

SAN JOSÉ STATE UNIVERSITY
URBAN AND REGIONAL PLANNING
DEPARTMENT
URBP 204: QUANTITATIVE METHODS
Fall 2019

Instructors:	Dr. Shishir Mathur
Office location:	WSQ 216E
Email:	shishir.mathur@sjsu.edu
Office hours:	By appointment
Class days/time:	Monday 4:30 -7:00 pm
Classroom:	WSQ 208
Class website:	https://sjsu.instructure.com/courses/1327376
Prerequisites:	None
Units:	4

Course Catalog Description

Urban research design, measurement, selected statistical research tools and introduction to computer processing. Extensive treatment of survey research.

Course Description

This course is designed to familiarize students with research design and collection and statistical analysis of data for planning and public policy purposes. We will begin with an overview of social science research and then provide opportunity for students to define and conceptualize planning-related research questions and to execute statistical tools that students can use to make inferences from quantitative and qualitative data.

Course Learning Objectives

Upon successful completion of the course, students will be able to:

- 1) Identify the overall strengths and weaknesses of quantitative, qualitative, experimental, and survey research methods; and assess which research method/s, given resource constraints, are most appropriate for answering a specific research question.
- 2) Develop research questions worthy of informing public policy, and identify the statistical tools appropriate for answering the research question. The tools learned in this class are: Tests between Means of Different Groups, Tests Between Means of Related Groups, ANOVA, Factorial ANOVA, Correlation, One- and Two- Factor Chi Square; Ordinary Least Squares Regression; and Logistic Regression
- 3) Develop survey research questions that conform to conventional best practices in survey design.
- 4) Critically evaluate the strengths and weaknesses of various non-probability and probability-based sampling techniques.
- 5) Present quantitative data and results in text and graphics.
- 6) Identify the policy implications of statistical test results.

Planning Accreditation Board (PAB) Knowledge Components

This course partially covers the following PAB Knowledge Components:

- 1e) The Future: understanding of the relationships between past, present, and future in planning domains, as well as the potential for methods of design, analysis, and intervention to influence the future.
- 2a) Research: tools for assembling and analyzing ideas and information from prior practice and scholarship, and from primary and secondary sources.
- 2b) Written, Oral and Graphic Communication: ability to prepare clear, accurate and compelling text, graphics and maps for use in documents and presentations.
- 2c) Quantitative and Qualitative Methods: data collection, analysis and modeling tools for forecasting, policy analysis, and design of projects and plans.

Required Course Texts

There are two required textbooks for this course.

a) Babbie, Earl R. 2012. *Practice of Social Research, 13th ed.* Belmont: Wadsworth. (ISBN: 9781133049791). A used paperback edition would cost approximately \$30.

You may also use the 10th edition of the book.

b) Salkind, Neil. 2010. *Statistics for People Who (Think They) Hate Statistics, 4th Edition.* Thousand Oaks: Sage. (ISBN: 9781412979597). A new paperback edition would cost approximately \$50.

You may also use the 2nd edition of the book. A used book would cost approximately \$20. You do not need to buy the book that comes with SPSS CD.

Recommended Course Text

There is one recommend textbook for this course.

Agresti, Alan, and Barbara Finlay. 2008. *Statistical Methods for the Social Sciences, 4th edition.* New Jersey: Prentice Hall. (ISBN: 9780130272959).

A paperback edition would cost approximately \$60. You may also use the 3rd edition of the book.

Course Assignments and Grading Policy

Grades will be based on six take home exercises, a term project and its presentation, and two engagement unit activities profiling a real neighborhood in San Jose.

Assignments Exercises	Share of Course Grade	Objectives Covered
1) Exercise 1	5%	1
2) Exercise 2 & 3	5% each	2
3) Exercise 4 & 5	10% each	2
4) Exercise 6	5%	3 & 4
Engagement Unit: Profile of a San Jose Neighborhood		
Engagement Unit, Part 1	15%	2
Engagement Unit, Part 2	10%	2
Term Project		
Term Project	30%	2, 5 & 6
Term Project presentation	5%	2, 5 & 6

Resubmissions for Exercises 1-6

You will be able to correct and re-submit the six exercises and earn up to 75% more points on an assignment resubmission.

