JOHNSON SHOYAMA
GRADUATE SCHOOL OF PUBLIC POLICY
UREGINA ◥ USASK

JSGS 807-Statistics for Public Sector Managers

	UNIVERSITY OF SASKATCHEWAN CAMPUS 2020-21 DELIVERY		
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OFFICE HOURS:	Text or email me to request time	Non-class Mondays at 5pm CST; otherwise, by request	Email me to request time
OFFICE LOCATION:	Office hours and individual meetings will be held online via video or telephone		
TERM:	Winter Session 2021– January 11 to April 7		
ROOM:	All Course Material and Classes will Take Place Online U of S PAWS/Canvas System Zoom		
DATE AND TIME:	New course material is released online each week. There is no expectation of needing to attend the office hours, but attendance is expected during classes. **Classes take place online every second Monday:** January 11, January 25, February 8, February 22, March 8, March 22, April 5. **5:00-7:00pm CST** **Scheduled office hours are available during the week when there is no class, to ask questions and review material:** January 18, February 1, (no office time February 15 for Reading Week), March 1, March 15, April 12 **5:00-6:00pm CST**		

LAND ACKNOWLEDGEMENT

The University of Saskatchewan campus of the Johnson Shoyama Graduate School of Public Policy is situated on Treaty 6 Territory and the Homeland of the Métis, while the University of Regina campus is situated on Treaty 4 Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another. As we engage in Remote Teaching and Learning, we would also like to recognize that some may be attending this course from other traditional Indigenous lands. I ask that you take a moment to make your own Land Acknowledgement to the peoples of those lands. In doing so, we are actively participating in reconciliation as we navigate our time in this course, learning and supporting each other.

INTELLECTUAL PROPERTY ACKNOWLEDGEMENT

As with all courses in JSGS, we are standing on the shoulders of giants. The content chosen for this course is the result of efforts by a number of faculty and Ph.D. students, including Justin Longo, Travis

Reynolds, Murray Fulton, Greg Marchildon and Haizhen Mou, and now the three of us. Students in past years have also helped us shape and improve the delivery. Each offering changes based on the instructor(s) and the larger policy context, but the underlying structure and core concepts remain consistent.

HONOUR CODE

At the Johnson Shoyama Graduate School of Public Policy (JSGS), we believe honesty and integrity are fundamental in a community dedicated to learning, personal development, and a search for understanding. We revere these values and hold them essential in promoting personal responsibility, moral and intellectual leadership, and pride in ourselves and our University.

As JSGS students, we will represent ourselves truthfully, claim only work that is our own, and engage honestly in all academic assignments.

Since articulated standards and expectations can influence attitudes, and because each of us shares the responsibility for maintaining academic integrity (see below for details on academic integrity at the JSGS), we are committed to upholding the Academic Honor Code.

Academic Honour Pledge

As a member of the JSGS community, I pledge to live by and to support the letter and spirit of JSGS's Academic Honour Code.

REMOTE LEARNING CONTEXT

The teaching and learning experience during the COVID-19 pandemic requires adaptability, open communication and continuous improvement. To that end, we encourage each of you to be open and honest with your peers and us about your concerns and pressures. While we may not be able to change everything, we will respond in real time to any concerns or suggestions. Our commitment is to give you a strong grounding in statistical concepts, methods and application.

We understand that the new format can be intimidating, and to that end, students are strongly encouraged to reach out and attend the office hours. As instructors, we want to hear from you too!

CALENDAR DESCRIPTION

Official Calendar Description:
Administrative decision making and policy development often require the analysis of quantitative data. This course will introduce students to descriptive and inferential statistics often used in policy environments so that they will be effective data users and interpreters. Students will be taught how to use and present descriptive statistics.

Our Translation:
This is a course for public sector leaders with limited background in (and even an aversion to) mathematics, statistics, or economics. The aim is to build your skills at unpacking, interpreting and communicating a policy issue through statistical reasoning.

Public sector leaders have a special responsibility to manage and use data and statistics accurately and ethically. Exercising this responsibility requires more than a talent for using statistical tools and techniques. It involves a conceptual understanding too. By working first-hand with datasets and spreadsheets, we will take you beyond the techniques of statistical analysis to make you an intelligent consumer and a strategic user of statistics. We provide an overview of statistical concepts, principles, and techniques that are relevant and useful in public administration and policymaking. This course helps you think about a problem, explore it using data and statistical analysis, and then describe the situation to others. By the end of this course you be better equipped to translate data points into the plot points of a clear and truthful policy story.

