

OUTCOMES BASED LEARNING MATRIX

COURSE: Statistics for Psychology and Social Sciences PSYC220

Department: Social Science

Course Description: This course is an introduction to univariate statistics used in psychology and the social sciences. Topics include: the description and visual representation of data, concepts in elementary probability, applications of descriptive statistics (e.g., frequency distributions, and measures of central tendency and dispersion) and inferential statistics (including hypothesis testing, type I and II errors, t-statistic, chi-square, analysis of variance, correlation and linear regression) using the *Statistical Package for Social Sciences* (SPSS) for data analyses and interpretation. Emphasis is primarily in the context of psychological and social sciences research. Prerequisite: PSYC 101 General Psychology. Note: This course does NOT meet the General Education requirements in Mathematics.

Learning Objective	Learning Outcome	Teaching Methods	Assessments
Develop proficiency in Descriptive Statistics	Compute and correctly apply measures of central tendency (mean, median, mode).	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Descriptive Statistics	Compute and correctly apply measures of variability (range, standard deviation, variance)	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Graphs and Data Interpretation	Construct and interpret graphs of distributions (boxplot, bar chart, histogram, scatterplot).	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Graphs and Data Interpretation	Construct and interpret graphs of experimental results (single factor and 2-factor studies).	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Problem Solving		Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL)

with the Normal Distribution	Compute and interpret z-scores.	Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Problem Solving with the Normal Distribution	Compute probabilities.	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Problem Solving with the Normal Distribution	Use the normal distribution to solve problems by finding areas under the curve representing probabilities and rejection regions.	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Hypothesis Testing	Correctly apply conventional statistical hypothesis testing (e.g., identify and state the null and alternate hypotheses for a given study).	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Hypothesis Testing	Calculate and explain the meaning of t -values and F -values.	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Hypothesis Testing	Calculate and explain the meaning of slope and intercept in regression. Understand the meaning of effect size.	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)

		Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	
Develop proficiency in Hypothesis Testing	Understand the meaning of power in the statistical sense.	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Choice and Interpretation of Inferential Statistics	Compute and correctly interpret the following inferential statistics, employing hypothesis testing procedures: <i>t</i> -test correlation (Pearson <i>r</i>) simple linear regression one-way ANOVA and post-hoc tests two-way ANOVA Chi-square	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Choice and Interpretation of Inferential Statistics	Given a scenario (story problem), choose an appropriate statistical analysis from among those covered in the course and complete the analysis.	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)
Develop proficiency in Choice and Interpretation of Inferential Statistics	Interpret the results of experiments based on tables of results and other detailed information of main effects and interactions in ANOVA, or slope and intercept in regression.	Read the appropriate sections in the text, handouts and websites; (IL,CCT,IG). Take notes on lectures and class discussions to identify theories and concepts; (WC, QL, IL, CCT, IG). Do assignments in the text and follow news accounts, web sites, and other sources to focus on key material; (IL,IG, GL). Use statistical information, tables, charts, and other graphic material to supplement lectures. (QL, IL, CCT, IG).	Class participation (OC, CCT) Homework (WC, IG,CCT, IL) Written Exam (WC, CCT, IL, IG) Practical Exam(CCT,WC,IL)

*Indicate the Core Competencies that apply to the outcomes activities and assessment tools: Written Communication (WC), Quantitative Literacy (QL), Oral Communication (OC), Information Literacy (IL), Critical and Creative Thinking (CCT); Civic Engagement (CE), Integrative Learning (IG) and Global Learning (GL)