



DATA 150-01 | Spring 2019

Data and Society

When: M/W, 4:00 p.m. – 5:50 p.m.

Where: Meld 170

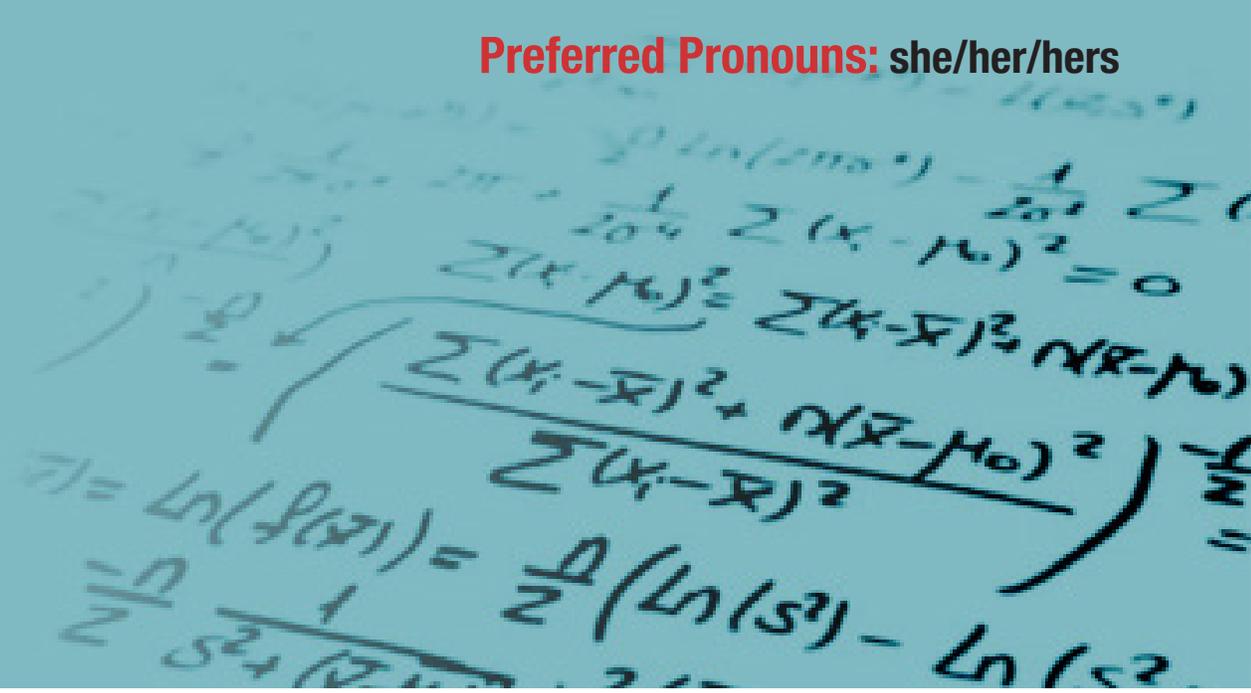
Instructor: Yvette Young

Email: Please use Canvas email

Office: 118 Foster

Office Hours: TBD

Preferred Pronouns: she/her/hers





How is it that pollsters are able to predict how the entire country is going to vote in a presidential election after talking to only 1000 people? How can social scientists draw conclusions about a large population after studying only a small sample? This course explores the answers to those questions and more as we take a look at both descriptive and inferential statistics within the context of the social sciences. The ultimate goal of this class is to improve your critical thinking skills and make all of you more discerning consumers of information.

COURSE DESCRIPTION

4 credit hours, 4 classroom hours per week

Quantitative literacy is increasingly important in our world of information. The primary goal of this course is to learn about data and how it's used. Along the way, we will learn how to develop basic tools to analyze and visualize data, read and evaluate research claims, and report research findings in honest and ethical ways.

This course may not be taken for credit if a student already has credit for DATA 220.

PREREQUISITES

None

COURSE WEBSITE

Canvas: <https://utah.instructure.com/courses/2146185>

REQUIRED TEXT AND MATERIALS

All students should have access to the following required textbook:

Moore, David S., and William I. Notz. 2014. *Statistics: Concepts and Controversies*. New York: W. H. Freeman and Company.

