



El Camino College
COURSE OUTLINE OF RECORD - Approved

I. GENERAL COURSE INFORMATION

Subject and Number: Communication Studies 180
Descriptive Title: Data-Driven Persuasion
Course Disciplines: Communications Studies/Math/Psychology/Sociology/English
Division: Fine Arts

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.

Conditions of Enrollment:

Prerequisite: Mathematics 67 or 73 or 80 with a minimum grade of C or qualification by appropriate assessment.

Course Length: Full Term **Other (Specify number of weeks):**
Hours Lecture: 3.00 hours per week TBA
Hours Laboratory: 3.00 hours per week TBA
Course Units: 4.00

Grading Method: Letter
Credit Status: Associate Degree Credit

Transfer CSU: **Effective Date:** Proposed
Transfer UC: **Effective Date:** Proposed

General Education:

El Camino College:
4B – Language and Rationality – Communication and Analytical Thinking
Term: Other: 6 – Mathematics Competency

CSU GE:

B4 - Mathematics/Quantitative Thinking
Term: Other:

IGETC:

2A - Mathematical Concepts and Quantitative Reasoning
Term: Other:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

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.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at <http://www.elcamino.edu/academics/slo/>.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

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.
 - Essay Exams
2. Identify outliers, novelties, noise, deviations and exceptions and investigate and describe possible explanations.
 - Essay exams
3. Differentiate a deceptive infographic from a true infographic.
 - Essay exams
4. Predict local, statewide, and national election results based upon polling numbers.
 - Essay exams
5. Interpret normal, bimodal, and skewed distributions.
 - Essay exams
6. Formulate and present persuasive arguments based on data analysis in various forms.
 - Presentations
7. Analyze Statistical analysis printouts to interpret and utilize data for presentations.
 - Essay exams
8. Recognize the various forms of data such as verbal, narratives, and incidence analysis.
 - Presentations

9. Effectively responding to and refuting opposing views.
- Presentations

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topics
Lecture	3	I	Theory of Communication A. Overview the Theory of Communication B. Shannon's Theory
Lecture	3	II	Data Classification Analysis A. Function of Data Classification Analysis B. Assigning Columns into Meaningful Categories C. Organizing and Focusing Subsequent Analysis Work
Lecture	3	III	Discovering Interesting Relationships A. Association Rule Learning B. Machine Learning
Lecture	3	IV	Anomaly Detection A. Outlier B. Novelties, noise, deviations and exceptions.
Lecture	3	V	Cluster Analysis A. Segmentation Analysis B. Taxonomy Analysis C. Heterogeneous and Homogenous Groups
Lecture	3	VI	Predictive Analysis A. Linear Regression B. Significant Predictors of Outcomes C. Impact of Outcome Variable
Lecture	3	VII	Using Statistics in Quantitative Research A. Types of Statistics 1. Frequency Distributions 2. Measures of Central Tendency 3. Measures of Dispersion 4. Normal Distribution B. Statistical Analysis Printouts

Lecture	3	VIII	t- Tests 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
Lecture	6	IX	ONEWAY and Factorial Analysis of Variance 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 G. Statistical Analysis Printouts 1. Turning Analysis into Presentation Aids
Lecture	3	X	Analysis of Covariance 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
Lecture	3	XI	Chi-Square Statistics 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
Lecture	3	XII	Simple Bivariate Correlation 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

Lecture	3	XIII	Multiple Regression 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
Lecture	3	XIV	Factor Analysis A. The Purpose of Factor Analysis, B. Exploratory Factor Analysis, C. Confirmatory Factor Analysis
Lecture	3	XV	Advanced Modeling Techniques A. Understanding Advanced Modeling B. Describing the Model C. Understanding the Tests D. Maximum Likelihood Estimation
Lecture	3	XVI	Data Deception and Deception Detection A. Plausibility B. Fun with Averages C. Axis Shenanigans D. Hijinks with How Numbers Are Reported E. How Numbers Are Collected F. Probabilities
Lecture	3	XVII	Analysis and Presentation of Quantitative Data to Make Persuasive Arguments A. Choosing the Most Effective Medium B. Adapting to the Audiences C. Responding to and Refuting Opposing Views
Lab	3	XVIII	Data Mining A. Mining Methods B. Efficient Pattern Mining C. Pattern Discovery
Lab	3	XIX	Pattern Evaluation A. Mining Diverse Frequent Patterns B. Pattern Perceptions
Lab	3	XX	Sequential Pattern Mining A. Pattern Mining Applications B. Mining Spatiotemporal C. Trajectory Patterns
Lab	3	XXI	Constraint-Based Mining A. Setting Parameters B. Setting Limits

