your final grade for that assignment.
- Late assignments will be penalized by 5-points per business-day that it is late (Monday through Friday).
- The only acceptable excuses for not completing an assignment on time are illness or family emergency. If either circumstance arises, I will give you extra time, but only if you (1) communicate with me before the assignment is due, and (2) provide documentation of the circumstance. After that is completed we will discuss a new due date.
- If you fail to complete an assignment, you will receive a 0 for that assignment.
- There is no extra credit

Religious Observances

Birmingham-Southern College is committed to the spiritual development of a diverse student body. The College makes every reasonable effort to allow students to observe religious holidays of obligation without academic penalty. Holidays of obligation are those holidays during which the observant person, according to religious practice, cannot work. Within the first 15 days of the term, students should review course syllabi for potential religious conflicts and notify me of potential conflicts. I will then work with you to make arrangements concerning missed work. Should you fail to alert me of this during the first 15 days of the term you forfeit your right to reschedule.

Scholastic Dishonesty and Academic Integrity

Please don't cheat. Seriously, do not do it. It's not worth it and will be a big headache for both of us. It's really just easier, and far more beneficial, to do the work.

Every BSC student has agreed under the Honor Code, "not to give or receive aid unfairly or dishonestly in any academic work or in any way act dishonestly in any student activity." Academic dishonesty is a violation of the Honor Code and will not be tolerated. If you are unsure as to whether a particular act will violate the Honor Code and be in any way academically dishonest, do not hesitate to ask me for clarification. Should an act of academic dishonesty take place, everyone involved will receive a zero on the assignment. In addition, depending on the severity, the act of academic dishonesty may be taken before the Honors Council and additional sanctions pursued.

Office of Accessibility/Accommodations

Students with a disability that qualify under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act and require accommodations should be registered with BSC's Accessibility Office. If you are registered for academic accommodations, please make an appointment with me as soon as possible to discuss any accommodations that may be necessary. During this discussion you are not expected to disclose any details concerning your disability though you may do so at your discretion. If you have a disability but have not yet registered, please contact Dr. Sandra Foster, Assistant Director of Accessibility Services and Resources, at 205-226-7909 or smfoster@bsc.edu, or visit Olin 210. Keep in mind that no accommodation will be made unless and until the instructor receives official notification from the College.

Academic Freedom

Each student is strongly encouraged to participate in class discussions. In any classroom situation that involves discussion and critical thinking, particularly about political ideas, there are bound to be many differing viewpoints. Students may not only disagree with each other at times, but the students and instructor may also find that they have disparate views on sensitive and volatile topics. It is my hope that these differences will enhance class discussion and create an atmosphere where all of us will be encouraged to think and learn from each other. Therefore, be assured that students' grades will not be affected by any beliefs or ideas expressed in class or in assignments. Rather, we will all respect the views of others when expressed in classroom discussions.

BSC Resources for Writers and Readers

Located in Humanities 102, the BSC Writing Center offers in-person and virtual peer-to-peer tutoring and quiet, supportive lab space to work on writing assignments. The Center's tutors are students from a wide variety of majors on campus and have the range to address

student writing needs with discipline specificity. Supervised and assisted by BSC Writing Center directors, the tutors provide one-on-one consultations for any student at any point in the writing process. The BSC Writing Center is open Sunday-Thursday 4pm-8pm. To ensure a full 30-minute tutorial time slot, students are encouraged to be mindful of assignment-heavy weeks, keep track of due dates, and visit the Writing Center at their earliest availability during open hours. Please contact Dr. MK Foster or Professor Laura Tolbert (writingcenter@bsc.edu) with any questions or requests for virtual appointments.

BSC's Academic Resource Center (ARC)

The Academic Resource Center (ARC), located on the ground floor of the Library, offers tutoring and one-on-one assistance for all BSC students. For more information or to make an appointment email arc@bsc.edu or visit the Academic Resource Center web page and submit a form. Reach out to us, we can help!

Title IX

Birmingham-Southern College is committed to the creation and maintenance of a safe learning environment for students and the campus community. The College forbids any type of sexual or gender-based misconduct among its students, faculty, and staff. The College encourages all members of the academic community to report suspected sexual and gender-based misconduct to the appropriate authorities so that it can be investigated, remedied, and eliminated. BSC forbids retaliation against any person who has opposed, reported, or participated in an investigation concerning sexual or gender-based misconduct. See the BSC Title IX website (www.bsc.edu/titleix) for more information, including an online report form. If you or a peer have experienced such misconduct, there are faculty and staff members who are trained in supporting students by answering questions and helping them navigate this process. The list of advocates can be found along with other helpful resources on the Title IX website.

