

SPRING 2020

PA 606

*seminar in*

# QUANTITATIVE TECHNIQUES

*Professor: Burrel Vann Jr*

*Room: GC-2519*

*Time: Wednesdays 4:00pm-6:40pm*

*Schedule #: 22754*

# DESCRIPTION

Statistics is a “language” that can be used to describe social phenomena. When we talk about how things vary or relate to one another, we are talking about the relationship between two or more aspects of society. In quantitative (statistical) work, these aspects are known as variables. This course will provide students with the skills necessary for understanding, interpreting, and drawing conclusions from statistical analysis of data.

This class begins with a review of univariate statistics, including levels of measurement, central tendency, variability/dispersion, normal curve, z-scores, and confidence intervals. Next, we turn to bivariate techniques, including tests of independence (chi square) and odds ratios, comparing means for two groups (t-test); comparing means for more than two groups (ANOVA), comparing means for more than two groups across time (RMANOVA), and correlation. Finally, we turn to multivariate techniques, including regressions for interval-ratio outcomes (Ordinary Least Squares) and regressions for categorical outcomes (logistic regression). This class may also cover count regression models (Poisson and Negative Binomial).

# OBJECTIVES

- To understand the application of statistics to quantitative data to answer social science questions
- To gain statistical analysis skills using R/RStudio
- To develop programming skills that are transferrable to other statistical software platforms (including STATA, Python, and SAS)
- To be able to interpret statistical results and clearly communicate conclusions

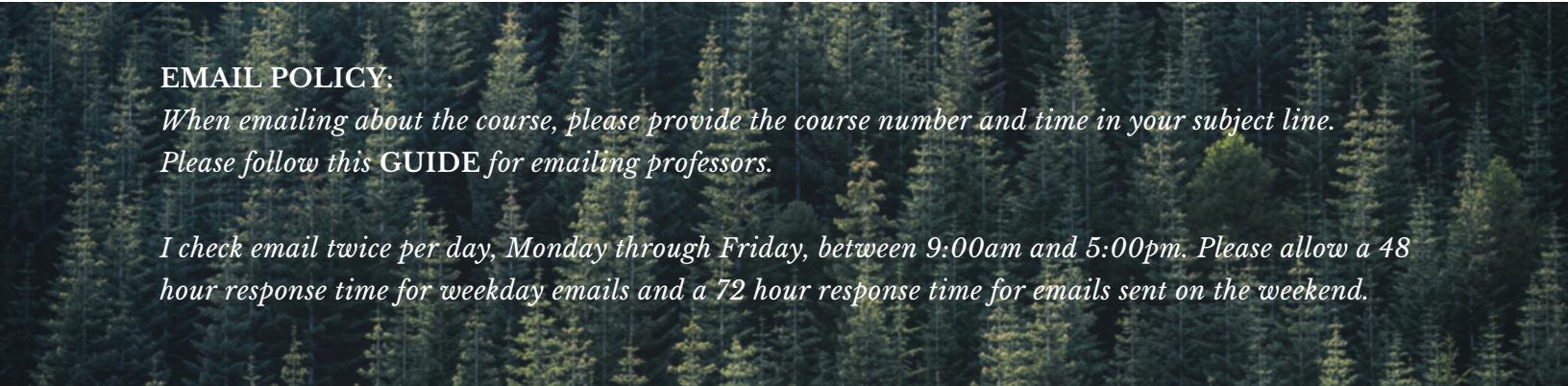
# CONTACT

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Office: AH-4117

Office Hours: Thursdays: 12:00pm-2:00pm



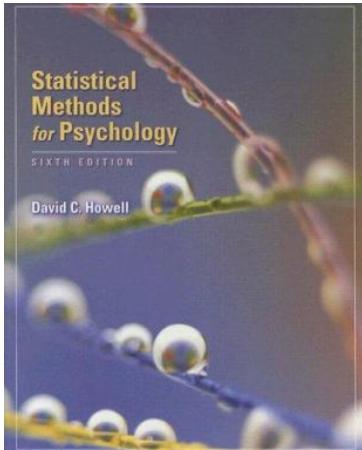
## EMAIL POLICY:

*When emailing about the course, please provide the course number and time in your subject line.*

*Please follow this GUIDE for emailing professors.*

*I check email twice per day, Monday through Friday, between 9:00am and 5:00pm. Please allow a 48 hour response time for weekday emails and a 72 hour response time for emails sent on the weekend.*

# MATERIALS



## BOOK

### REQUIRED

David C. Howell. 2005.  
**Statistical Methods for Psychology.** Sixth Edition.  
 Boston, MA: Thomson-Wadsworth Publishing..

