Glossary

**a priori specific comparison test**  Inferential statistics used to make specific comparisons among some group means when such comparisons are planned in advance of the data collection.

**active control**  Procedure in which the control participants receive an established treatment with a known degree of effectiveness.

**alpha (α) level**  The probability value at which the experimenter decides to reject the null hypothesis and conclude that the independent variable did have an effect on the dependent variable; also the probability of falsely rejecting a true $H_o$.

**alternate form reliability**  Reliability established by administering two different forms of the same test to the same individuals.

**alternative hypothesis ($H_1$)**  Hypothesis that the independent variable does have an effect on the dependent variable; sample means come from populations with different means.

**attrition**  Withdrawal of participants that may be focused on a particular group or participants with particular characteristics.

**baseline**  Comparison point established by repeated observations of the natural frequency of the behavior of interest.

**basic research**  Research engaged in for the purpose of increasing knowledge of fundamental processes; may have no immediate goals or applications.

**carryover effects**  Effects that earlier conditions have on later performance.

**case study**  Nonexperimental research technique involving a single individual or a small group of individuals in which observations are made over time (either retrospectively or prospectively).

**ceiling effect**  Measurement of the dependent variable results in many very high or highest scores on the dependent variable, thus masking a potential effect of the independent variable.

**census**  All elements in a population are included in the study.

**chaos theory**  An attempt to understand complex, nonlinear, dynamic systems by using mathematical modeling.

**completely randomized factorial design**  Experimental design with two independent variables in which participants are randomly assigned to the different levels of each independent variable.

**concurrent validity**  Validity established by comparing scores to a similar test instrument.

**confidence interval**  An interval that, with repeated sampling, will include the parameter of interest between its boundaries a specified percentage of the time—for example, the 95% confidence interval.

**confirmation bias**  A general tendency to emphasize positive confirming outcomes rather than negative or disconfirming ones.

**confounding variables (confounds)**  A type of extraneous variable that acts like an independent variable to create differences among group scores. [AU: DEFINITION OK? OR PROVIDE?]
**construct validity**  An instrument is considered to have construct validity if it assists in understanding and predicting operationally defined behavior.

**content validity**  Measuring material is drawn directly from the content of the course or training program.

**convenience sampling**  The quick, inexpensive, and convenient use of participants who are available at the moment.

**correlated samples**  Experimental design in which scores in the groups are clustered into sets.

**correlated samples t test**  An inferential statistic used to analyze an experiment in which natural pairs, matched pairs, or repeated measures were used to place participants into two treatment conditions.

**correlation coefficient**  A number that describes the direction and strength of a relationship between two variables.

**correlational research**  Selecting a population and ascertaining the relationship among variables of interest; does not use random assignment or manipulation of conditions.

**counterbalancing**  Varying the order of treatment conditions among the participants; used in repeated measures designs to equalize carryover effects among conditions.

**criterion variable**  The measure that is predicted by the predictor variable in correlational research.

**critical values**  Values that define the region of rejection of $H_0$ at various levels of $\alpha$.

**cross-sectional research**  Research that compares preexisting groups that come from portions of a particular dimension; commonly used by developmental psychologists to study the behavioral of individuals from different age groups in order to assess developmental changes.

**debriefing**  A statement to participants at the end of a study that reveals the true purpose of the study.

**deception**  Research participant is not fully informed about the nature of the study and is often provided misleading information.

**deductive reasoning**  The formulation of specific observational predictions based on a general principle or theory.

**demand characteristics**  Implicit and explicit cues in the research setting that suggest to the participant that he/she behave in a certain way.

**dependent variable**  A measure of behavior that is recorded after the independent variable is introduced.

**determinism**  The notion that all events in the universe, including behavior, are the lawful consequence of prior events.

**diffusion of treatment**  Details about specific treatments in the experiment become known to participants before they participate.

**direction of control**  When two variables (X and Y) are related, it is possible that X causes Y, Y causes X, or that some other variable causes both X and Y.

