**PSYCH 9 Course Outline as of Fall 2017**

# 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

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|---|---|
| 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:**
This course introduces statistical methods for analyzing data in the behavioral sciences. Topics include basic research design; descriptive statistics, probability and sampling distributions; statistical inference and power; linear correlation and regression; t-test and analysis of variance; chi-square. Students use appropriate technology (e.g., calculators and SPSS) to analyze real-world data and report results using American Psychological Association style.

**Prerequisites/Corequisites:**
Course Completion of MATH 154 OR MATH 155 OR higher;
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: This course introduces statistical methods for analyzing data in the behavioral sciences. Topics include basic research design; descriptive statistics, probability and sampling distributions; statistical inference and power; linear correlation and regression; t-test and analysis

of variance; chi-square. Students use appropriate technology (e.g., calculators and SPSS) to analyze real-world data and report results using American Psychological Association style. (Grade Only)
Prerequisites/Corequisites: Course Completion of MATH 154 OR MATH 155 OR higher; 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:

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|---|---|---|---|---|
| **AS Degree:** | **Area** | | Effective: | Inactive: |
| | B | Communication and Analytical Thinking | Fall 2018 | |
| | 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 | |

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|---|---|---|---|---|
| **CSU Transfer:** | Transferable | Effective: | Fall 2015 | Inactive: |
| **UC Transfer:** | Transferable | Effective: | Fall 2015 | Inactive: |

**CID:**

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| CID Descriptor:SOCI 125 | Introduction to Statistics in Sociology |
| SRJC Equivalent Course(s): | PSYCH9 |
| CID Descriptor:MATH 110 | Introduction to Statistics |
| SRJC Equivalent Course(s): | MATH15 OR PSYCH9 |

**Certificate/Major Applicable:**
Both Certificate and Major Applicable

## COURSE CONTENT

**Outcomes and Objectives:**
Upon completion of this course, students will be able to:
1 Specify the appropriate independent variables, dependent variables, research hypothesis, and null hypothesis.
2. Compare and contrast an experimental design with a correlational research design.
3. Produce both a diagrammatic and numerical summary for a given set of raw data.
4. Calculate probabilities for a normal distribution.
5. Interpret the relationship between the correlation coefficient and the regression line.
6. Compute a confidence interval for a population proportion and for a population mean.
7. Test hypotheses about a single sample (one and two variables).
8. Test hypotheses involving two samples using samples t-test.
9. Test hypotheses involving several samples using analysis of the variance.
10. Test hypotheses involving a single nominal variable using the chi-square goodness of fit.

11. Test hypotheses involving two nominal variables using chi-square.
12. Determine and interpret the effect size for statistical tests (e.g., Pearson's r, independent samples t-test).
13. Report statistical results using American Psychological Association style.
14. Analyze data using a statistical software package (e.g., SPSS).

**Topics and Scope:**

1. Introduction to Statistics that follows American Psychological Association style.
2. Summarizing Data: Tables, Graphs, and Distributions
3. Summarizing Data: Central Tendency
4. Summarizing Data: Variability
5. Foundations of Inferential Statistics
6. Introduction to Probability and Normal Distributions
7. Probability and Sampling Distributions: The Distribution of Sample Means
8. Introduction to Hypothesis Testing
9. Testing Means: Independent Sample t-Tests
10. Testing Means: Related Samples t-Test
11. Estimation and Confidence Intervals
12. Introduction to Analysis of Variance: One-Way Between-Subjects Design
13. Analysis of Variance: One-Way Within-Subjects (Repeated Measures) Design
14. Analysis of Variance: Two-Way Between-Subjects Factorial Design
15. Introduction to Correlation
16. Introduction to Linear Regression
17. Introduction to Nonparametric Tests: Chi-Square Tests
18. Introduction to Nonparametric Tests: Tests For Ordinal Data

**Assignment:**

1. Read approximately 20-25 pages per week, recapitulate assigned material in the textbook, supplements, and research articles.
2. One to two midterm exams and one final on lectures, reading concepts and terminology.
3. Solve statistical problems and scenarios related to behavioral sciences data.
4. Report results on a statistical project using American Psychological Association style.
5. Complete approximately a 1250 word (5 pages) statistical project/report involving the use of both descriptive and inferential statistics (e.g., given a data set for behavioral sciences and hypothesis, determine how to analyze the data, evaluate the hypothesis, and share the results using American Psychological Association style).
6. Oral presentations and group projects may be assigned.

**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.

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| Statistical Research paper(s) and Essay(s) | Writing<br>10 - 25% |

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

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| Question/Answer Worksheets | Problem solving<br>25 - 50% |

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

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| None | Skill Demonstrations<br>0 - 0% |

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

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| Multiple choice, true/false, fill-in, short answer | Exams<br>25 - 35% |

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

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| Oral presentations, group projects | Other Category<br>10 - 20% |

**Representative Textbooks and Materials:**
Elementary Statistics in Social Research: Essentials. 12th ed., Levin, Jack, and James Alan Fox. Pearson: 2013
Statistics for Behavioral Sciences, 1st ed., Privitera, Gregory J. Sage Publications: 2012
Statistics for the Behavioral Sciences, 8th ed.,Gravetter, F.J. and Wallnau, Larry B. Cengage: 2010
Other Recommended Materials
Calculator
Access to IBM Statistical Package for the Social Sciences (SPSS) Statistical Software