### TECHNOLOGY ACCESS:

To be successful in this class, students will be required to have access to a computer with an internet connection, in addition to a calculator.

- **Computer/Laptop:**
  - Students may want to bring a laptop to class to become familiar how to use statistical software on their machines.
- **Calculator:**
  - Students will perform *some* statistical analyses by hand using a calculator. You will need a basic calculator that can do basic functions (add, subtract, multiply, divide, and square root). It does not need to be a graphing calculator.
- **R/RStudio:**
  - Importantly, given the growing use of open-source programs, and the increasing demand for programming skills, students will conduct statistical analyses in the R statistical software package and its graphical user interface (GUI) RStudio. R and RStudio can be downloaded and installed using this [vignette](#), or by going to the respective websites for [R](#) and for [RStudio](#).

**Tea Party Organizations,  
and Battles over Distributive  
Justice**

Association 2014  
 DOI: 10.1177/0003122414534095  
<http://as.sagepub.com>  
**SAGE**

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 Burrel Vann Jr.,<sup>b</sup> and Priyamvada Trivedi<sup>c</sup>

**Abstract**  
 Competing visions of who is deserving of rewards and privileges, and different understandings of the fairness of reward distribution processes, are at the heart of political contention around, social movements. In general, those who support movements of protest, not all social movements is a shared belief that existing conditions are unfair and subject to change (Gamson 1992; McAdam 1982; Snow et al. 1986; Turner and Killian 1987). In this article we consider the role that conservative organizations play in shaping perceptions of distributive justice and, in turn, provide context conducive to conservative political mobilization. We apply these ideas in an analysis of Tea Party activism and show that educational segregation is a strong predictor of the number of Tea Party organizations in U.S. counties. Those with higher levels of education are more likely to support the Tea Party; those with less than a college degree are more likely than people who do not have any college education to support the Tea Party; this relationship is strongest in counties with higher levels of educational segregation.

**Keywords**  
 social movements, Tea Party, educational segregation, conservative mobilization

If politics is about "who gets what, when, and how" (Lasswell 1936), then those who engage in politics on behalf of the relatively prosperous have some explaining to do. Because democratic political institutions provide opportunities for the disadvantaged to fight for a greater share of societal resources, individuals seeking to protect their advantages have an incentive to try to convince others over distributive justice. Organizations representing the interests of oppressed or disadvantaged groups argue that their constituents are being treated unfairly (Gamson 1992; Snow et al. 1986); those who resist such efforts are typically defending a reward