Lab	3	XXII	Graph Pattern Mining A. Setting Parameters B. Setting Limits
Lab	3	XXIII	Pattern Mining Applications A. Mining Quality Phrases from Text B. Mining Quality Information from Numbers C. Mining Quality Information from Maps
Lab	6	XXIV	Cluster Analysis Overview A. Cluster Analysis Introduction B. Similarity Measures
Lab	3	XXV	Partitioning-Based Clustering Methods A. Hierarchical Clustering Methods B. Non-hierarchical Clustering Methods
Lab	3	XXVI	Clustering Methods A. Density-Based B. Grid-Based
Lab	3	XXVII	Outlier Analysis A. Anomaly Detection B. Novelties, noise, deviations and exceptions.
Lab	6	XXVIII	Finding and Accessing Databases A. Sources of Databases B. Transparency in Databases C. Gaining Permission to Access Databases
Lab	15	XXIX	Persuasive Arguments A. Combining Data B. Narratives C. Infographics D. Data Story Telling
Total Lecture Hours		54	
Total Laboratory Hours		54	
Total Hours		108	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:

Problem solving demonstrations (computational or non-computational)

B. 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.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

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.
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.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Performance exams
Class Performance
Homework Problems
Presentation

V. INSTRUCTIONAL METHODS

Demonstration
Discussion
Group Activities
Guest Speakers
Internet Presentation/Resources
Laboratory
Lecture
Multimedia presentations
Simulation

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Problem solving activities

Estimated Independent Study Hours per Week: 6

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Weber, R., & Fuller, R. Statistical methods for communication researchers and Professionals. Dubuque, IA: Kendal Hunt. ISBN 978-1-4652-1223-8, 2013
Allen Titsworth, & Hunt. Quantitative Research in Communication. Sage Publications, 2009.
Kurt Therling Ph.D.. Data Mining & Analytic Technologies. Merlot, 2017.
Nitin Patel. 15.062 Data Mining. Merlot, 2017.
Nelson, Korey, Nelson, & Fiddler. SPSS for Windows 23.0. Merlot, 2018.

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Course Prerequisite; Math 67 or	Sequential
Course Prerequisite; Math 73 or	Sequential
Course Prerequisite; Math 80 or	Sequential

B. Requisite Skills

Requisite Skills
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. Construct and analyze various graphs, including bar graphs, pie charts, histograms, stem-and-leaf plots, boxplots and scatterplots. Analyze simple data sets by using appropriate exploratory data analysis techniques. Analyze readings that include quantitative or statistical information.

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. 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. Using numerical, symbolic and graphical methods, model application problems, solve them and interpret the results in the context of the problem.

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
Eligibility for English 1A	Non-course

D. Recommended Skills

Students who are eligible for English 1A (meaning they have the skills learned in English A and English 84) will have the skills to read articles and other required readings and to re-view data presented in class. They will also have the writing skills needed to produce narratives and other reports for this class. Therefore, their learning experiences in the course will be enhanced if they have these skills.

ENGL 84 - Develop critical thinking skills such as the ability to verify information and distinguish between fact and opinion.

In this class students are required to read college level text books, comprehend vocabulary related to research and use information from textbooks and other readings to support conclusions.

ENGL A - Read and apply critical thinking skills to college-level expository prose for the purposes of writing and discussion.

ENGL A - Apply appropriate strategies in the writing process including prewriting, composing, revising, and editing techniques.

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact
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Course created by Rex Wells: 4/21/2019

BOARD APPROVAL DATE: 06/04/2019

LAST BOARD APPROVAL DATE:

Last Reviewed and/or Revised by: