

**Exam 1 – Study Guide**  
**PSYC 381**

**Introduction to Statistics & Research Design (Chapter 1)**

- Descriptive vs. Inferential Statistics
- Sample vs. Population
- Constructs
- Garbage In, Garbage Out
- Discrete vs. Continuous Observations
- Scales of Measurement (Nominal ,Ordinal, Interval, Ratio)
- Independent Variable (Levels)
- Dependent Variable
- Confounding & Extraneous Variables
- Noise
- Reliability (e.g., Test-Retest Reliability)
- Validity (e.g., Predictive Validity)
- Hypothesis
- Hypothesis Testing
- Operational Definition
- Random Assignment
- Single-Blind vs. Double Blind Experiments
- Placebo Effect
- Demand Characteristic
- Nonexperiments
- Quasi-experiments
- Between- vs. Within-Groups Designs
- Order Effects
- Counterbalancing

**Descriptive Statistics (Chapter 2)**

- Raw Scores
- Distribution
- Grouped/Frequency Tables
- Grouped Frequency Tables (# of intervals)
- Cumulative Percentage (i.e., Percentiles)
- Histogram
- Frequency Polygon
- Measures of Central Tendency (Mean, Median, Mode)
- Measures of Variability (Range, Variance, Standard Deviation, Interquartile Range)
- Normal Distribution (i.e., properties and significance of)
- Skewness (Positive vs. Negative Skew)
- Kurtosis (Platykurtic, Mesokurtic, Leptokurtic)

### **Visual Displays of Data (Chapter 3)**

- Importance of understanding graphs
- Scatterplots
- Linear vs. Nonlinear Relationships
- Range Frame
- Outliers
- Line Graphs
- Time Plot (Time Series Plot)
- Bar Graphs
- Pictorial Graphs
- Pie Chart
- Box Plot (Whiskers)
- APA Style Table vs. Figure

### **Probabilities and Research (Chapter 4)**

- Risks and Rewards of Sampling
- Random Sampling
- Convenience Sampling
- Randomness
- Cluster Sampling
- Stratified Sampling
- Volunteer Sample
- Random Assignment
- Randomized Block Design
- Replication
- Confirmation Bias
- Illusory Correlation
- Groupthink
- Probability Theory
- Subjective Probability
- Expected Relative Frequency Probability
- Trial
- Independence
- Gambler's Fallacy
- Logic of Inferential Statistics
- Control Group
- Experimental Group
- Null Hypothesis
- Alternative (Researcher/Experimental) Hypothesis
- Type I Error
- Type II Error