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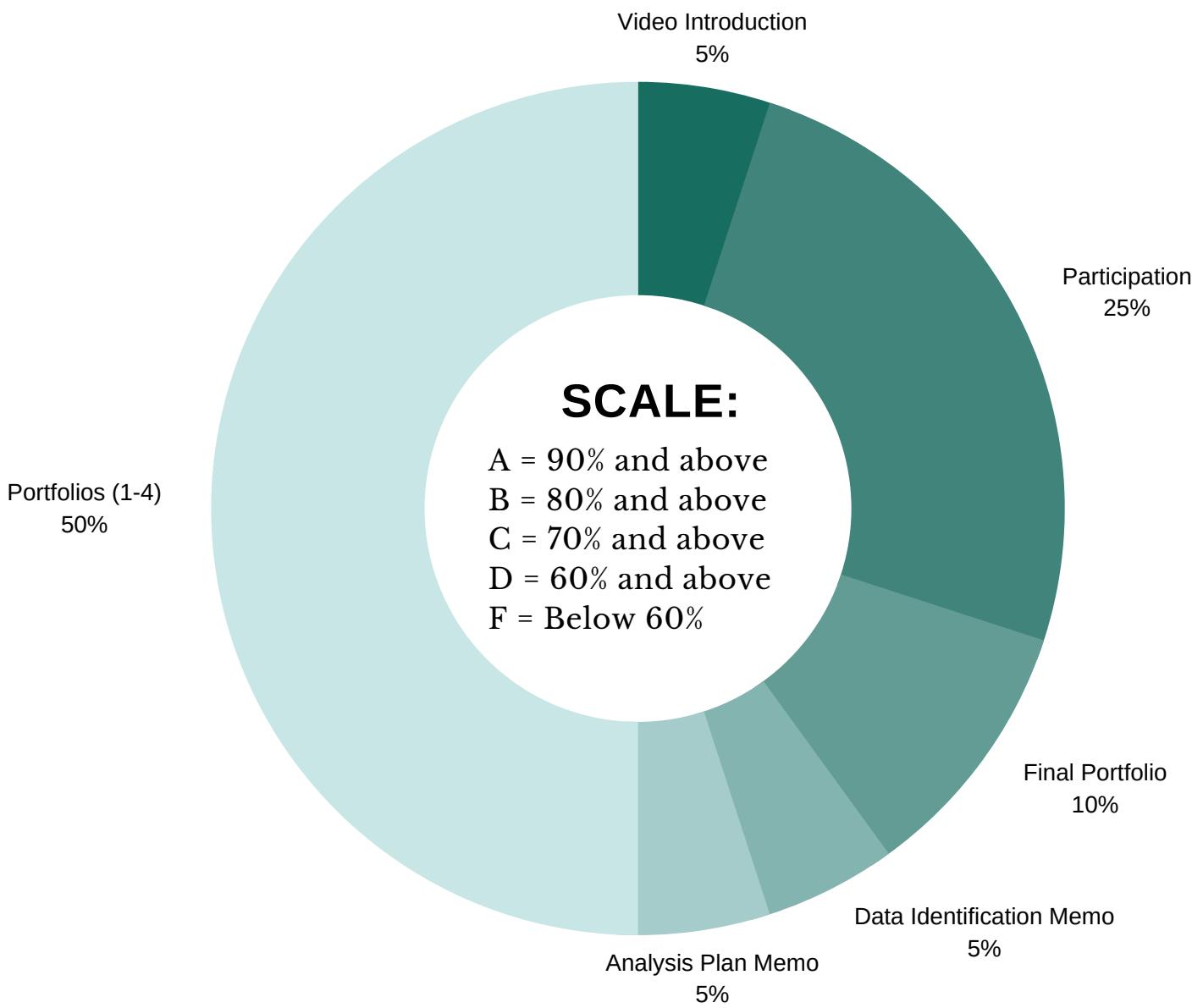
## ARTS

### RECOMMENDED

### Articles & Book Chapters

# GRADING

Final grades will be based on a video introduction, participation (attendance), four (4) statistics portfolios, one (1) data identification memo, one (1) analysis plan memo, and one (1) final portfolio using your identified data for a total of 200 points. This class does **NOT** use the +/- grading breakdown.



## GRADING/REGRADING POLICY:

*Students who wish for an assignment to be regraded are required to submit a written formal request, stating why the work warrants a higher grade, within seven (7) days of the date when the graded work is returned. Beyond these seven (7) days, assignment will not be regraded. A regrade may result in the same, a higher, or a lower grade - although students requesting a regrade on an assignment often receive a lower grade.*

*No late work will be accepted. In extreme circumstances, however, written documentation will be required before late work is accepted.*

# 10 PTS

## VIDEO/PHOTO INTRODUCTION

Students are asked to, by the end of Week 1, post a brief introduction about themselves on the class discussion board. This introduction must be either a video describing yourself OR a picture of yourself with a written response (answering the various questions on the prompt).

