PSYCH 9 Course Outline as of Fall 2020

CATALOG INFORMATION

Dept and Nbr: PSYCH 9 Title: INTRO/BEH SCI STATISTICS
Full Title: Introduction to Behavioral Sciences Statistics
Last Reviewed: 2/10/2020

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 157.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade Only
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	PSYCH 1C

Catalog Description:
The use of probability techniques, hypothesis testing, and predictive techniques to facilitate decision-making. Topics include descriptive statistics; probability and sampling distributions; statistical inference; correlation and linear regression; analysis of variance, chi-square and t-tests; and application of technology for statistical analysis including the interpretation of the relevance of the statistical findings. Applications using data from a broad range of disciplines.

Prerequisites/Corequisites:
Course Completion of MATH 154 OR MATH 155 OR MATH 156 OR higher or appropriate placement based on AB 705 mandates;
AND Course Completion of PSYCH 1A OR ANTHRO 1 OR SOC 1

Recommended Preparation:
Eligibility for ENGL 1A or equivalent

Limits on Enrollment:

Schedule of Classes Information:

Description: The use of probability techniques, hypothesis testing, and predictive techniques to facilitate decision-making. Topics include descriptive statistics; probability and sampling distributions; statistical inference; correlation and linear regression; analysis of variance, chi-square and t-tests; and application of technology for statistical analysis including the interpretation of the relevance of the statistical findings. Applications using data from a broad range of disciplines. (Grade Only)
Prerequisites/Corequisites: Course Completion of MATH 154 OR MATH 155 OR MATH 156 OR higher or appropriate placement based on AB 705 mandates;
AND Course Completion of PSYCH 1A OR ANTHRO 1 OR SOC 1
Recommended: Eligibility for ENGL 1A or equivalent
Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**		Effective:	Inactive:
	B	Communication and Analytical Thinking	Fall 2025	
	L2	Mathematical Concepts & Quantitative Reasoning		
	MC	Math Competency		
	B	Communication and Analytical Thinking	Fall 2018	Fall 2025
	MC	Math Competency		
	D	Social and Behavioral Sciences	Fall 2015	Fall 2016
CSU GE:	**Transfer Area**		Effective:	Inactive:
	B4	Math/Quantitative Reasoning	Fall 2016	
IGETC:	**Transfer Area**		Effective:	Inactive:
	2A	Mathematical Concepts & Quantitative Reasoning	Fall 2016	

CSU Transfer:	Transferable	Effective:	Fall 2015	Inactive:
UC Transfer:	Transferable	Effective:	Fall 2015	Inactive:

CID:

CID Descriptor:SOCI 125	Introduction to Statistics in Sociology
SRJC Equivalent Course(s):	PSYC9
CID Descriptor:MATH 110	Introduction to Statistics
SRJC Equivalent Course(s):	STATC1000 OR PSYC9

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:

1. Determine the appropriate statistical test for a given data set for behavioral sciences and hypotheses.
2. Analyze and interpret behavioral sciences data using appropriate research software such as SPSS, Excel.

Objectives:
At the conclusion of this course, the student should be able to:
1. Interpret data displayed in tables and graphically.
2. Apply concepts of sample space and probability.
3. Calculate measures of central tendency and variation for a given data set.
4. Identify the standard methods of obtaining data and identify advantages and disadvantages of each.
5. Calculate the mean and variance of a discrete distribution, and calculate probabilities using normal and t-distributions.
6. Distinguish the difference between sample and population distributions and analyze the role played by the Central Limit Theorem.
7. Construct and interpret confidence intervals.
8. Determine and interpret levels of statistical significance including p-values; interpret the output of a technology-based statistical analysis.
9. Identify the basic concept of hypothesis testing including Type I and II errors.
10. Formulate hypothesis tests involving samples from one and two populations; select the appropriate technique for testing a hypothesis and interpret the result.
11. Use regression lines and Analysis of Variance (ANOVA) for estimation and inference, and interpret the associated statistics.
12. Use appropriate statistical techniques to analyze and interpret applications based on data from at least four of the following disciplines: business, economics, social science, psychology, sociology, anthropology, political science, administration of justice, life science, physical science, health science, information technology, and education.

Topics and Scope:

I. Introduction to Summarizing Data Graphically and Numerically
II. Descriptive Statistics
  A. Measurement
  B. Measures of central tendency
  C. Variation
III. Sample Spaces and Probability
IV. Random Variables and Expected Value
V. Sampling and Sampling Distributions
VI. Discrete Distributions
  A. Binomial
  B. Continuous distributions – normal
VII. The Central Limit Theorem
VIII. Estimation and Confidence Intervals
IX. Hypothesis Testing and Inference
  A. t-tests for one and two populations
  B. Chi-square test
  C. Correlation, regression lines
  D. Analysis of variance (ANOVA)
X. Applications using Data from at least Four of the Following Disciplines
  A. Business
  B. Economics

C. Social science
D. Psychology
E. Sociology
F. Anthropology
G. Political science
H. Administration of justice
I. Life science
J. Physical science
K. Health science
L. Information technology
M. Education

Assignment:

1. Read approximately 35 pages per week
2. Writing assignment that may include statistical research, experiential, response, or project for a minimum of 1,250 words
3. Formal testing to solve statistical problems and scenarios such as quizzes, exams, and/or a final
4. Oral presentation and/or group project may be assigned
5. Question/Answer worksheets

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Writing Assignments	Writing 10 - 25%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Question/Answer Worksheets	Problem solving 25 - 50%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes, exams, and/or a final	Exams 25 - 35%

Other: Includes any assessment tools that do not logically fit into the above categories.

Oral presentation and/or group project	Other Category 0 - 20%

Representative Textbooks and Materials:
Essentials of Statistics for The Behavioral Sciences. 9th ed. Gravetter, Frederick and Wallnau, Larry. Cengage Learning. 2018

Statistics for the Behavioral Sciences. 3rd ed. Privitera, Gregory. Sage Publications. 2017

Modern Statistics for the Social and Behavioral Sciences: A Practical Introduction. 2nd ed. Wilcox, Rand. CRC Press. 2017

Other Recommended Materials:
Calculator Access to IBM Statistical Package for the Social Sciences (SPSS) Statistical Software or comparable