SAN JOSÉ STATE UNIVERSITY
DEPARTMENT OF URBAN AND REGIONAL PLANNING
URBP 204: Quantitative Methods
Fall 2020

Course and Contact Information

Instructor(s): T. William Lester
Associate Professor, Department of Urban and Regional Planning

Office Location: Not Yet Assigned

Telephone: Not Yet Assigned

Email: thomas.lester@sjsu.edu

Office Hours: Students are welcomed and encouraged to make individual meetings with the instructor by signing up online at https://thomaswlester.youcanbook.me/

Class Days/Time: Thursdays 4:30 – 7:15pm, Online via Zoom.

Classroom: https://sjsu.instructure.com/courses/1374117

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/1374117

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 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 idea 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 than supports their learning styles. The course format will consist of approximately 50% lecture material delivered synchronously with interactive discussions, breakouts, and 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. The instructor will attempt to record each class and maintain an archive of recorded lectures and demonstrations for student review purposes and to allow for students who need accommodations. Please bear with the instructor, as this course delivery format is new 😊.

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.

**Participation:** Participation in the class and effective collaboration with your teammates is essential in this course.

### Grading

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Due</th>
<th>Points</th>
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<tbody>
<tr>
<td>1. Problem Sets/Quizzes</td>
<td>Ongoing</td>
<td>10</td>
</tr>
<tr>
<td>3. Article Critique</td>
<td>September 3rd</td>
<td>10</td>
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<tr>
<td>4. San José Neighborhood Profile</td>
<td>October 8th</td>
<td>25</td>
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<tr>
<td>(ENGAGEMENT UNIT)</td>
<td></td>
<td></td>
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<tr>
<td>5. Research Proposals</td>
<td>October 29th</td>
<td>0</td>
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<tr>
<td>6. Revised Research Proposal</td>
<td>November 5th</td>
<td>5</td>
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<tr>
<td>7. Research Project</td>
<td>December 7th</td>
<td>25</td>
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<tr>
<td>8. Final Exam</td>
<td>December 10th</td>
<td>20</td>
</tr>
<tr>
<td>9. Participation</td>
<td>Ongoing</td>
<td>5</td>
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</tbody>
</table>

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), 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), 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.

### Recording Zoom Classes
This course or portions of this course (i.e., lectures, discussions, student presentations) will be recorded for instructional or educational purposes. The recordings will only be shared with students enrolled in the class through Canvas. The recordings will be deleted at the end of the semester. If, however, you would prefer to remain anonymous during these recordings, then please speak with the instructor about possible accommodations (e.g. temporarily turning off identifying information from the Zoom session, including student name and picture, prior to recording). Students are prohibited from recording course materials and/or distributing downloaded recordings outside of the class.

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.
## Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Class Subject</th>
<th>Assignment Due</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>8/20</td>
<td>Course Introduction- The role of information in planning</td>
<td></td>
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<tr>
<td>2</td>
<td>8/27</td>
<td>Research Design 1: Where do research questions come from?</td>
<td>PS1</td>
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<tr>
<td>3</td>
<td>9/3</td>
<td>Research Design 2: Operationalizing Research Design</td>
<td>Article Critique</td>
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<tr>
<td>4</td>
<td>9/10</td>
<td>Understanding Data Access and Collection</td>
<td>PS2</td>
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<tr>
<td>5</td>
<td>9/17</td>
<td>Describing Data: Categorical and Quantitative</td>
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<tr>
<td>6</td>
<td>9/24</td>
<td>Describing Data: Percentiles, Change over Time, and Forecasting</td>
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<tr>
<td>7</td>
<td>10/1</td>
<td>Data Visualization</td>
<td>PS3</td>
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<tr>
<td>8</td>
<td>10/8</td>
<td>Probability</td>
<td>Quiz 1 &amp; Neighborhood Profile (due)</td>
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<tr>
<td>9</td>
<td>10/15</td>
<td>Sampling Distributions</td>
<td>Quiz 2</td>
</tr>
<tr>
<td>10</td>
<td>10/22</td>
<td>Confidence Intervals and Significance Tests</td>
<td>Quiz 3</td>
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<tr>
<td>11</td>
<td>10/29</td>
<td>Difference of Means and Proportions</td>
<td>Quiz 4</td>
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<tr>
<td>12</td>
<td>11/5</td>
<td>Statistics Tests with Categorical Variables: Chi square and ANOVA</td>
<td>Quiz 5</td>
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<tr>
<td>13</td>
<td>11/12</td>
<td>Correlation and Bivariate Regression</td>
<td>Quiz 6</td>
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<tr>
<td>14</td>
<td>11/18</td>
<td>Multivariate Regression (OLS)</td>
<td>Quiz 7</td>
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<tr>
<td>15</td>
<td>11/26</td>
<td>No Class Thanksgiving</td>
<td></td>
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<tr>
<td>16</td>
<td>12/3</td>
<td>Miscellaneous Quantitative/Financial Techniques</td>
<td>Research Project (Due 12/7)</td>
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<tr>
<td></td>
<td>12/10</td>
<td>FINAL EXAM (Take Home)</td>
<td>12/10</td>
</tr>
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Readings (by class number)

1) Course Introduction - The Role of Information in Planning

Recommended:
Innes, Judith “Information in Communicative Planning” JAPA 64(1) 52-68

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:

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”

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

4) Understanding Data Access and Collection
Ewing and Park, 2020- Chapter 4 “Planning Data and Analysis”

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

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**


Watch overview of Tableau Public videos @  [https://public.tableau.com/en-us/s/resources](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**  
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.