**double-blind study**  When neither the participant nor the experimenter is aware of the conditions in effect.

**duration method of observation**  Observer records the period of time during which the target behavior lasts.
effect size  A statistical measure of the size of the effect of one variable on another variable.

element  A single member of a population.

empirical referent  An object, person, or event of which we are capable of having a direct experience.

empiricism  The use of observational experience as the basis for understanding the past and present and predicting the future.

ethnography  Nonexperimental research technique to understand the behavior of members of a culture.

evaluation apprehension  Participants’ concerns and apprehensions about being observed and/or evaluated.

ex post facto design  Nonexperimental research technique in which preexisting groups are compared on some dependent variable.

exhaustive list  All members of the population appear on the list.

experimenter bias  Experimenter’s knowledge of the experiment influences observations or is unintentionally communicated to participants.

experimenter characteristics  Personality and physical characteristics of the experimenter that influence the behavior of the participants.

experimenter expectancies  The behavior desired by the experimenter is unintentionally communicated to the participant.

external validity  When the findings may generalize from a small sample to a population, from a specific setting to a broader setting, from specific values of the independent variable to a broader range of values, and from one behavioral measure to another.

face validity  A judgment made after the test is constructed about whether the test instrument appears to measure the content of the course.

facilitation  An increase of responding when compared to baseline.

field research  Research conducted in an environment not designed and controlled by the experimenter.

floor effect  Measurement of the dependent variable results in many very low or lowest scores on the dependent variable, thus masking a potential effect of the independent variable.

frequency method of observation  Observer counts the number of times that a target behavior occurs within a specified period of time.

functional relationship  A relationship in which the value of one variable varies with changes in the values of a second variable.

historical control  Procedure in which the effects of a new treatment are compared to past records of patients who were either untreated or received a different treatment.

history  Occurrence of a specific event during the course of data collection that influences the behavior of the participants.

homogeneity of variance  Equal variability in each treatment condition; a statistical assumption of several parametric statistical analyses.
hypothesis  A prediction of what the relationship will be between one variable and another variable.

independent observation  When the observations of one observer do not influence the observations of another observer.

independent samples  Experimental design in which participants are randomly assigned to the different treatment conditions.

independent samples t test  An inferential statistic used to analyze an experiment in which random assignment was used to place participants into two treatment groups; can also be used to analyze ex post facto research with two preexisting groups.

independent variable  A variable under the control of and administered by the experimenter.

inductive reasoning  - Formulation of a general principle or theory based on a set of specific observations.

informed consent  - Individual agrees to be a research participant after being informed of the nature of the study.

Institutional Review Board (IRB)  - Committee of persons from the institution and from the community that grants ethics approval to research proposals involving human participants.

instructions  - Information given to participants that enables them to perform the required task; must be clear and consistent to ensure task does not vary.

instrument  An established questionnaire that has known validity and reliability.

instrumentation  The methods used to record observations; may change or deteriorate over time.

interaction  The effect of one variable depends on the level of another variable.

internal validity  When the independent variable is responsible for observed variations in the dependent variable.

interobserver agreement  The degree to which the data scorings by independent observers of the same target behavior agree.

intraparticipant replication  Replication with a different participant or participants.

interval method of observation  Observer records whether or not a target behavior is occurring at specified equal time intervals.

interval scale  A quantitative scale expressing “how much”; does not have a true zero point.

interview  One-to-one interaction with a research participant in which questions are prepared but flexibility is available to clarify and enhance data collection.

intraparticipant replication  Replication within the same participant.

inventory  - An established questionnaire that has known validity and reliability.

irreversible behavior  When behavior does not return to baseline after treatment is withdrawn.

laboratory research  Research conducted in an environment designed and controlled by the experimenter.

longitudinal research  Repeated testing of the same individuals over a substantial time span, usually years.

main effect  An effect of one variable found over all levels of a second variable.

matched pairs  Correlated samples design in which scores in the groups are clustered into sets because the experimenter matches participants on some variable.
**matching**  Pairing participants according to their similarity on a predictor variable.

