

SAN JOSÉ STATE UNIVERSITY
DEPARTMENT OF URBAN AND REGIONAL PLANNING
URBP 204: Quantitative Methods
Fall 2022

Course and Contact Information

Instructor(s):	T. William Lester, Ph.D. Professor, Department of Urban and Regional Planning	Ahoura Zandiatashbar, Ph.D. Assistant Professor, Department of Urban and Regional Planning
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Office Hours:	Students are welcomed and encouraged to make individual meetings with the instructor by signing up here	Students are welcomed and encouraged to make individual meetings with Dr. Z. by signing up here
Class Days/Time:	Asynchronous	
Classroom:	https://sjsu.instructure.com/courses/1431414	
Prerequisites:	None	
Units:	4	

Course Catalog Description

Urban research design, measurement, selected statistical research tools and introduction to computer processing.

Course Web Page

Course materials such as syllabus, lecturer notes, assignment instructions, etc. are at:

<https://sjsu.instructure.com/courses/1431414>

Course Description

URBP 204 is an introductory course in quantitative planning methods featuring lectures, computer labs, and hands-on assignments. The course will help you to understand:

- Asking questions: How can you use data to answer a pressing policy question?
- Gathering data: What sources do planners use and how can you access them?
- Summarizing data: How can you present the data in a meaningful way?
- Visualizing data: How can you display complex data in an interesting and interactive way?
- Analyzing data: How do you assess what your data means?

The goal of this course is to ensure that students become enlightened consumers of basic statistical methods, rather than advanced users. To this end, students should be able to read and understand any peer-reviewed journal article in planning and urban studies and understand how the author(s) came to their conclusions. In addition, students should be able to spot out errors and outright dishonesty in the presentation of statistical “facts” in public media reports. Students will also gain critical data fluency skills in the planning field including knowing how to access, clean and present public data sources on

neighborhoods and regions, conduct basic analysis to document trends in social and economic indicators, and communicate their work through written and visual communication.

Course Format

URBP 204 will be delivered 100 percent online via Zoom due to the pandemic. While this setting is not ideal for a course of this type, the instructor will work to ensure that all students are able to access lectures, materials, assignments and readings in a manner that supports their learning styles. The course format will consist of lecture material delivered asynchronously with short exercises. Examples used will be drawn from topics central to a variety of planning practices. The remaining 50% of each class will be devoted to a “hands-on” lab-like class structure where the instructor will demonstrate various quantitative techniques.

Course Learning Outcomes (CLO)

By the end of this course you will be able to:

- Evaluate statistical research of others, including data analysis and research design
- Create charts, tables, and statistical functions in Excel
- Effectively communicate quantitative information
- Conduct basic statistical techniques including comparisons among groups

Required Texts/Readings

Textbooks

The required textbook for this course is Basic Quantitative Research Methods for Urban Planners edited by Reid Ewing and Keunhyun Park (Routledge: New York NY, 2020). This is a brand-new textbook and is part of the American Planning Association (APA)’s Planning Essentials series. This book was chosen because of its close applicability to planning research topics, its lower cost, and step-by-step instructions in SPSS and R.

We also require students to either purchase or rent a copy of Agresti and Franklin Statistics: The Art and Science of Learning with Data (3rd Edition) (any edition is fine really).

Other Readings

All other readings will be made available on the course website.

Required software/hardware

Students are required to have access to a computer with MS Excel installed, or accessible in virtual format. The statistical software used for this course will be both SPSS and R. SJSU has a license for SPSS and this software will be available in a virtual lab format. R is an open source statistical software package that is free to download. Students are encouraged to install R-Studio on their personal computers. Students will have the option of completing their statistical analysis in either SPSS or R.

Course Requirements and Assignments

Course Requirements:

Problem Sets/Quizzes: Periodic problem sets will be assigned during the first half of the course to give you practice on techniques we cover in class. The problem sets are to be written up individually although you are allowed and encouraged to confer with your colleagues on these assignments. Problem sets will not be graded, but I will note whether the assignment has been completed. To promote collaborative learning students will take online quizzes in breakout rooms during class time. Students are encouraged to work together, discuss why an answer is right or not and to bring questions back to the group. Quizzes will be noted as completed or not completed, not graded. The goal of these assignments is not to accrue grade points, but to ensure that students engage with the readings and help each other learn.

Papers: An article critique and neighborhood profile/descriptive analyses are due during the first part of the semester. Full details will be provided on the course website.