# 10 PTS

## DATA IDENTIFICATION MEMO

Students are required to identify, access, and download a data set with quantitative variables that can be analyzed to answer their research question. In a 1-page memo, students should cover the following:

- introduce the research question (with citations describing how the question fits in the literature)
- the data set, in general (e.g. source, who collected the data, when were the data collected, how the data were collected, whether the data are a sample or the population, number of variables in the data set, number of observations in the data set, the unit of analysis, etc.)
- the specific variables used for the research question (e.g. for each variable, describe the attributes, level of measurement, any manipulations required to "fix" the variable, whether the variable will serve as the independent or dependent variable)
- a description of how each of the variables accurately represent the variables/constructs defined by the research question

# 50 PTS

## PARTICIPATION/ATTENDANCE

Attendance for this class is critical for your overall success in the course, as it allows you to participate in discussions about methods of social research. If you miss a class meeting, first, look on the course website for material you missed. Second, if you find it difficult to understand some of the material, contact your classmates via Canvas. Third, if you still find it difficult, set aside time to meet with me in office hours. If my office hours don't work, email me so that we can schedule a time to meet.

# 10 PTS

## ANALYSIS PLAN MEMO

Students are required to identify a statistical analysis strategy for the quantitative variables in their data set (see **Data Identification Memo**). In a 1-page memo, students should cover the following:

- the specific variables used for the research question (e.g. for each describe the attributes, level of measurement, any manipulations required to "fix" the variable, whether the variable is the independent or dependent variable)
- a description of how each of the variables accurately represent the research question
- whether using bivariate or multivariate analysis
- based on the level of measurement, describe which technique/test will be used
- describe the diagnostics and assumptions required of the test

# 100 PTS

## PORFOLIOS (1, 2, 3, & 4)

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This class includes four (4) portfolios (worth 25 points each), one due every few weeks throughout the semester.

Portfolios are short projects. In portfolios, students are provided a dataset and asked to perform statistical techniques (by hand and/or in RStudio) and interpret their findings through extensive write-ups.  
Portfolios are designed to serve as a future resource for students.

Students are highly encouraged to work together on portfolios, in groups of no more than five (5) students, and submit one (1) portfolio for their group (although, in some circumstances, students will be allowed to submit individual portfolios). Submissions should list every student's name, portfolio number, and an interesting title, much like a research report.

# 20 PTS

## FINAL PORTFOLIO

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The final class project is one (1) portfolio, worth 20 points. Much like the prior portfolios, the final portfolio uses data selected by the student, and statistical analyses, to answer their desired research question. Students must identify an existing data set (see [Data Identification Memo](#)) with quantitative variables that can be used to answer their research question. Based on the level of measurement of the variables in the data set, the student must select the most appropriate statistical test to answer their research question (see [Analysis Plan Memo](#)).

Unlike the prior portfolios, students are required to submit their own, individual, final portfolio (students are still encouraged to work together but must submit their own final portfolio).

### EXTRA CREDIT POLICY:

*Students may be given the opportunity for extra credit, worth a maximum of 10 points. If granted, extra credit is only accepted when it is due and will not be accepted late.*

# ENROLLMENT

## PREREQUISITES FOR COURSE:

Credit or concurrent registration with [PA 600](#). Only graduate students from the following departments are allowed: city planning, criminal justice, criminology, and public administration.

## ADDING & DROPPING:

Students must make adjustments to their course schedule by the add/drop deadline indicated in the current term's [Academic Calendars](#).

# STUDENT CONDUCT

Please be courteous to your classmates and me by remaining engaged and respectful. Students are expected to conduct themselves in a way that does not interfere with the educational experience of others. Additionally, turn cell phones and other electronic devices on silent during class time. Laptops may be used for taking notes while in class.

## ACADEMIC (DIS)HONESTY:

The University adheres to a strict policy regarding [cheating and plagiarism](#) (outlined in [Executive Order 1098](#)). These activities will not be tolerated in this class. Become familiar with the policy and what constitutes plagiarism. Any cheating or plagiarism will result in failing this class and a disciplinary review by the University. These actions may lead to probation, suspension, or expulsion.

Examples of plagiarism include but are not limited to:

- Using sources verbatim or paraphrasing without giving proper attribution (this can include phrases, sentences, paragraphs and/or pages of work)
  - Copying and pasting work from an online or offline source directly and calling it your own
  - Using information you find from an online or offline source without giving the author credit
  - Replacing words or phrases from another source and inserting your own words or phrases
  - Submitting a piece of work you did for one class to another class
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# RESOURCES

A complete list of all academic support services is available on the [Academic Success](#) section of the [Student Affairs](#) website.

