Course Acronym:	COMS
Course Number:	180
Descriptive Title:	Data-Driven Persuasion
Division:	Behavioral & Social Sciences
Department:	Communication Studies (Speech Communications)
Course Disciplines:	Communication Studies, English, Mathematics, Psychology, Sociology
Catalog Description:	In this course, students will analyze digitized data by using statistical and quantitative reasoning. Students will interpret data to develop insights and understanding of the information and will create visual infographics and story narratives to make persuasive arguments in order to put their ideas into action.
Prerequisite:	Mathematics 67 or 73 or 80 with a minimum grade of C or qualification by appropriate assessment.
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	3
Hours Laboratory (per week):	3
Outside Study Hours:	3
Total Course Hours:	108
Course Units:	4
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	FALL 2020
Transfer UC:	Yes
Effective Date:	FALL 2020
General Education: ECC	Area 4B - Language and Rationality: Communication and Analytical Thinking
Term:	
Other:	
CSU GE:	Area B4 - Physical Universe and its Life Forms: Mathematics/Quantitative Reasoning
Term:	
Other:	
IGETC:	Area 2A - Mathematical Concepts and Quantitative Reasoning

Term:	
Other:	
Student Learning Outcomes:	**SLO #1 Concepts:** Identify and describe theories and concepts related to basic descriptive and inferential statistics. **SLO #2 Research and Theory Application:** Research and evaluate data to identify validity and identify deceptive representation. **SLO #3 Presenting Statistical Data:** Gather, research, interpret, and present data to develop and present persuasive arguments.
Course Objectives:	1. Apply quantitative research methods to interpret data through descriptive and inferential statistics to include measures of central tendency, cluster analysis, linear regression, t-Tests, and analysis of covariance. 2. Identify outliers, novelties, noise, deviations and exceptions and investigate and describe possible explanations. 3. Differentiate a deceptive infographic from a true infographic. 4. Predict local, statewide, and national election results based upon polling numbers. 5. Interpret normal, bimodal, and skewed distributions. 6. Formulate and present persuasive arguments based on data analysis in various forms. 7. Analyze Statistical analysis printouts to interpret and utilize data for presentations. 8. Recognize the various forms of data such as verbal, narratives, and incidence analysis. 9. Effectively responding to and refuting opposing views.
Major Topics:	**I. Theory of Communication (3 hours, lecture)** A. Overview the Theory of Communication B. Shannon's Theory **II. Data Classification Analysis (3 hours, lecture)** A. Function of Data Classification Analysis B. Assigning Columns into Meaningful Categories C. Organizing and Focusing Subsequent Analysis Work **III. Discovering Interesting Relationships (3 hours, lecture)** A. Association Rule Learning B. Machine Learning