Research Project: Students, working in pairs or individually, will propose and evaluate a research question using existing secondary data (e.g. census data, survey data). All projects are due by 11:59 pm (PST) on the due date.

Final Exam: There will be one exam focusing on descriptive and inferential statistics. There will be no make-up exams. If you miss the exam due to an excused absence (illness, family emergency), please consult with the instructor to schedule a make-up exam. If you miss the final for an unexcused absence, you will receive a grade of 0 for the final exam.

Grading

Assignments	Due (Assignments can be completed earlier)	Points (% of Final Grade)
1. Problem Sets/Quizzes	Ongoing	15
3. Article Critique	September 2 nd (week 3)	10
4. San José Neighborhood Profile (ENGAGEMENT UNIT)	October 11th (week 9)	25
5. Draft Research Proposals	October 25 th (week 11)	5
7. Research Project	December 6 th (week 15)	25
8. Final Exam	December 15 th (last day of finals)	20

Grades for the course will be assigned based on your percentage of total points earned on all assignments according to the following distribution:

A plus = 100 to 96; A = 95 to 93 points; A minus = 92 to 90 points; B plus = 89 to 87 points; B = 86 to 84 points; B minus = 83 to 81 points; C plus = 80 to 78 points; C = 77 to 73 points; C minus = 72 to 70 points; D plus = 69 to 67 points; D = 66 to 63 points; D minus = 62 to 60 points; F = 59 points or lower

University Policies

Per [University Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo) (<http://www.sjsu.edu/gup/syllabusinfo>), which is hosted by the Office of Undergraduate Education. Make sure to visit this page to review and be aware of these university policies and resources.

Land Acknowledgement

The San José State University community recognizes that the present-day Muwekma Ohlone Tribe, with an enrolled Bureau of Indian Affairs documented membership of over 550, is comprised of all of the known surviving American Indian lineages aboriginal to the San Francisco Bay region who trace their ancestry through the Missions Santa Clara, San José, and Dolores, during the advent of the Hispano- European empire into Alta California; and who are the successors and living members of the sovereign, historic, previously Federally Recognized Verona Band of Alameda County. The San José State University community also recognizes the

importance of this land to the indigenous Muwekma Ohlone people of this region, and consistent with our principles of community and diversity strives to be good stewards on behalf of the Muwekma Ohlone Tribe whose land we occupy.

Citation style

It is important to properly cite any references you use in your assignments. The Department of Urban and Regional Planning uses Kate Turabian's *A Manual for Writers of Research Papers, Theses, and Dissertations*, 8th edition (University of Chicago Press, 2013, ISBN 780226816388). Copies are available in the SJSU MLK Library. Additionally, the book is relatively inexpensive, and you may wish to purchase a copy. Please note that Turabian's book describes two systems for referencing materials: (1) "notes" (footnotes or endnotes), plus a corresponding bibliography, and (2) in-text parenthetical references, plus a corresponding reference list. The instructor prefers the latter.

Accommodation for Disabilities

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the Accessible Education Center (AEC) at <http://www.sjsu.edu/aec> to establish a record of their disability.

Library Liaison

The SJSU Library Liaison for the Urban and Regional Planning Department is Ms. Peggy Cabrera. If you have questions, you can contact her at Peggy.Cabrera@sjsu.edu or 408-808-2034.

SJSU Writing Center

The SJSU Writing Center is located in Clark Hall, Suite 126. All Writing Specialists have gone through a rigorous hiring process, and they are well trained to assist all students at all levels within all disciplines to become better writers. In addition to one-on-one tutoring services, the Writing Center also offers workshops every semester on a variety of writing topics. To make an appointment or to refer to the numerous online resources offered through the Writing Center, visit the Writing Center website at <http://www.sjsu.edu/writingcenter>.

SJSU Counseling and Psychological Services

The SJSU Counseling and Psychological Services is located on the corner of 7th Street and San Fernando Street, in Room 201, Administration Building. Professional psychologists, social workers, and counselors are available to provide consultations on issues of student mental health, campus climate or psychological and academic issues on an individual, couple, or group basis. To schedule an appointment or learn more information, visit Counseling and Psychological Services website at <http://www.sjsu.edu/counseling>.