> *Nothing that you will learn in the course of your studies will be of the slightest possible use to you in after life – save only this – that if you work hard and diligently you should be able to detect* when [someone] is talking rot*, and that, in my view, is the main, if not the sole, purpose of education.*
>
> - John Alexander Smith, 1914 (ref)

LEARNING OBJECTIVES

The specific readings, assignments and activities in JSGS 807 will help you both acquire and demonstrate the ability to:

- Understand statistical analysis and methodology
- Understand existing and emerging methods to access and collect data
- Understand and interpret data, and be aware of limitations so you can think critically and analytically about policy problems and issues
- Synthesize data and present information visually
- Create a narrative that incorporates and translates data into policy

These competencies will support skills like:

- **Statistical Literacy/Numeracy**: While statistics obviously have a mathematical basis, the intention of this course is not to make research statisticians out of anyone. (If that is your goal, start here and continue your pursuit of statistics through other courses!) Rather, every student should leave this course with a capacity and ability to use statistics as tools for the broader purpose of public policy. You'll need to know what a mean, median, standard deviation, bell curve, incidence rate, etc., mean—but more importantly, you'll know how to use them.

- **Statistical Communication**: In the public service, you will often be expected to act as a "data translator" between the technical analysts (like actuaries or economists) and the decision-makers. Understanding where the critical "data story" is will be a critical competency to learn during this class. You'll also need to be comfortable asking questions and knowing what you don't know.

- **Basic Visualization:** Numbers and statistics are part of the story, but telling an effective data

story means being able to present the information in a compelling way. We will work on knowing which is the most effective way to show information in a context.

- **Excel/Functional Capacity**: There are many very compelling and interesting data software packages out there, but the one that almost everyone will use during their public service career (or any career) is Excel. Being comfortable with Excel is essential to being effective with data in the public service, where Excel is most frequently used. (Similar programs like Google Sheets are not directly comparable and it will require you to learn both.)

ATTRIBUTES OF JSGS GRADUATES

Through the development of the following competencies, JSGS MPA graduates will be prepared to meet the policy challenges of a rapidly changing world:

- Analysis and Use of Evidence – how to use evidence and develop the necessary analytical skills to succeed in a public administration career;
- Politics and Democracy – ensuring that students have a deep understanding of the role of politics and democracy in public policy development including the roles of the various institutions and policy actors; and
- Policy Delivery – the importance of effective service delivery and the ongoing management and evaluation of public policy.

COURSE CONTENT AND APPROACH

Course material and learning resources will be released weekly using the Canvas/PAWS system. Students will use the same system to submit assignments and post questions. There are also tools to allow for online interaction with other students and instructors.

REQUIRED READINGS

At this point there is no single textbook that addresses our course content. We have made an effort to ensure that all readings are accessible through the UofR / UofS library systems,[1] or free online. ***There are some free online textbooks you may find useful:***

- Bounegru, L., Chambers, L., Gray, J. (2018). *The Data Journalism Handbook*. 2nd edition. EJC.
- Black, Ken. (2013). *Business Statistics: For Contemporary Decision Making*, 8th Edition. John Wiley & Sons
- Mahbobi, M., Tiemann, T. (2010). *Introductory Business Statistics with Interactive Spreadsheets*. BCcampus.
- Diez, D.M., Barr, C.D., Cetinkaya-Rundel, M. (2015). *OpenIntro Statistics*. Open Intro.
- Illowsky, B., Dean, S. et al. (2016). *Introductory Statistics*. OpenStax.
- Shafer, D., Zhang, Z. (2012). *Introductory Statistics*. Saylor Foundation.

TECHNOLOGY REQUIREMENTS

All students will need a USask student ID (NSID) and USask email address to access course material through Canvas/PAWS. Class communication will take place using USask email addresses. Students have the ability to forward these emails automatically to a preferred email address if they wish.

- To actively participate in live video conferencing, a web camera and microphone are required.
- Note that some governments (particularly the Government of Saskatchewan) have restricted access to Zoom meetings using corporate equipment. If you are using a computer provided to you by an organization that restricts access to Zoom, you will likely not be able to use that computer to engage in any Zoom sessions.
- To participate asynchronously, a standard Internet-connected device and web browser will be sufficient.
- All software used in this course is available for use for free from a standard current computer configuration (e.g., laptop computer) with access to the Internet.
- Students who are unable to participate due to a technology barrier should contact the instructor as soon as possible to discuss alternative arrangements.
- Excel is the standard spreadsheet software in most organizations. You will be learning the particular features of Excel, learning how spreadsheets can be used in the sourcing, organizing, analysis, and presentation of data is transferable between programs. If you do not currently have a copy of Excel, it is available for purchase through the bookstore of the University of Saskatchewan, and for URegina students, directly through the Microsoft Website. Licenses are available monthly or permanently.

  University of Saskatchewan: Office 365 Student Advantage Program
  https://students.usask.ca/study/tech.php#Helpandsupport

  University of Regina Office 365 for purchase https://www.microsoft.com/en-ca/microsoft-365/buy/compare-all-microsoft-365-products?tab=1&icid=Home_EN_SideNav_Office_060116&rtc=1

COURSE OUTLINE AND ASSIGNMENTS

What follows is an outline of what to expect. Full details to follow on January 11, 2021.