Technology

Technology's great. It has made us more efficient as a people and has provided humankind with more ability and power than we've ever had before. But the fact is that laptops, smart phones, and other electronic devices are a distraction to your classmates and to me. Not only that, but research has shown that we learn more when we take notes by hand:

http://www.theatlantic.com/technology/archive/2014/05/to-remember-a-lecture-better-take-notes-by-hand/361478/

Thus, you may not use electronic devices in class, unless I have asked you to use them for the some aspect of the class. However, should you have a unique reason for needing a laptop to take notes, please contact me and we can make accommodations as necessary.

*Obviously the exception to this is lab.

Course Schedule and Readings
(Note: This is subject to change at the will of the instructor as the semester progresses)
OpenIntro Statistics = OIS on the syllabus. SSDS= Social Statistics for a Diverse Society
*An * indicates the reading will be available on Moodle.*

I: Introduction to Research, Statistic, and Data

Week 1: Introduction
Tuesday 2/1: Hello

- Reading
  - None
- Due
  - None

Thursday 2/3: Research and Statistics

- Reading
  - Chapter 1.1, *OIS*
  - Chapter 1, *SSDS**
- Due
  - Nothing due.

Thursday 2/3: Installing Stata (No in person lab)

- Reading
  - None
- Work on in lab
  - No lab, but work on installing Stata during this time period.
  - If you have trouble installing it on your laptop, come see me in my office and we'll try to troubleshoot it together.
- Due
  - Send me an email confirming you've installed Stata

Week 2: Working with Data
Tuesday 2/8: Introduction to Data

- Reading
  - Chapter 1.2, *OIS*
  - Chapter 2, *SSDS**
- Due
  - Nothing due.

Thursday 2/10: Introduction to Data

- Reading
  - Chapter 2.1.1-2.1.3; 2.2.1; 2.2.2; 2.2.3; 2.2.5; 2.2.6, *OIS*
- Due
  - Nothing

Thursday 2/10 Lab: Lab I – Introduction to Stata

- See lab guide for more information

Week 3: Descriptive Statistics
Tuesday 2/15: Measures of Central Tendency

- Reading
  - Chapter 3, *SSDS**
  - Chapter 2.1.1 – 2.1.3 (stop at 2.1.4), *OIS*
- Due
  - Nothing due.

Thursday 2/17: Measures of Variability

- Reading
  - Chapter 4, *SSDS**
  - Chapter 2.1.4, 2.1.5, *OIS*
- Due
  - Problem Set 1 handed out.

Thursday 2/17 Lab: Lab I – Introduction to Stata

- See lab guide for more information.

II: Hypotheses and Hypothesis Testing

Week 4: Theoretical Distributions
Tuesday 2/22: Normal Distribution

- Reading
  - Chapter 4.1, *OIS*
  - Chapter 5, pgs. 128-132 (stop at "standard normal table" heading*)*, *SSDS**
- Due
  - Nothing due

Thursday 2/24: Normal Distribution

- Reading
  - Appendix C.1 *OIS*
  - Review: Chapter 4.1, *OIS*
  - Review: Chapter 5, pgs. 128-132 (stop at standard normal table*)*, *SSDS**
- Due
  - Problem Set 1 due.

Thursday 2/24 Lab: Lab II - Descriptive Statistics and Data

- See lab guide for more information

Week 5: Theoretical Distributions
Tuesday 3/1: Catch Up/Practice Day

- Reading
  - None
- Due

    - None

Thursday 3/3: Sampling and the Sampling Distribution

- Reading:
    - Chapter 5.1, 1.3, *OIS*
- Due
    - Nothing due

Thursday 3/3 Lab: Lab II – Descriptive Statistics and Data

- See lab guide for more information

Week 6: Theoretical Distributions cont.; Estimation I

Tuesday 3/8: Sampling and the Sampling Distribution

- Reading:
    - Review: Chapter 5.1, 1.3, *OIS*
- Due
    - Nothing due
    - Problem Set 2 handed out

Thursday 3/10: Estimation & Inference I – Categorical Data: Confidence Intervals for Proportions

- Reading
    - Chapter 6.1.1, 6.1.2, 6.1.5, *OIS*
- Due
    - Nothing due

Thursday 3/10 Lab: Lab III – Normal Distribution

- See lab guide for more information

Week 7: Estimation cont.; Begin Talking About Hypothesis Testing

Tuesday 3/15: Estimation & Inference II – Numerical/Interval Data: Confidence Intervals for Means

- Reading
    - Chapter 7.1.1 – 7.1.4, *OIS*
    - Stacey, M., K. Carbone-Lopez, and R. Rosenfeld. 2011. "Demographic change and ethnically motivated crime: The impact of immigration on anti-Hispanic hate crime in the United States." *Journal of Contemporary Criminal Justice*, 27(3), 278–298.*
- Due
    - Problem Set 2 due at the beginning of class