COURSE LEARNING GOALS

As learning outcomes for this course, students will be able to

- Summarize data using appropriate visualizations (graphs, charts, tables, etc.),
- Summarize data using appropriate statistics (mean, standard deviation, median, IQR, correlation, etc.),
- Explain basic research methods including sampling procedures and experimental design,
- Evaluate research claims made in the media,
- Interpret research claims made in research journals,
- Communicate (orally and in writing) the results of data analysis in honest and ethical ways,
- Appreciate the positive and negative ways in which data can be used in society.



PROGRAM AND COLLEGE-WIDE LEARNING GOALS

- Critical, analytical and integrative thinking
 - Apply data analysis to solve real problems and make predictions in real world contexts.
 - Explore and contrast different methods of data visualization.
- Writing and other communication skills
 - Discuss data and conclusions using effective verbal presentation and written explanation.
- Global consciousness, social responsibility, and ethical awareness
 - Apply data analysis to better understand real problems around the globe.
 - Consider the ethical ramifications of gathering, storing, and analyzing data.

COURSE REQUIREMENTS AND GRADING

Class attendance is an essential component of success in this course. Because we'll be going over so much material in such a short amount of time, missing even one class could be detrimental to your grade.

Points are assigned to every assignment. Your final grade will be based on the percentage of total points you earn for assignments in the following categories. Grading rubrics are available in Canvas.

- Exams (3)
- In-class Exercises
- Reading Summaries
- Homework & Lab Exercises
- Short Quizzes

Grading Scale

A	94-100
A-	90-93.9
B+	87-89.9
B	84-86.9
B-	80-83.9
C+	77-79.9
C	74-76.9
C-	70-73.9
D+	67-69.9
D	64-66.9
D-	60-63.9
E	0-59.9

ASSIGNMENTS

Assignments and course requirements for each section or topic are listed in the syllabus and modules and on Canvas. The deadlines listed on Canvas are firm. Late assignments will be accepted at the discretion of the instructor. **Arrangements must be made BEFORE the assignment deadline.** I will deduct points for any late assignments I agree to accept. *Any assignment that is more than one week late will not be accepted.*

ANNOUNCEMENTS

Your instructor will post periodic reminders for upcoming assignments, new information, assignment and assessment deadlines, and other pertinent course related information. Announcements can be accessed on the class website.

In order to receive these announcements in a timely manner, please set-up your Profile on Canvas to forward announcements to your email, SmartPhone, iPad, or other mobile device. If the information has been posted as an announcement or sent as a class email it is your responsibility to adhere to any deadlines or requirements contained therein.



LATE ASSIGNMENTS

Late assignments will be accepted at the discretion of the instructor. Late assignments that are turned in within one week of the due date will be penalized at least 10 percent. Any assignment that is more than one week late will not be accepted. The Canvas clock is the final word on the time an assignment was submitted.

ENGAGEMENT POINTS (EXTRA CREDIT OPPORTUNITIES)

The Westminster College Department of Mathematics values the experiences that students have with mathematics and data science outside of the formal classroom. In order to encourage our students to find new and interesting ways to engage with our disciplines, we have incorporated a department-wide extra credit policy in which extracurricular activities gain you “engagement points” which will contribute toward your course grades. Ask your instructor if you have any questions about how engagement points work in your course.

Most activities that align with one of the Westminster math department’s Program Goals of critical thinking, creativity, collaboration, communication, global responsibility, and career planning are eligible for engagement points, but the final decision on whether to award points lies with your instructor.

Examples of activities that are likely to qualify include, but are not limited to: attending a meeting of the S-Cubed seminar; volunteering in the East High or Cottonwood Tutoring Programs; attending Lemma social activities or meetings; attending college Diversity, Equity, and Inclusion programming; taking the Putnam exam; attending a screening of a film with mathematical themes; participating in a Research Experience for Undergraduates (REU) during the summer; attending a non-required math-related talk or seminar; attending a regional/national math conference; giving a talk related to math; submitting or publishing a paper in an academic journal; participating in a math competition; reading a book with mathematical themes; and many others.

If you participated in an activity that you think qualifies for engagement points, please fill out the Google Form located at <https://tinyurl.com/WMengagement>. Because I am unable to constantly check the form responses, please contact me after filling out the form if you would like to know whether you were granted engagement points for your activity.

Details regarding how the points will be added to your grade can be found on Canvas.

ACADEMIC HONESTY

Westminster College of Salt Lake City operates on the assumption that all academic work is the honest product of each student’s own endeavors. The faculty and staff at Westminster expect such integrity from the students, and violations are cause for disciplinary action, including suspension, probation, loss of credit, or expulsion from the college.

Academic dishonesty includes, but is not limited to, cheating, plagiarism, and furnishing false or misleading information to any faculty or staff member. Cheating on examinations includes, but is not restricted to, copying from another student’s exam paper, using unauthorized notes during an exam, arranging for a substitute to take an examination, or giving or receiving unauthorized information prior to an exam. Cheating on written assignments includes plagiarism, unauthorized



collaboration with others or submitting the same material for more than one class without authorization of the instructor.

Plagiarism includes borrowing information or ideas, whether directly quoted or paraphrased, from any source beyond one's first-hand experience and not acknowledging the source. The student must give credit for the material by identifying the source, using one of the generally accepted citation methods.

Students found guilty of cheating or plagiarism are subject to failure of a specific assignment, or, in more serious cases, failure of the entire course.

The instructor uses the online plagiarism detection service Turnitin.com.

For more information on what constitutes plagiarism see https://writing.wisc.edu/Handbook/QPA_paraphrase.html. A PDF containing this information can also be found in the modules.

ACCOMMODATIONS

As a general rule, please discuss any concerns, absences, or difficulties with the professor before they impede your ability to meet any course requirements.

INSTRUCTOR CONTACT:

If you need to contact me with any questions or problems please use the Canvas email. This will ensure that I receive and reply to your message in a timely manner.

- I respond to emails Monday through Friday from 8:00 a.m. to 5:00 p.m. While I do my best to respond to emails within 24 hours, it is not always possible. Additional time may be required if your query requires considerable thought and/or a lengthy explanation.
- With the previous point in mind, I do not respond to emails within 24 hours of exam or assignment due dates. Any questions or requests for clarification should be made well in advance.

PRONOUNS, CORRECT NAMES, AND INCLUSION

It is your right to be identified by your correct name and pronouns. I support people of all gender expressions and gender identities and welcome students to use whichever pronouns or names that best reflect who they are. In this spirit, I expect all students to also use the correct pronouns and names of classmates. Please inform me if my documentation reflects a name different than what you use and if you have any questions or concerns please contact me after class, by email, or during office hours.

YOUR RIGHTS UNDER FEDERAL LAWS:

SECTION 504 OF REHABILITATION ACT OF 1973/ADA.

Westminster College seeks to provide equal access in higher education to academically qualified students with physical, learning, and psychiatric disabilities. If you need disability-related accommodations in this class, have emergency medical information you wish to share with me, or need special arrangements in case the



building must be evacuated, please inform me immediately. Please see me privately after class or in my office. Disability Services authorizes disability-related academic accommodations in cooperation with the students themselves and their instructors. Students who need academic accommodations or have questions about their eligibility should contact Karen Hicks, Director of Disability Services & Testing Center, in the basement of Giovale Library (801-832-2272) or email disabilityservices@westminstercollege.edu.