Late Assignments

Due to the relatively large number of assignments in this class and the potential for re-submissions, this class has a tight grading schedule. As a result, late work will not be accepted, except with the instructor's prior permission.

Grading Information

Grades for the course will be assigned based on your percentage of total points earned on all assignments according to the following distribution: >96% = A+, >93%-96% = A, >90%-93% = A-, >87%-90% = B+, >83%-87% = B, >80%-83% = B-, >77%-80% = C+, >73%-77% = C, >70%-73% = C-, >67%-70% = D+, >63%-67% = D, >60%-63% = D-, 0%-60% = F

Course Workload

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practice. Other course structures will have equivalent workload expectations as described in the syllabus.

Because this is a four-unit class, you can expect to spend a minimum of nine hours per week in addition to time spent in class and on scheduled tutorials or activities. Special projects or assignments may require additional work for the course. Careful time management will help you keep up with readings and assignments and enable you to be successful in all of your courses.

General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU's policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. To learn important campus information, view University Policy S16-15 (<http://www.sjsu.edu/senate/docs/S16-15.pdf>) and SJSU current semester's Policies and Procedures (<http://info.sjsu.edu/static/schedules/policies.html>). In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not address the issue, it is recommended that the student contact the Department Chair as the next step.

Consent for Recording of Class and Public Sharing of Instructor Material

University Policy S12-7 (<http://www.sjsu.edu/senate/docs/S12-7.pdf>), requires students to obtain instructor's permission to record the course. Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.

In classes where active participation of students or guests may be on the recording, permission of those students or guests should be obtained as well.

Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.

Academic Integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity Policy F15-7 (<http://www.sjsu.edu/senate/docs/F15-7.pdf>) requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. Visit the Student Conduct and Ethical Development website (<http://www.sjsu.edu/studentconduct/>) for more information.

Plagiarism and Citing Sources Properly

Plagiarism is the use of someone else's language, images, data, or ideas without proper attribution. It is a very serious offense both in the university and in your professional work. In essence, plagiarism is both theft and lying: you have stolen someone else's ideas, and then lied by implying that they are your own.

Plagiarism will lead to grade penalties and a record filed with the Office of Student Conduct and Ethical Development. In severe cases, students may also fail the course or even be expelled from the university.

If you are unsure what constitutes plagiarism, it is your responsibility to make sure you clarify the issues before you hand in draft or final work.

Learning when to cite a source and when not to is an art, not a science. However, here are some common examples of plagiarism that you should be careful to avoid:

- Using a sentence (or even a part of a sentence) that someone else wrote without identifying the language as a quote by putting the text in quote marks and referencing the source.
- Paraphrasing somebody else's theory or idea without referencing the source.
- Using a picture or table from a webpage or book without reference the source.
- Using data some other person or organization has collected without referencing the source.

The University of Indiana has developed a very helpful website with concrete examples about proper paraphrasing and quotation. See in particular the following pages:

- Overview of plagiarism at www.indiana.edu/~istd/overview.html
- Examples of plagiarism at www.indiana.edu/~istd/examples.html
- Plagiarism quiz at www.indiana.edu/~istd/test.html

If you still have questions, feel free to talk to me personally. There is nothing wrong with asking for help, whereas even unintentional plagiarism is a serious offense.

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 King 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 requires that students with disabilities requesting accommodations must register with the AEC (Accessible Education Center) to establish a record of their disability. You can find information about the services SJSU offers to accommodate students with disabilities at the Accessible Education Center website at www.sjsu.edu/aec.

Accommodation to Students' Religious Holidays

San José State University shall provide accommodation on any graded class work or activities for students wishing to observe religious holidays when such observances require students to be absent from class. It is the responsibility of the student to inform the instructor, in writing, about such holidays before the add deadline at the start of each semester. If such holidays occur before the add deadline, the student must notify the instructor, in writing, at least three days before the date that he/she will be absent. It is the responsibility of the instructor to make every reasonable effort to honor the student request without penalty, and of the student to make up the work missed. See University Policy S14-7 at <http://www.sjsu.edu/senate/docs/S14-7.pdf>.