Thursday 3/17: Hypotheses Testing I – Categorical Data

- Reading
    - Review *OIS* Chapters 1.2.3, 1.2.4, 5.3
    - Chapters 6.1, 6.2.1 – 6.2.3, *OIS*
- Due
    - Nothing due

Thursday 3/17 Lab: Lab III – Normal Distribution & Review for Mid-Term

- See lab guide for more information

Week 8: Spring Break
Tuesday 3/22:
- Reading
    - None, finally!
- Due
    - Spring break

Thursday 3/24:
- Reading
    - None, whoohoo! (Now this we could get used to)
- Due
    - More spring break

Week 9: Mid-Term Exam; Hypothesis testing cont.; Assessing Relationships
Tuesday 3/29: Mid-Term Exam
- Mid-term exam in-class

Thursday 3/31: Hypothesis Testing II – Interval/Numerical Data
- Reading
    - Review *OIS* chapter 5.3 section on hypothesis testing
    - Chapters 7.1.5, 7.2, 7.3, *OIS*
- Due
    - Nothing due

Thursday 3/31 Lab: Lab IV - Foundations for Inference
- See lab guide for more information

Week 10: Analyzing Relationships Between Categorical Variables
Tuesday 4/5: Hypothesis Testing III
- Reading
    - Review *OIS* chapter 5.3 section on hypothesis testing
    - Chapters 7.1.5, 7.2, 7.3, *OIS*
- Due
    - Nothing due

Thursday 4/7: No Class on Account of the Midwest Political Science Association Annual Meeting
- Reading
    - No reading
- Due
- Nothing

Thursday 4/7 Lab: Lab IV - Foundations for Inference
- See lab guide for more information

III: Assessing Relationships Between Variables

Week 11: Analyzing Relationships Between Categorical Variables

Tuesday 4/12: Bivariate Relationships & Chi Squared

- Reading
  - Chapter 9, *SSDS,* pp. 235-243*
  - Chapters 2.2.2, 2.2.6, *OIS*
  - Chapter 6.3, 6.4, *OIS*
  - You may also wish to review 2.2.1 of *OIS*
- Due
  - Nothing due

Thursday 4/14: Chi-Squared cont.

- Reading
  - Chapter 10, *SSDS**
  - Levesque, L. M. and S. L. Caron. 2004. "Dating preferences of women born between 1945 and 1960," *Journal of Family Issues*, 25(6), 833–846.*
- Due
  - Problem Set 3 handed out

Thursday 4/14 Lab: Lab V – Inference for Numeric and Categorial Variables

- See lab guide for more information

Week 12: Examining Relationship: Numerical DV & Categorical IV

Tuesday 4/19: Analysis of Variance (ANOVA) I

- Reading
  - Chapter 7.5, *OIS*
- Due
  - Nothing

Thursday 4/21: ANOVA II

- Reading
  - Chapter 11, *SSDS**
  - Fothergill, K. E., M. E. Ensminger, M. K. Green, J. A. Robertson, and H. Soon. 2009. "Pathways to adult marijuana and cocaine use: A prospective study of African Americans from age 6 to 42," *Journal of Health and Social Behavior*, 50(1), 65–81.*
- Due
  - Problem set 3 due

Thursday 4/21 Lab: Lab V – Inference for Numeric and Categorial Variables

- See lab guide for more information

Week 13: Examining Relationships: Numerical Dependent Variables – Regression

Tuesday 4/26: Bivariate Correlation

- Reading

    - Chapter 12 pp. 325-341, *SSDS**
    - Chapter 8.1, *OIS*
- Due
    - Due
    - Problem set 4 handed out

Thursday 4/28: Bivariate Regression

- Reading
    - Chapter 8.2 – 8.4, *OIS*
    - Review Chapter 12, *SSDS**
    - Sirin, S. R. and L. Rogers-Sirin. 2004. "Exploring school engagement of middle-class African American adolescents," *Youth & Society*, 35(3), 323–340.*
- Due
    - Nothing

Thursday 4/28 Lab: Lab VI -Relationships Between Variables When DV is Numerical

- See lab guide for more information.

<u>Week 14: Examining Relationship: Numerical Dependent Variables – Regression</u>
Tuesday 5/3: Bivariate Regression & Multiple Regression

- Reading
    - Review Chapter 12, *SSDS**
    - Review Chapter 8.2 – 8.4, *OIS*
    - Chapter 9.1-9.4, *OIS*
- Due
    - Problem Set 4 due.

Final: The final will take place during the designated slot for this class period during the finals period. This is on Friday, May 13th from 9am to 12pm. I will provide additional details on the final as we get closer.