TITLE IX

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. Westminster is committed to providing a safe and non-discriminatory learning, living, and working environment to all members of the Westminster community and does not discriminate on the basis of sex. This includes on the basis of gender, gender identity, gender expression, nonconformity with gender stereotypes, or sexual orientation. The College's Title IX policy strictly prohibits sexual assault, sexual harassment, gender-based harassment, gender-based discrimination, sexual exploitation, interpersonal violence (dating violence, domestic violence, stalking), and retaliation for making a good faith report of prohibited conduct or participating in any proceeding under the policy. The policy and accompanying procedures are available at www.westminstercollege.edu/about/resources/title-ix and discuss prohibited conduct, resources, reporting, supportive measures, rights, investigations, and sanctions for violations of the policy. If you want to make a report of prohibited conduct, you may contact Westminster's Title IX Coordinator, Joy Sarr, or report an incident online. Joy can be reached at jsarr@westminstercollege.edu, 801-832-2262, or in Malouf 107. You can also contact Deputy Coordinator Traci Siriprathane at tsiriprathane@westminstercollege.edu or 801-832-2862 or in HWAC 215. Please note that to the extent permitted by law, the College aims to protect the privacy of all parties involved in the investigation and resolution of reported violations of the policy. However, the College has a duty to look into and take actions in response to reports and cannot guarantee confidentiality or that an investigation will not be pursued. The Counseling Center is a confidential resource, and by law the counselors who work there cannot reveal confidential information to any third party without express permission unless there is an imminent threat of harm to self or others. **As an instructor I am a responsible employee and am required to report any information I obtain regarding conduct that may violate the policy to the Title IX Coordinator so that students can receive supportive measures and referrals to resources, they are aware of their options, and the safety of the campus community can be ensured.** If you begin to disclose an incident of prohibited conduct, I may interrupt you because I want to make sure that you have had the opportunity to discuss the incident with confidential resources on and off campus first. If you need supportive measures inside or outside the classroom because of an incident of prohibited conduct, please reach out to the Title IX Coordinator for assistance.

EQUAL OPPORTUNITY.

Title VI of the Civil Rights Act of 1964 prohibits discrimination based on race, color, or national origin in any program or activity receiving federal financial assistance. In addition to these, Westminster's Equal Opportunity policy prohibits discrimination or harassment based on ethnicity, age, religion, military status, or genetic information in any of its programs or activities. If you encounter this type of discrimination or harassment, or feel that you have been retaliated against for reporting prohibited conduct or participating in any related proceeding, you can Julie Freestone, Equal Opportunity Administrator, at jfreestone@westminstercollege.edu, 801-832-2573, or in Bamberger 106. The equal opportunity policy and procedures can be accessed from the Student Life webpage. **As an instructor, just as with Title IX, I am a responsible employee and am required to report any information I obtain regarding discrimination or harassment to the Equal Opportunity Officer for further review.**



TENTATIVE SCHEDULE

Date	Topics	Additional Readings (on Canvas)
Week 1: 1/14 1/16	Introduction and Overview of the Class Ch. 1: Where Do Data Come From?	Fact Check: Voter Fraud
Week 2: 1/21 1/23	MLK Day—No Class Ch. 2: Samples, Good and Bad	“How Science Works”
Week 3: 1/28 1/30	Ch. 3: What Do Samples Tell Us? Ch. 4: Sample Surveys in the Real World	Social Integration and Health , 33-35 “The Myth, The Math, The Sex”
Week 4: 2/4 2/6	Observational Research Ch. 8: Measuring	Paxton Article
Week 5: 2/11 2/13	Ch. 5 & 6: Experiments Exam 1	Marshmallow Test , Placebo Effect
Week 6: 2/18 2/20	Ch. 7: Data Ethics Ch. 9: Do the Numbers Make Sense?	Stat Spotting Ch 1
Week 7: 2/25 2/27	Ch. 10 & 11: Graphs Ch. 12: Describing Distributions with Numbers	What’s Wrong With This Graph? Washington Post Article
Week 8: 3/4 3/6	Ch. 12: Describing Distributions with Numbers, cont Exam 2	Perceived Job Quality , “Fun with Averages”
3/11-3/15	SPRING BREAK—No Class	
Week 9: 3/18 3/20	Ch. 13: Normal Distributions Ch. 14: Describing Relationships, Scatterplots and Correlation	MacDonald Article Tyler Vigan: Spurious Correlations
Week 10: 3/25 3/27	Ch. 15: Regression, Prediction, and Causation Ch. 17& 18: Probability	Fryer Article Weaponized Lies: Probabilities
Week 11: 4/1 4/3	Ch. 17& 18: Probability, cont. Ch. 21: Confidence Intervals	Margin of Error Gallup
Week 12: 4/8 4/10	Ch. 21: Confidence Intervals, cont. Exam 3	Genetic Influences on Smoking
Week 13: 4/15 4/17	Ch. 22: Testing Significance	Fact Check: Millennial Men P-Hacking and False Positives
Week 14: 4/22 4/24	Ch. 23: Use and Abuse of Statistical Inference	Chocolate Causes Weigh Loss Negligible Effects
Week 15: 4/29 5/1	Review Final Exam/Reflection	