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 San José State University Writing Center offers a variety of resources to help students become better writers, and all of their services are free for SJSU students. Their mission is to enhance the writing skills of SJSU students so they can communicate clearly in any setting (informal, academic, or professional). They accomplish this goal by creating original writing resources, offering workshops, and conducting one-on-one and small-group tutoring sessions.

The SJSU Writing Center has two locations: drop-in tutoring sessions in Clark Hall, Suite 126; and scheduled appointments on the second floor of the MLK Library. All writing tutors 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 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 Carlos in the new Student Wellness Center, Room 300B. Professional psychologists, social workers, and counselors are available to provide confidential 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 2019 COURSE SCHEDULE

(subject to change with fair notice)

Please note: In the Course Schedule below, the chapter numbers for the Earl Babbie book are as per the 13th Edition. The Chapters numbers for the 13th and the 10th editions are provided at the end of the syllabus. If you buy a different edition, look for the corresponding chapter titles.

Chapter numbers for the Salkind book are as per the 4th Edition. The Chapters numbers for the 4th and the 2nd editions are provided at the end of the syllabus. If you buy a different edition, look for the corresponding chapter titles.

Chapter numbers for the Agresti and Finlay book are as per the 4th Edition. The Chapters numbers for the 4th and the 3rd editions are provided at the end of the syllabus. If you buy a different edition, look for the corresponding chapter titles.

Week 1: August 26

Course Overview; Social Research

Required reading:

Earl, Babbie. Ch. 2, 3 and 5

Week 2: September 2—Memorial Day! (no class!!!!)

Week 3: September 9

Social Research; Census Overview; Descriptive Statistics

Required reading: Salkind, Neil. Ch. 2, 3 and 4

Exercise 1 Introduced

Week 4: September 16

Normal Distribution; Hypothesis Testing; T-statistics

Required reading: Salkind, Neil. Ch. 7, 8 and 9

Week 5: September 23

Tests between Means of Different Groups; Tests Between Means of Related Groups; ANOVA

Required reading: Salkind, Neil. Ch. 11, 12 and 13

Exercise 2 Introduced

Exercise 1 Due

Week 6: September 30

Factorial ANOVA; Chi-squared tests; Correlation

Required reading: Salkind, Neil. Ch. 14, 15 and 17

Exercise 3 Introduced

Exercise 1 Graded

Week 7: October 7

Ordinary Least Squares Regression (OLS); Term Project Introduced (Review of Survey Questionnaire;

Review of Survey Data File)

Recommended Reading: Agresti and Finlay Ch. 9, 10, 11 and 14

Revised Exercise 1 Due

Exercise 2 Due

Week 8: October 14

Ordinary Least Squares Regression (OLS)

Recommended Reading: Agresti and Finlay Ch. 9, 10, 11 and 14

Exercise 3 Due

Revised Exercise 1 Graded

Exercise 2 Graded

Week 9: October 21

Ordinary Least Squares Regression (OLS); Logistic Regression

Recommended Reading: Agresti and Finlay Ch. 15

Exercise 4 Introduced

Neighborhood Profile Memo "A" Due

Revised Exercise 2 Due

Exercise 3 Graded

Week 10: October 27

Logistic Regression; Discussion of Research Questions; Lab Time for Exercise 4

Recommended Reading: Agresti and Finlay Ch. 15

Revised Exercise 3 Due

Neighborhood Profile Memo "A" Graded

Revised Exercise 2 Graded

Week 11: November 4

Logistic Regression;
Recommended Reading: Agresti and Finlay Ch. 15
Exercise 5 Introduced
Exercise 4 Due
Neighborhood Profile Memo "B" Due
Research Questions Assignment Due
Revised Exercise 3 Graded