ONLINE CLASSES

The course material is delivered online, with interactive online classes every two weeks. The course consists of:

- Online readings,
- Exercises (much of it spreadsheet based) to apply the issues discussed in the readings and online classes,

- Assignments to demonstrate your knowledge,

COURSE AT A GLANCE

Session	Week	Online Topic	Synchronous Session
1	Jan 11-15	Review of the syllabus, course overview and introduction, Descriptive Statistics 1	1. Monday, January 11 5pm – 7pm
2	Jan 18-22	Descriptive Statistics 2	2. Monday, January 18, *Office Hour*: 5pm to 6pm
3	Jan 25-29	Application of Descriptive Statistics and Sampling Principles + Visualization and Infographics 1	3. Monday, January 25 5pm – 7pm
4	Feb 1-5	Visualization & Infographics 2 and Effective Statistical Communications	4. Monday, February 1, *Office Hour*: 5pm to 6pm
5	Feb 8-12	Inferential Statistics 1	5. Monday, February 8 5pm – 7pm
	Feb 15-20	*Winter Mid-Term Break for Most Colleges*	
6	Feb 22-26	Inferential Statistics 2 and Working with Incomplete Data	6. Monday, February 22 5pm – 7pm
7	Mar 1-5	Data in Context	7. Monday, March 1 *Office Hour*: 5pm to 6pm
8	Mar 8-12	Data Collection by Listening to People: Polling, Surveys, and Social Listening	8. Monday, March 8 5pm – 7pm
9	Mar 15-19	Administrative Data, Big Data, and Open Data	9. Monday March 15 *Office Hour*: 5pm to 6pm
10	Mar 22-26	Indices and Indicators, Models, Simulations, and Scenario Tools	10. Monday, March 22 5pm to 7pm
11	Mar 29-Apr2	Probabilities and Predictive Analytics	11. Monday March 29 *Office Hour*: 5pm to 6pm
12	Apr 5-7*	Ethical Use of Statistics	12. Monday April 5 5pm – 7pm

April 7 is last day of winter term classes
Students are encouraged to schedule time with an instructor to discuss assignments

ASSIGNMENTS

There will be two quizzes (each worth 10%) February 1 and March 8. They're intended to determine knowledge. Students can also expect two assignments, along with a major assignment for their final. Full details to follow on January 11, 2021.

EVALUATION

Participation	10%
Quiz 1	10%
Quiz 2	10%
Assignment 1	15%
Assignment 2	15%
Final Assignment	40%

ATTENDANCE AND PARTICIPATION EXPECTATIONS

Synchronous Sessions

- Students are encouraged to attend the synchronous sessions, but it is not required. These will occur over Zoom at the scheduled time on Mondays.
- All synchronous sessions will be recorded and posted to Canvas just after they occur.

Discussion Board

- Participation will be graded using the discussion board.
- Every week, students will have the opportunity to post on the discussion board on the topics of that week.
- At the end of the semester, students will submit their three best discussion posts to receive a grade. You may post as often as you like but must post at least three times to receive the full marks.
- Keep discussion board posts on-topic and relatively brief (3-5 sentences.) Finding links to external articles, videos, or interesting statistical issues is highly encouraged—don't limit yourself to conventional readings or course material!

USE OF VIDEO AND RECORDING OF THE COURSE

Video conference sessions in this course, including your participation, will be recorded and made available only to students in the course for viewing via Canvas after each session. This is done, in part, to ensure that students unable to join the session (due to, for example, issues with their Internet connection) can view the session later. This will also provide students with the opportunity to review any material discussed. Students may also record sessions for their own use, but they are not permitted to distribute the recordings (see below).

Please remember that course recordings belong to the instructor, the University, and/or others (like a guest lecturer) depending on the circumstance of each session, and are protected by copyright. Do not download, copy, or share recordings without the explicit permission of the instructor.

For questions about recording and use of sessions in which you have participated, including any concerns related to your privacy, please contact your instructor. More information on class recordings can be found in the Academic Courses Policy at https://policies.usask.ca/policies/academic-affairs/academic-courses.php#5ClassRecordings.

COPYRIGHT

Course materials are provided to you based on your registration in a class, and anything created by your professors and instructors is their intellectual property, unless materials are designated as open education resources. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to you based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before you copy or distribute others' copyright-protected materials, please ensure that your use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at https://library.usask.ca/copyright/general-information/fair-dealing-guidelines.php. For example, posting others' copyright-protected materials on the open web is not covered under the University's Fair Dealing Copyright Guidelines, and doing so requires permission from the copyright holder.

