Instructors: Dr. Chao Liu

Office location: Liu: WSQ 218

Email: chao.liu01@sjsu.edu

Office hours: By appointment

Class days/time: Wednesday 7:30 -10:15pm

Classroom: WSQ 208

Class website: https://sjsu.instructure.com/courses/1310535

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, 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; 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. They are:


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


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 to Purchase
There is one recommend textbook for this course. It is:


Course Assignments and Grading Policy
Grades will be based on five take home exercises including a series of exercises reviewing and practicing material learned in class, a term project (report and presentation), and engagement unit activity applying your new quantitative analysis skills to a real neighborhood in San Jose.

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Share of Course Grade</th>
<th>Course Learning Objectives Covered</th>
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</thead>
<tbody>
<tr>
<td><strong>Exercises</strong></td>
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<tr>
<td>1) Social research</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>2) Inferential Statistics</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>3) Linear Regression</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>4) Logistic Regression</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>5) Survey Research and Research Design</td>
<td>5%</td>
<td>3 &amp; 4</td>
</tr>
<tr>
<td><strong>Engagement Unit: Quantitative Analysis of a San Jose Neighborhood</strong></td>
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<tr>
<td>Engagement Unit, Part 1</td>
<td>15%</td>
<td>2</td>
</tr>
<tr>
<td>Engagement Unit, Part 2</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td><strong>Term Project</strong></td>
<td></td>
<td></td>
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<tr>
<td>Term Project report</td>
<td>25%</td>
<td>2, 5 &amp; 6</td>
</tr>
<tr>
<td>Term Project presentation</td>
<td>10%</td>
<td>2, 5 &amp; 6</td>
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</tbody>
</table>
Resubmissions for Exercises 1-5
You will be able to correct and re-submit the five exercises. You will be able to earn up to 75% more points on an assignment resubmission up to a maximum score of 95%. Please do not re-submit your assignment if you earned a score of 95% or higher on your initial submission.

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: >96.67% = A+, >93.33%-96.67% = A, >89.5%-93.3% = A-, >86.67%-89.5%, B+, >83.33%-86.67% = B, >79.5%-83.3% = B-, >76.67%-79.5%, C+, >73.3%-76.67% = C, >69.5%-73.3% = C-, >66.67%-69.5%, D+, >63.3%-66.67% = D, >59.5%-63.3% = D-, 0%-59.5% = F

Course Workload
Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five 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 practica. 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.

University Policies
Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/
**Plagiarism and Citing Sources Properly**

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity Policy S07-2 at [http://www.sjsu.edu/senate/docs/S07-2.pdf](http://www.sjsu.edu/senate/docs/S07-2.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. The Student Conduct and Ethical Development website is available at [http://www.sjsu.edu/studentconduct/](http://www.sjsu.edu/studentconduct/).

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](http://www.indiana.edu/~istd/overview.html)
- Examples of plagiarism at [www.indiana.edu/~istd/examples.html](http://www.indiana.edu/~istd/examples.html)
- Plagiarism quiz at [www.indiana.edu/~istd/test.html](http://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.

**Library Liaison**

The SJSU Library Liaison for the Urban and Regional Planning Department is Ms. Toby Matoush. If you have questions, you can contact her at toby.matoush@sjsu.edu or 408-808-2096.
URBP 204: QUANTITATIVE METHODS  
Spring 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.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic and Instructor</th>
<th>Readings</th>
<th>Assignment Due</th>
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<tbody>
<tr>
<td>1 01/30</td>
<td>Course Overview Intro to Social Research</td>
<td>Babbie: Chapters 2, 3, 5</td>
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<tr>
<td>2 02/06</td>
<td>Intro to Social Research Intro to Excel</td>
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<tr>
<td>3 02/13</td>
<td>Descriptive Statistics</td>
<td>Salkind: Chapters 2, 3, 4</td>
<td>Exercise 1</td>
</tr>
<tr>
<td>4 02/20</td>
<td>Inferential Statistics I t-tests, ANOVA, chi-square</td>
<td>Salkind: Chapters 7, 8, 9</td>
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<tr>
<td>5 02/27</td>
<td>Inferential Statistics II t-tests, ANOVA, chi-square</td>
<td>Salkind: Chapters 11, 12, 13</td>
<td>Exercise 1 revisions</td>
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<tr>
<td>6 03/06</td>
<td>Inferential Statistics III t-tests, ANOVA, chi-square in SPSS</td>
<td>Salkind: Chapters 14, 15, 17</td>
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<tr>
<td>7 03/13</td>
<td>Regression I Ordinary Least Squares Regression (OLS)</td>
<td>Agresti and Finlay: Chapters 9, 10, 11 (recommended)</td>
<td>Exercise 2</td>
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<td>Date</td>
<td>Topic</td>
<td>Text</td>
<td>Notes</td>
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<td>8 03/20</td>
<td>Regression I (continued)</td>
<td>Ordinary Least Squares Regression (OLS)</td>
<td>Agresti and Finlay: Chapters 11, 14 (recommended)</td>
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<tr>
<td>9 03/27</td>
<td>Regression II</td>
<td>Logistic Regression</td>
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<td>Agresti and Finlay: Chapters 15 (recommended)</td>
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<td>04/03</td>
<td>Spring break (no class)</td>
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<td>10 04/10</td>
<td>Regression II (continued)</td>
<td>Logistic Regression</td>
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<td>Introduce Term Project</td>
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<td>11 04/17</td>
<td>Research Questions Activity</td>
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<td>Survey Research</td>
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<td>Term Project Work Time</td>
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<td>Babbie: Chapter 9</td>
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<tr>
<td>12 04/24</td>
<td>Survey Research</td>
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<td>13 05/01</td>
<td>Experiments &amp; Qualitative Field Research</td>
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<td>Term Project Work Time</td>
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<td>Babbie: Chapters 8, 10</td>
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<td>14 05/08</td>
<td>Research Design</td>
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<td>Term Project Work Time</td>
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<td>Babbie: Chapters 4, 6</td>
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<tr>
<td>Finals</td>
<td>Term Project</td>
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<td>05/15</td>
<td>In-Class Presentation of Term Project</td>
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<td></td>
<td>Exercise 5 Revisions</td>
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</table>
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 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

San José State University
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 (or More) 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