Week 12: November 11

Survey Research; Lab Time for Exercise 5
Required reading: Earl, Babbie Ch. 9
Exercise 4 Graded
Research Questions Assignment Graded

Week 13: November 18

Survey Research; Discussion of Research Question Assignment
Required reading: Earl, Babbie Ch. 9
Exercise 5 Due
Revised Exercise 4 Due
Revised Research Questions Assignment Due

Week 14: November 25

Experiments and Qualitative Field Research; Lab Time for Term Project Analysis Report
Required reading: Earl, Babbie Ch. 8 and 10
Exercise 6 Introduced
Revised Exercise 4 Graded
Exercise 5 Graded
Revised Research Questions Assignment Graded

Week 15: December 2

Experiments and Qualitative Field Research
Required reading: Earl, Babbie Ch. 8 and 10
Revised Exercise 5 Due
Term Project Analysis Report Due

Week 16: December 9

Research Design; Lab Time for Presentation and for Revised Term Project Analysis Report
Required reading: Earl, Babbie Ch. 4 and 6
Term Project Analysis Report Graded
Exercise 6 Due (email at shishir.mathur@sjsu.edu with the following subject line: URBP 204 First Name, Last Name Exercise 6); Note: The graded Exercise 6 will be returned via email by December 11

Week 17: December 16 (Final's Week) : Please note that the class will meet from 5:15 pm to 7:30 pm
In-Class Presentation of Term Project (presentation guidelines will be handed out a few weeks before)
Revised Term Project Analysis Report Due
Revised Exercise 6 Due

Appendix

Chapter Titles: Babbie 13th edition

- Ch. 1: Human Inquiry and Science
- Ch 2: Paradigms, Theory and Social Research
- Ch 3: The Ethics and Politics of Social Research
- Ch 4: Research Design
- Ch 5: Conceptualization, Operationalization, and Measurement
- Ch 6: Indexes, Scales, and Typologies
- Ch 7: The Logic of Sampling
- Ch 8: Experiments
- Ch 9: Survey Research
- Ch 10: Qualitative Field Research
- Ch 11: Unobtrusive Research
- Ch 12: Evaluation Research
- Ch 13: Qualitative Data Analysis
- Ch 14: Quantitative Data Analysis
- Ch 15: The Logic of Multivariate Analysis
- Ch 16: Statistical Analyses
- Ch 17: Reading and Writing Social Research

Chapter Titles: Babbie 10th edition

- Ch. 1: Human Inquiry and Science
- Ch 2: Paradigms, Theory and Social Research
- Ch 3: The Ethics and Politics of Social Research
- Ch 4: Research Design
- Ch 5: Conceptualization, Operationalization, and Measurement
- Ch 6: Indexes, Scales, and Typologies
- Ch 7: The Logic of Sampling
- Ch 8: Experiments
- Ch 9: Survey Research
- Ch 10: Qualitative Field Research
- Ch 11: Unobtrusive Research
- Ch 12: Evaluation Research
- Ch 13: Qualitative Data Analysis
- Ch 14: Quantitative Data Analysis
- Ch 15: The Elaboration Model
- Ch 16: Social Statistics
- Ch 17: Reading and Writing Social Research

Chapter Titles: Salkind 4th edition

- Ch 1. Statistics or Sadistics? It's Up to You Part II
- Ch 2. Means to an End: Computing and Understanding Averages
- Ch 3. Vive la Diff,rence: Understanding Variability
- Ch 4. A Picture Really Is Worth a Thousand Words
- Ch 5. Ice Cream and Crime: Computing Correlation Coefficients
- Ch 6. Just the Truth: An Introduction Understanding Reliability and Validity Part III
- Ch 7. Hypotheticals and You: Testing Your Questions
- Ch 8. Are Your Curves Normal? Probability and Why It Counts Part IV
- Ch 9. Significantly Significant: What It Means for You and Me
- Ch 10. Only the Lonely: The One-Sample Z Test
- Ch 11. t(ea) for Two: Tests Between the Means of Different Groups
- Ch 12. t(ea) for Two (Again): Tests Between the Means of Related Groups
- Ch 13. Two Groups Too Many? Try Analysis of Variance