IV. Anomaly Detection (3 hours, lecture)

A. Outlier

B. Novelties, noise, deviations and exceptions

V. Cluster Analysis (3 hours, lecture)

A. Segmentation Analysis

B. Taxonomy Analysis

C. Heterogeneous and Homogenous Groups

VI. Predictive Analysis (3 hours, lecture)

A. Linear Regression

B. Significant Predictors of Outcomes

C. Impact of Outcome Variable

VII. Using Statistics in Quantitative Research (3 hours, lecture)

A. Types of Statistics

   1. Frequency Distributions

   2. Measures of Central Tendency

   3. Measures of Dispersion

   4. Normal Distribution

B. Statistical Analysis Printouts

VIII. t-Tests (3 hours, lecture)

A. Understanding t-Tests

B. Independent Samples

C. Students' t-Tests

D. Assumptions of the t-Test

E. Understanding Computer Programs Used to Calculate t-Tests

F. Presenting and Interpreting Results of Sample t- Tests

G. Statistical Analysis Printouts

1. Turning Analysis into Presentation Aids

IX. ONEWAY and Factorial Analysis of Variance (6 hours, lecture)

A. Understanding ONEWAY and Factorial Analysis ANOVA

B. Assumptions of ONEWAY and Factorial Analysis ANOVA

C. Understanding Computer Programs to Calculate ONEWAY and Factorial Analysis ANOVA

D. Statistical Analysis Printouts

1. Turning Analysis into Presentation Aids

X. Analysis of Covariance (3 hours, lecture)

A. Understanding the Analysis of Covariance

B. Assumptions of Analysis of Covariance

C. Interpreting Results of Analysis of Covariance

D. Statistical Analysis Printouts

1. Turning Analysis into Presentation Aids

XI. Chi-Square Statistics (3 hours, lecture)

A. Understanding Chi-Square Statistics

B. Using a Computer to Calculate Chi-Square

C. Interpreting and Presenting Results using Chi-Square Statistics

D. Statistical Analysis Printouts

1. Turning Analysis into Presentation Aids

XII. Simple Bivariate Correlation (3 hours, lecture)

A. Understanding the Correlation Coefficient

B. Assumptions of the Correlation Coefficient

C. Using Computer Programs to Calculate the Correlation Coefficient

D. Interpreting and Presenting the Results of a Correlation

E. Statistical Analysis Printouts

1. Turning Analysis into Presentation Aids

XIII. Multiple Regression (3 hours, lecture)

A. Understanding Multiple Regression

B. Assumptions of Multiple Regression

C. Interpreting and Presenting Results of Multiple Regression analysis

D. Statistical Analysis Printouts

1. Turning Analysis into Presentation Aids

XIV. Factor Analysis (3 hours, lecture)

A. The Purpose of Factor Analysis

B. Exploratory Factor Analysis

C. Confirmatory Factor Analysis

XV. Advanced Modeling Techniques (3 hours, lecture)

A. Understanding Advanced Modeling

B. Describing the Model

C. Understanding the Tests

D. Maximum Likelihood Estimation

XVI. Data Deception and Deception Detection (3 hours, lecture)

A. Plausibility

B. Fun with Averages

C. Axis Shenanigans

D. Hijinks with How Numbers Are Reported

E. How Numbers Are Collected

F. Probabilities

XVII. Analysis and Presentation of Quantitative Data to Make Persuasive Arguments (3 hours, lecture)

A. Choosing the Most Effective Medium

B. Adapting to the Audiences

C. Responding to and Refuting Opposing Views

XVIII. Data Mining (3 hours, lab)

A. Mining Methods

B. Efficient Pattern Mining

C. Pattern Discovery

XIX. Pattern Evaluation (3 hours, lab)

A. Mining Diverse Frequent Patterns

B. Pattern Perceptions

XX. Sequential Pattern Mining (3 hours, lab)

A. Pattern Mining Applications

B. Mining Spatiotemporal

C. Trajectory Patterns

XXI. Constraint-Based Mining (3 hours, lab)

A. Setting Parameters

B. Setting Limits

XXII. Graph Pattern Mining (3 hours, lab)

A. Setting Parameters

B. Setting Limits

XXIII. Pattern Mining Applications (3 hours, lab)

A. Mining Quality Phrases from Text

B. Mining Quality Information from Numbers

C. Mining Quality Information from Maps

XXIV. Cluster Analysis Overview (6 hours, lab)

A. Cluster Analysis Introduction

B. Similarity Measures

XXV. Partitioning-Based Clustering Methods (3 hours, lab)

A. Hierarchical Clustering Methods

B. Non-hierarchical Clustering Methods

XXVI. Clustering Methods (3 hours, lab)

A. Density-Based

B. Grid-Based

XXVII. Outlier Analysis (3 hours, lab)

A. Anomaly Detection

B. Novelties, noise, deviations and exceptions

XXVIII. Finding and Accessing Databases (6 hours, lab)

A. Sources of Databases

B. Transparency in Databases

C. Gaining Permission to Access Databases

XXIX. Persuasive Arguments (15 hours, lab)

A. Combining Data

B. Narratives

C. Infographics

D. Data Story Telling

Total Lecture Hours:	54
Total Laboratory Hours:	54
Total Hours:	108
Primary Method of Evaluation:	2) Problem solving demonstrations (computational or non-computational)
Typical Assignment Using Primary Method of Evaluation:	Examine the data of organ donor programs provided in class. Evaluate the success of these programs by examining the strategies used to solicit participants. Identify a target audience and prepare a 10-minute presentation for the class. Explain your findings and make a persuasive argument to justify your conclusions. Use appropriate visual aids to clarify your position.
Critical Thinking Assignment 1:	Review the data from the Rand Corporation Website listed below about racial profiling. Evaluate LAPD racial profiling in traffic stops using the "Veil of Darkness" technique. https://www.rand.org/pubs/reprints/RP1253.html

	Develop a 10-minute class presentation that would be appropriate to present at a local city council meeting to persuade them to look into this matter.
Critical Thinking Assignment 2:	Based on the data set provided in class, predict the likelihood of divorce based upon age, gender, religious affiliation, and sexual orientation at the time of marriage. In a two- to three-page paper, describe and support your findings. Include charts or graphs to clarify and enhance your findings.
Other Evaluation Methods:	Class Performance, Homework Problems, Performance Exams, Presentation
Instructional Methods:	Demonstration, Discussion, Group Activities, Guest Speakers, Lab, Lecture, Multimedia presentations, Role play/simulation
If other:	
Work Outside of Class:	Problem solving activity
If Other:	
Up-To-Date Representative Texts:	Allen, M., Titsworth, S., & Hunt, S. K. (2009). *Quantitative research in communication*. Sage Publications. (Discipline Standard) Weber, R., & Fuller, R. (2013). *Statistical Methods for Communication Researchers and Professionals*. (Discipline Standard) Young Joon Lim. (2024). *Strategic Communication Research in the Age of AI*. Rowman & Littlefield.
Alternative Texts:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite:	Prerequisite
Category:	sequential
Requisite course(s): List both prerequisites and corequisites in this box.	Mathematics 67 or 73 or 80
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	**Analyze data, recognize relationships, and interpret results.** **MATH 67** Recognize proportional relationships from verbal and numeric representations and compare proportional relationships represented in different ways. **MATH 67** Construct and analyze various graphs, including bar graphs, pie charts, histograms, stem-and-leaf plots, boxplots and scatterplots. **MATH 67** Analyze simple data sets by using appropriate exploratory data analysis techniques.

	MATH 67 Analyze readings that include quantitative or statistical information. **MATH 67** Present statistical results orally and in written form after analyzing data or solving applied problems. **MATH 73** Recognize functional relationships in the form of graphs, data or symbolic equations. **MATH 73** Using numerical, symbolic and graphical methods, model application problems, solve them and interpret the results in the context of the problem **MATH 80** Recognize functional relationships in the form of graphs, data or symbolic equations. **MATH 80** Using numerical, symbolic and graphical methods, model application problems, solve them and interpret the results in the context of the problem.
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Rex Wells
Date:	04/21/2019
Original Board Approval Date:	
Last Reviewed and/or Revised by:	Jason Davidson

Date:	10/25/2024
Last Board Approval Date:	01/13/2025
Effective Term:	FALL 2025