1. **COURSE ID:** PSYC 121   **TITLE:** Basic Statistical Concepts
   Semester Units/Hours: 3.0 units; a minimum of 48.0 lecture hours/semester
   Method of Grading: Letter Grade Only
   Prerequisite: MATH 120, or MATH 123 or the equivalent at a post-secondary institution or equivalent skill level as measured by a satisfactory score on a math placement test.
   Recommended Preparation:
   > Eligibility for ENGL 838 or 848.
   > and PSYC 100 or SOCI 100

2. **COURSE DESIGNATION:**
   Degree Credit
   Transfer credit: CSU; UC
   AA/AS Degree Requirements:
   > CSM - COMPETENCY REQUIREMENTS: C1 Math/Quantitative Reasoning Basic Competency
   CSU GE:
   > CSU GE Area B: SCIENTIFIC INQUIRY AND QUANTITATIVE REASONING: B4 -
   > Mathematics/Quantitative Reasoning
   IGETC:
   > IGETC Area 2: MATHEMATICAL CONCEPTS AND QUANTITATIVE REASONING: A: Math

3. **COURSE DESCRIPTIONS:**
   Catalog Description:
   > Introduction to basic descriptive techniques and statistical inferences used in the behavioral sciences. Basic statistics includes measures of central tendency, variability, probability, hypothesis testing, correlation, and experimental and quasi-experimental designs.

4. **STUDENT LEARNING OUTCOME(S) (SLO'S):**
   Upon successful completion of this course, a student will meet the following outcomes:
   A. Critically evaluate claims relating to psychology and behavioral sciences research generally;
   B. Evaluate with precision scientific evidence;
   C. Critically compare and contrast research experiments and results in the social and behavioral sciences;
   D. Perform basic statistical tests involved in analysis of data from behavioral experiments and observed data;
   E. Demonstrate proficiency in using appropriate tables to determine statistical significance of behavioral data.

5. **SPECIFIC INSTRUCTIONAL OBJECTIVES:**
   Upon successful completion of this course, a student will be able to:
   A. Critically evaluate claims relating to psychology and the behavioral sciences generally;
   B. Evaluate with greater precision scientific evidence;
   C. Compare and contrast experiments in the social and behavioral sciences;
   D. Perform basic statistical tests involved in analysis of data from behavioral experiments and observed data;
   E. Demonstrate proficiency in using appropriate tables to determine statistical significance of behavioral data.

6. **COURSE CONTENT:**
   Lecture Content:
   1. The language of statistics
       A. Algebraic concepts
       B. Symbols
       C. Square root
   2. Frequency distribution and graphs
       A. Histograms
       B. Bar graphs
       C. Frequency polygons
   3. Measures of central tendency
       A. Mean
       B. Median
       C. Mode

D. Computation and comparisons of above
4. Variability
    A. Range
    B. Standard deviation--computation and applications
5. The normal curve and uses of the bell shaped curve
    A. Standard scores
    B. Central limit theorem
6. Hypothesis testing
    A. Type I & II errors
    B. Levels of significance
    C. Standard error of the mean
    D. Standard error of the difference between means
    E. t tests for independent means and application to experimental procedures
7. Correlation
    A. Computation of Pearson r
    B. Graphic representation (scatter plots)
    C. Regression analysis
    D. t test for dependent means
    E. Reliability and validity
8. Analysis of variance--one way
    A. Computation and applications
9. Probability
    A. Rules for addition and multiplication
       (Concepts of independence and mutual exclusivity)
    B. Pascal's triangle
    C. Binomial expansion
10. Nonpararnetric tests
    A. Chi square
    B. Binomial test
    C. Wilcoxen signed rank
11. Experimental applications
    A. Learning to choose the right test to suit the data
        a. Power of a test

7. REPRESENTATIVE METHODS OF INSTRUCTION:
Typical methods of instruction may include:
   A. Other (Specify): Lecture/discussion. Social science statistical programs to enable students to have computer-assisted experience in statistical methodology. Assignments in a computer laboratory. Textbook and workbook assignments. In-class demonstrations of the mastery of concepts and methodology at the white (or black)board or on graph paper.

8. REPRESENTATIVE ASSIGNMENTS
Representative assignments in this course may include, but are not limited to the following:
Writing Assignments:
   A research project requiring application of statistical concepts is required.
Reading Assignments:
   Weekly readings from the assigned text.
Other Outside Assignments:
   Library orientation to psychology journals for research project.

9. REPRESENTATIVE METHODS OF EVALUATION
Representative methods of evaluation may include:
   A. Exams/Tests
   B. Papers
   C. Quizzes
   D. Examinations and quizzes to assess mastery of concepts and methodology in the course. Papers can also be assigned and used in the evaluation of the student's mastery of the course material. Such papers would require the student to evaluate a published experiment and to carry out an experiment, complete a statistical analysis of the results and write up the experiment in accepted social science/behavioral science format.

10. **REPRESENTATIVE TEXT(S):**
    Possible textbooks include:
    A. Gravetter, Frederick and Wallnau, Larry. *Essentials of Statistics for the Behavioral Sciences*, 7th ed. Wadsworth Publishing, 2010

<div align="right">

Origination Date: August 2010
Curriculum Committee Approval Date: March 2013
Effective Term: Fall 2013
Course Originator: James Clifford Jr

</div>