- Ch 14. Two Too Many Factors: Factorial Analysis of Variance
- Ch 15. Cousins or Just Good Friends? Testing Relationships Using the Correlation Coefficient
- Ch 16. Predicting Who'll Win the Super Bowl: Using Linear Regression
- Ch 17. What to Do When You're Not Normal: Chi-Square and Some Other Nonparametric Tests
- Ch 18. Some Other (Important) Statistical Procedures You Should Know About
- Ch 19. A Statistical Software Sampler Part V
- Ch 20. The Ten (or More) Best Internet Sites for Statistics Stuff
- Ch 21. The Ten Commandments of Data Collection

Chapter Titles: Salkind 2nd edition

- Ch 1. Statistics or Sadistics? It's Up to You Part II
- Ch 2. Means to an End: Computing and Understanding Averages
- Ch 3. Vive la Diff,rence: Understanding Variability
- Ch 4. A Picture Really Is Worth a Thousand Words
- Ch 5. Ice Cream and Crime: Computing Correlation Coefficients Part III
- Ch 6. Hypotheticals and You: Testing Your Questions
- Ch 7. Are Your Curves Normal? Probability and Why It Counts Part IV
- Ch 8. Significantly Significant: What It Means for You and Me
- Ch 9. t(ea) for Two: Tests Between the Means of Different Groups
- Ch 10. t(ea) for Two (Again): Tests Between the Means of Related Groups
- Ch 11. Two Groups Too Many? Try Analysis of Variance
- Ch 12. Two Too Many Factors: Factorial Analysis of Variance
- Ch 13. Cousins or Just Good Friends? Testing Relationships Using the Correlation Coefficient
- Ch 14. Predicting Who'll Win the Super Bowl: Using Linear Regression
- Ch 15. What to Do When You're Not Normal: Chi-Square and Some Other Nonparametric Tests
- Ch 16. Just the Truth: An Introduction Understanding Reliability and Validity
- Ch 17. Some Other (Important) Statistical Procedures You Should Know About
- Ch 18. A Statistical Software Sampler Part V
- Ch 19. The Ten Best Internet Sites for Statistics Stuff
- Ch 20. The Ten Commandments of Data Collection

Chapter Titles: Agresti and Finlay 4th edition

- Ch 1. Introduction
- Ch 2. Sampling and Measurement
- Ch 3. Descriptive statistics
- Ch 4. Probability Distributions
- Ch 5. Statistical inference: estimation
- Ch 6. Statistical Inference: Significance Tests
- Ch 7. Comparison of Two Groups
- Ch 8. Analyzing Association between Categorical Variables
- Ch 9. Linear Regression and Correlation
- Ch 10. Introduction to multivariate Relationships
- Ch 11. Multiple Regression and Correlation
- Ch 12. Comparing groups: Analysis of Variance (ANOVA) methods
- Ch 13. Combining regression and ANOVA: Quantitative and Categorical Predictors
- Ch 14. Model Building with Multiple Regression
- Ch 15. Logistic Regression: Modeling Categorical Responses
- Ch 16. Introduction to Advanced Topics

Chapter Titles: Agresti and Finlay 3rd edition

- Ch 1. Introduction
- Ch 2. Sampling and Measurement
- Ch 3. Descriptive statistics

- Ch 4. Probability Distributions
- Ch 5. Statistical inference: estimation
- Ch 6. Statistical Inference: Significance Tests
- Ch 7. Comparison of Two Groups
- Ch 8. Analyzing Association between Categorical Variables
- Ch 9. Linear Regression and Correlation
- Ch 10. Introduction to multivariate Relationships
- Ch 11. Multiple Regression and Correlation
- Ch 12. Comparing groups: Analysis of Variance methods
- Ch 13. Combining regression and ANOVA: Analysis of Covariance
- Ch 14. Model Building with Multiple Regression
- Ch 15. Logistic Regression: Modeling Categorical Responses
- Ch 16. Introduction to Advanced Topics