San José State University
Urban and Regional Planning Department
URBP 204, Quantitative Methods, Section 1, Fall 2021

Course and Contact Information
Instructor: Dr. Shishir Mathur
Office Location: WSQ 216E
Telephone: (408) (310-7856)
Email: shishir.mathur@sjsu.edu
Office Hours: By appointment (office hours over zoom and/or phone)
Class Days/Time: Monday, 4 pm to 6:45 pm
Classroom: WSQ 208
Course Website: https://sjsu.instructure.com/courses/1430258

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

Course Format
This course will be taught in hybrid format (a mix of in-person classes and online instruction).

Faculty Web Page and MYSJSU Messaging
Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on Canvas Learning Management System course login website. Course-related communication and updates will be provided through email. The instructor will send email at the address associated with your MySJSU. So, please regularly check that email account. For help with using Canvas see Canvas Student Resources page.

Course Learning Outcomes (CLO)
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.

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 questions. 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.

**Required Texts/Readings**

**Textbooks**

   You may also buy/rent the 10th edition of the book.


You may also buy/rent the 2nd, 4th, or 5th edition of the book. For some reason the 3rd edition is different. Do not use it. You do not need to buy the book that comes with SPSS CD.

**Recommended Readings**

There is one recommended textbook for this course.

**Other technology requirements / equipment / material**

Personal computer, EXCEL and SPSS software, and good internet connection for work to be done outside the in-person class sessions and for the on-line class sessions.

**Library Liaison**

Name: Peggy Cabrera. Email: peggy.cabrera@sjsu.edu

**Course Requirements and Assignments**

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 three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Your grade for the course will be based on six take home exercises and two engagement unit activities. You will be able to revise and re-submit the take home six exercises and earn up to 75% of the lost points.

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.

Preparing profile of a San Jose neighborhood and comparing and contrasting your profile with your classmates’ will constitute the 1-unit engagement unit. For this 1-unit engagement unit, the instructor will spend an additional 15 hours per semester on activities such as: designing the engagement unit activities and the related
assignments, coordinating with community partners to implement the activities, advising students outside of class on a weekly basis as needed, and grading the engagement unit activity assignments.

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Share of Course Grade</th>
<th>Course Learning Objectives Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Exercise 1: Social research</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td>2) Exercise 2: Survey, experiments, field research</td>
<td>10%</td>
<td>3 &amp; 4</td>
</tr>
<tr>
<td>3) Exercise 3: Inferential Statistics, Part 1</td>
<td>10%</td>
<td>2, 5 &amp; 6</td>
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<tr>
<td>4) Exercise 4: Inferential Statistics, Part 2</td>
<td>10%</td>
<td>2, 5 &amp; 6</td>
</tr>
<tr>
<td>5) Exercise 5: Logistic Regression</td>
<td>10%</td>
<td>2, 5 &amp; 6</td>
</tr>
<tr>
<td>6) Exercise 6: Ordinary Least Squares Regression</td>
<td>25%</td>
<td>2, 5 &amp; 6</td>
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<tr>
<td><strong>Engagement Unit: Quantitative Analysis of a San Jose Neighborhood</strong></td>
<td></td>
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<tr>
<td>Memo A: Engagement Unit, Part 1</td>
<td>15%</td>
<td>2</td>
</tr>
<tr>
<td>Memo B: Engagement Unit, Part 2</td>
<td>10%</td>
<td>2</td>
</tr>
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</table>

**Final Examination or Evaluation**

Submission of “Revised Exercise 6” and “Course Reflection” will constitute the culminating activities for this course.

**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:

- *A plus* = 100 to 96 points
- *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](https://www.sjsu.edu/curriculum/courses/syllabus-info.php), 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](https://www.sjsu.edu/curriculum/courses/syllabus-info.php). Make sure to visit this page to review and be aware of these university policies and resources.
URBP 204/Quantitative Methods, Fall 2021, Course Schedule

(Subject to change with fair notice. Instructor will notify students of the changes in the class and by uploading a revised syllabus on the course webpage)

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 6th Edition. The Chapters numbers for the 6th 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.