## **STUDENTS WITH SPECIAL NEEDS:**

Please inform the instructor during the first week of classes about any special needs that require specific arrangements related to attending class sessions, carrying out class assignments, or writing papers or examinations. According to California State University policy, students with “disabilities” must document their special needs at the Student Ability Success Center (SASC) in order to receive accommodations for their courses. Additional information can be found at the [SASC website](#), by calling **619-594-6473**, or by email at [sascinfo@sdsu.edu](mailto:sascinfo@sdsu.edu).

## **COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS):**

[CAPS](#) offers confidential counseling services by licensed psychologists, counselors, and social workers. More info can be found at their website or by contacting **619-594-5220**. You can also [Live Chat](#) with a counselor between 4:00pm and 10:00pm, or call San Diego Access and Crisis 24-hour Hotline at **888-724-7240**.

## **WRITING CENTER:**

For help with improving your writing ability, the staff at the SDSU [Writing Center](#) is available in person and online.

## **STUDENT TECHNICAL SUPPORT:**

Student support for Blackboard is provided by the Library Computing Hub, located on the 2nd floor of Love Library. They can be reached at **619-594-3189** or by emailing [hub@sdsu.edu](mailto:hub@sdsu.edu).

## **EMERGENCY PREPAREDNESS:**

Information about SDSU’s emergency preparedness policy can be found at [Campus Emergency Preparedness](#).

## **CHANGES TO MATERIAL:**

*I reserve the right to make changes to the syllabus, including the course outline, at any time, based on the pace of the class. This class may include hybrid format lectures, where there will no class meeting, but students are expected to read online lecture materials.*

# WK 1

JAN 22

**REVIEW: INTRODUCTION & REVIEW: CENTRAL TENDENCY, VARIABILITY****READ**

Syllabus & Emailing Guide  
Ch. 1 (Howell)  
Ch. 2 (Howell)

**DUE**

Video Introductions (1/25)  
Install R & RStudio (1/25)  
• Vignette/Guide  
• Video walkthrough

# WK 2

JAN 29

**REVIEW: NORMAL CURVE, Z-SCORES****READ**

Ch. 3 (Howell)  
Ch. 4 (Howell)

**DUE**

# WK 3

**READ****DUE**

FEB 5

**REVIEW WRAP UP & WORKING W/ DATA IN R: PART 1**

# WK 4

**READ****DUE**

FEB 12 (NO CLASS)

**FREE DAY (REVIEW WORKING W/ DATA IN R)**

# WK 5

**READ**

Ch. 4 (Howell)

**DUE**

Portfolio #1 (2/22)

FEB 19

**HYPOTHESIS TESTING & T-TEST**

# WK 6

**READ**

Ch. 7 (Howell)

**DUE**

FEB 26

**T-TEST**

# WK 7

**READ**

Ch. 6 (Howell)

**DUE**

MAR 4

**CHI-SQUARE, ODDS RATIOS**

# WK 8

**READ**

Ch. 9 (Howell)

**DUE**

MAR 11

**CORRELATION**

**WK 9**

MAR 18

**READ**Ch. 11 (Howell)  
Ch. 12 (Howell)  
Ch. 14 (Howell)**DUE****ANALYSIS OF VARIANCE (ANOVA), & ANOVA POST-HOC TESTS****WK 10****READ****DUE**

MAR 25

**WORKING W/ DATA IN R: PART 2****WK 11****READ****DUE**

Portfolio #2 (4/4)

APRIL 1 (NO CLASS)

**SPRING BREAK****WK 12****READ**Ch. 9 (Howell)  
Ch. 15 (Howell)**DUE**

APR 8

**BIVARIATE ORDINARY LEAST SQUARES (OLS) REGRESSION****WK 13****READ**Ch. 9 (Howell)  
Ch. 15 (Howell)**DUE**

APR 15

**MULTIVARIATE OLS REGRESSION & DIAGNOSTICS****WK 14****READ****DUE**

Portfolio #3 (4/25)

APR 22

**LOGISTIC REGRESSION****WK 15****READ****DUE**

APR 29

**ADDITIONAL TOPICS****WK 16****READ****DUE**

Portfolio #4 (5/6)

MAY 6

**ADDITIONAL TOPICS**

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