URBP 204 QUANTITATIVE METHODS, FALL 2022

Course Schedule

Module	Class Subject	Assignment Due
1	Course Introduction- The role of information in planning	
2	Research Design 1: Where do research questions come from?	PS1
3	Research Design 2: Operationalizing Research Design	Article Critique
4	Understanding Data Access and Collection	PS2
5	Describing Data: Categorical and Quantitative	
6	Describing Data: Percentiles, Change over Time, and Forecasting	
7	Data Visualization	PS3
8	Probability	Quiz 1 & Neighborhood Profile (due)
9	Sampling Distributions	Quiz 2
10	Confidence Intervals and Significance Tests	Quiz 3
11	Difference of Means and Proportions	Quiz 4
12	Statistics Tests with Categorical Variables: Chi square and ANOVA	Quiz 5
13	Correlation and Bivariate Regression	Quiz 6
14	Multivariate Regression (OLS)	
15	Review Session (live via Zoom TBA)	
	FINAL EXAM	Week of December 10 th

Readings (by class number)

1) Course Introduction- The Role of Information in Planning

Ewing and Park 2020.- Basic Quantitative Research Methods for Urban Planners-Chapter 1- "Introduction"

Recommended:

Innes, Judith "Information in Communicative Planning" JAPA 64(1) 52-68

Kaufman, Sanda and Robert Simons. "Quantitative and Research Methods in Planning" JPER 15(1) 17-34.

Sandercock, L. 2004. Towards a planning imagination for the 21st century. JAPA 70:2: 133-141.

2) Research Design 1: Where do research questions come from?

Ewing and Park, 2020- Chapter 3 "Types of Research"

Ewing and Park, 2020- Chapter 6 "Validity and Reliability"

Recommended:

Forcese, Dennis and Stephen Richter. 1973. "Models, Hypotheses and Theory" *Social Research Methods*. Prentice Hall. Chapter 4.

Research Methods Knowledge Base (<http://www.socialresearchmethods.net/kb/intres.php>)

3) Research Design 2: Operationalizing Research Design

Ewing and Park, 2020- Chapter 14 "Quasi-Experimental Design"

Sampson, R. 2010. Gold Standard Myths: Observations on the Experimental Turn in Quantitative Criminology. *Journal of Quantitative Criminology* 26: 489-500.

Resnik, D. What is Ethics in Research & Why is It Important?

Recommended:

Banerjee & Duflo. 2009. Experimental Approach to Development Economics. *Annual Review of Economics* 1:1.1-1.28.

Ravallion, M. 2009. Should the Randomistas Rule? *Economists' Voice*.

4) Understanding Data Access and Collection

Ewing and Park, 2020- Chapter 4 "Planning Data and Analysis"

Explore <http://www.census.gov/history/index.html>

US Census Bureau. 2009. *A Compass for Understanding and Using American Community Survey Data: What Researchers Need to Know*. (Pages 1-10) (<http://www.census.gov/acs/www/Downloads/ACSResearch.pdf>)

5-6) Describing Data: Categorical and Quantitative; Describing Data: Percentiles, Change over Time, and Forecasting

Ewing and Park, 2020- Chapter 5 "Descriptive Statistics and Visualizing Data"

Agresti & Franklin Chapter 2

Recommended:

Cowell, Chapter 1 & 2

7) Data Visualization

Groger, Lena (2016) “How Information Graphics Reveal Your Brain’s Blind Spots”
<https://www.propublica.org/article/how-information-graphics-reveal-your-brains-blind-spots>

Booth, W. et. al. (2016) “Communicating Evidence Visually” Chapter 15 in The Craft of Research (4th Edition) (Chicago: University of Chicago Press), pp. 214-227.

Watch overview of Tableau Public videos @ <https://public.tableau.com/en-us/s/resources>
(In class exercise: Infographic Search)

8) Probability

Agresti & Franklin- Chapters 5 and 6.

9) Sampling Distributions

Agresti and Franklin- Chapter 7

10) Confidence Intervals and Significance Tests

Agresti and Franklin- Chapters 8 & 9.

11) Comparing 2 Groups—Difference of Means and Proportions

Ewing and Park (2020), Chapter 10.

Agresti and Franklin- Ch. 10.

12) Statistics Tests with Categorical Variables: Chi square and ANOVA

Ewing and Park (2020), Chapter 8 and 11

13) Correlation and Bivariate Regression

Ewing and Park (2020), Chapter 9

14) Multivariate Regression

Ewing and Park (2020), Chapter 12

15) No Class: Thanksgiving

16) Miscellaneous Quantitative/Financial Techniques (aka Choose Your Own Adventure)

Reading materials will be decided once the class has decided which additional techniques they want to learn collectively.

This could be more advanced regression techniques, or other planning techniques and/or financial analysis tools.