For more information about copyright, please visit https://library.usask.ca/copyright/index.php. For information on students' rights, see https://library.usask.ca/copyright/students/rights.php, or contact the University's Copyright Coordinator at copyright.coordinator@usask.ca or 306-966-8817.

STUDENT RESOURCES

- Netiquette information resources for faculty, instructors and students highlight the basics of internet etiquette including how to appropriately connect and communicate in a remote teaching and learning context. See https://teaching.usask.ca/remote-teaching/netiquette.php and https://studentstest.usask.ca/articles/netiquette.php).
- Remote learning readiness tutorial for students. This resource engages students in learning about the skills associated with remote learning success. Feel free to send this to students or embed it in your Canvas or Blackboard course as a recommended or required activity. See – see https://libguides.usask.ca/remote_learning.
- Remote learning resources have been pulled together for students on the students.usask.ca website. This site is updated regularly. See https://students.usask.ca/remote-learning/index.php..
- Academic integrity tutorial for students. This resource introduces students to the concept of academic integrity and guides them to better understand their responsibilities regarding academic work, their rights, and the supports and services available to ensure they succeed within the larger scholarly community. Feel free to embed this in your Canvas or Blackboard course as part of your course-based activities on academic integrity. See https://libguides.usask.ca/AcademicIntegrityTutorial.
- **Be Well at USask** is a podcast for all members of the university community highlighting campus initiatives and resources designed to engage and support. Included are episodes on how to thrive at university, transitioning to remote learning, academic supports, career planning in a crisis, as well as many other student supports. See https://www.youtube.com/playlist?list=PLQptLdMDrox2_HZ0XAfHQW6DZoQOhoXes.

LATE ASSIGNMENTS

Late assignment will be assigned a penalty of 5%; assignments more than a week late will lose a full grade of 10%; special circumstances will be considered upon application by the student.

ADDITIONAL EVALUATION INFORMATION

More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: http://policies.usask.ca/policies/academic-affairs/academic-courses.php

The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: http://teaching.usask.ca/about/policies/learning-charter.php.

STUDENTS WITH SPECIAL NEEDS

Students in this course who, because of a disability, may have a need for accommodations are encouraged to discuss this need with the instructor and to contact one of the following:

USask: Disability Services for Students (DSS) – 306-966-7273.

U of R: Coordinator of Special Needs Services – 306-585-4631.

STUDENTS EXPERIENCING STRESS

Students who are experiencing stress can seek assistance from one of the following:

USask: Student Affairs and Outreach – https://students.usask.ca/health/centres/student-affairs-and-outreach.php or call (306) 966-5757.

U of R: Counselling Services – http://www.uregina.ca/student/counselling/contact.html or call (306) 585-4491 between 8:30 a.m. to 4:30 p.m. Saskatchewan time Monday to Friday.

ACADEMIC INTEGRITY AND CONDUCT

Understanding and following the principles of academic integrity and conduct is vital to your success in graduate school. Ensuring that your work is your own and reflects both your own ideas and those of others incorporated in your work is important: ensuring that you acknowledge the ideas, words, and phrases of others that you use is a vital part of the scholarly endeavour. The JSGS has developed an Honour Code (see above) that encapsulates these values.

If you have any questions at all about academic integrity in general or about specific issues, contact any faculty member and we can discuss your questions. For more information, please see:

USask: Guidelines for Academic Conduct – www.usask.ca/university_secretary/council/reports_forms/reports/guide_conduct.php.

U of R: Academic Misconduct – https://www.uregina.ca/president/executive-team/ed-governance-univ-secretary/student-appeals/student-behaviour.html

JSGS GRADE DESCRIPTIONS

85+ excellent

A *superior performance* with consistent strong evidence of:

- a comprehensive, incisive grasp of the subject matter;
- an ability to make insightful critical evaluation of the material given;
- an exceptional capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently; and
- an excellent ability to apply theories to real-world problems and intersect with related disciplines.

80-85 very good

An *excellent performance* with strong evidence of:

- a comprehensive grasp of the subject matter;
- an ability to make sound critical evaluation of the material given;
- a very good capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently; and
- a strong ability to apply theories to real-world problems and intersect with related disciplines.

75-80 good

A *good performance* with evidence of:

- a substantial knowledge of the subject matter;
- a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
- some capacity for original, creative and/or logical thinking;
- a good ability to organize, to analyze, and to examine the subject material in a critical and constructive manner; and
- some ability to apply theories to real-world problems and intersect with related disciplines.

70-75 satisfactory

A *generally satisfactory and intellectually adequate performance* with evidence of:

- an acceptable basic grasp of the subject material;
- a fair understanding of the relevant issues;
- a general familiarity with the relevant literature and techniques;
- an ability to develop solutions to moderately difficult problems related to the subject material; and
- a moderate ability to examine the material in a critical and analytical manner.