Course Schedule

Week 1 (August 23)
Course Overview; Social Research
Required reading: Babbie, Ch. 2, 3 and 5

Week 2 (August 30)
Social Research continued; Census Overview

Exercise 1 Introduced

Week 3 (September 6)—Labor Day—NO CLASS!

Week 4 (September 13)
Descriptive Statistics; Normal Distribution; Hypothesis Testing; T-statistics
Required reading: Salkind Ch. 2, 3, 7, 8 and 9

Exercise 1 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Ex 1”)

Week 5 (September 20)
Normal Distribution; Hypothesis Testing; T-statistics continued; Survey Research
Required reading: Babbie Ch. 9

Exercise 1 Graded

Week 6 (September 27)
Survey Research (continued);
Activities for Engagement Unit Activities (neighborhood profile and survey data)

Revised Exercise 1 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Rev Ex 1”)

Neighborhood Profile Memo “A” and “B” Introduced

Week 7 (October 4)
Experiments and Qualitative Field Research
Required reading: Babbie Ch. 8 and 10

Exercise 2 Introduced
Revised Exercise 1 Graded
Week 8 (October 11)
Tests between Means of Different Groups; Tests Between Means of Related Groups; ANOVA
Required reading: Salkind, Ch. 11, 12 and 13

Memo A Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Memo A”; instructor will distribute your Memo A to classmates for preparing Memo B)

Week 9 (October 18)
Tests between Means of Different Groups; Tests Between Means of Related Groups; ANOVA (continued); Factorial ANOVA; Chi-squared tests; Correlation
Required reading: Salkind, Ch. 14, 15 and 17

Research Questions Discussion
Exercise 3 Introduced
Neighborhood Profile Memo “A” Graded
Exercise 2 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Ex 2”)

Week 10 (October 25)
Factorial ANOVA; Chi-squared tests; Correlation (continued); Logistic Regression
Recommended Reading: Agresti and Finlay Ch. 15

Research Questions Discussion
Exercise 4 Introduced
Exercise 2 Graded
Memo B Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Memo B”)

Week 11 (November 1)
Logistic Regression (continued)

Exercise 5 Introduced
Revised Exercise 2 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Rev Ex 2”)
Exercise 3 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Ex 3”)

Week 12 (November 8)
Ordinary Least Squares Regression (OLS); Lab-time for Exercise 5
Recommended Reading: Agresti and Finlay Ch. 9, 10, 11 and 14

Revised Exercise 2 Graded
Exercise 3 Graded
Exercise 4 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Ex 4”)

Week 13 (November 15)
OLS (continued)

Exercise 4 Graded
Revised Exercise 3 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Rev Ex 3”)
Exercise 5 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Ex 5”)

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Week 14 (November 22)

OLS (continued)

Exercise 6 Introduced
Revised Exercise 3 Graded
Exercise 5 Graded
Revised Exercise 4 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Rev Ex 4”)

Week 15 (November 29)

Research Design; Lab-time for Exercise 6
Required Reading: Babbie, Ch. 4 and 6

Revised Exercise 4 Graded
Revised Exercise 5 Due (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Rev Ex 5”)
Exercise 6 Due December 3 (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Ex 6”)

Week 16 (December 6)

Lab-time for Exercise 6

Revised Exercise 5 Graded
Exercise 6 Graded

Week 17 (December 8): Final Exams Week
Please note that since this is Final Exam Week, the class meets on Wednesday, December 8 from 2:45 pm to 5 pm
Course Reflection; Questions on Revised Exercise 6

Revised Exercise 6 Due December 13 (email at shishir.mathur@sjsu.edu with the subject line: “first name, last name, 204: Rev Ex 6”)

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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 6th edition**
Ch 1. Statistics or Sadistics? It's Up to You
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
Ch 7. Hypotheticals and You: Testing Your Questions
Ch 8. Are Your Curves Normal? Probability and Why It Counts
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

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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