**maturation**  Changes in the state of participants over time that influence their behavior.

**mean**  Measure of central tendency obtained by summing all the scores and dividing by the number of scores.

**measure of central tendency**  Measure that describes the center of a distribution of scores.

**measure of variability**  Measure that describes the extent of the dispersion of scores.

**measurement**  The process of assigning numbers to objects and events in accordance with a set of rules.

**median**  The middle score in a distribution of scores; half the scores are above the median, and half are below.

**meta-analysis**  A statistical technique that provides an indication of the size of an effect across the results of multiple studies.

**mixed factorial design**  Experimental design with two independent variables in which participants are randomly assigned to different levels of one independent variable and participate in all levels of the other independent variable.

**mode**  The most frequent score in a distribution.

**monotonic relationship**  A consistent relationship between two variables such that as the values of one variable increase, the values of the other variable always increase (or always decrease).

**multiple baseline procedure**  Intraparticipant replication with different and independent (uncorrelated) responses.

**natural pairs**  Correlated samples design in which the scores in the groups are clustered into sets for a natural reason (e.g., twin studies).

**naturalistic observation**  Correlational or ex post facto design that takes place in a “real-world” setting.

**nominal scale**  A scale in which numbers are assigned to objects or events for identification purposes.

**nonmonotonic relationship**  A relationship between two variables such that as the values of one variable increase, the values of the other variable increase at times and decrease at other times.

**nonparametric statistics**  Inferential statistics used with nominal or ordinal data or when certain assumptions for parametric analysis are not met (e.g., Wilcoxon t, Mann–Whitney, chi-square).

**nonparticipant observation**  Investigators do not interact with the participants during times of observation.

**nonprobability sampling**  There is no way of estimating the probability that an element will be included in the sample.

**nonreactive measures**  Observations of behavior made without the person’s being aware that he or she is being observed.

**null hypothesis ($H_0$)**  The hypothesis that the independent variable has no effect on the dependent variable; sample means come from populations with the same mean.

**observer drift**  A gradual shift in the observational criteria during the course of the research.
one-way correlated samples ANOVA  An inferential statistic used to analyze an experiment in which natural pairs, matched pairs, or repeated measures were used to place participants into two or more treatment conditions.

one-way independent samples ANOVA  An inferential statistic used to analyze an experiment in which random assignment was used to place participants into two or more treatment groups.

operational definition  Defining a term or concept by the way in which it is measured—that is, making the term observable.

optimal baseline  When the baseline behavior shows little change from session to session.

ordinal scale  A scale in which numbers represent rank order (greater than, less than) without equal intervals.

parametric statistics  Inferential statistics used with interval or ratio data and when certain assumptions are met (e.g., t test, ANOVA).

participant observation  Investigators interact with participants during times of observation.

percentage agreement among observers  A method for measuring the reliability of observations.

phenomenology  Nonexperimental research technique in which in-depth interviews provide insight into the experiences of an individual or a group of individuals.

placebo control  Procedure in which the control participants believe that they receive an effective treatment when in fact they do not.

plagiarism  Taking the ideas or words of someone else and representing them as yours.

population  All members that meet a specified criterion; all measurements meeting a set of specifications.

post hoc specific comparison test  Inferential statistics used to make specific comparisons among group means when there are more than two groups and the ANOVA is significant (e.g., Tukey HSD, Bonferroni test, Scheffé test).

power  The probability of correctly rejecting a false null hypothesis.

predictive validity  Validity established by how well the test predicts relevant aspects of behavior.

predictor variable  The measure that is used to predict the criterion variable in correlational research.

probability sampling  A researcher can specify the probability that an element will be included in the sample.

qualitative research  Nonexperimental research that describes and interprets observations but does not seek to quantify observations numerically.

qualitative variable  A variable that differs in kind rather than in amount.

quantitative variable  A variable that differs in quantity or amount.

quasi-experiment  Similar to a true experiment except that random assignment of participants is not used.

questionnaire  A set of questions designed to measure facts, opinions, and attitudes from a large sample of individuals.

quota sampling  When lists are not available, interviewers are assigned a starting point, a specified direction, and a goal of meeting quotas of various subsets of the population.
**random assignment** Assigning participants to each experimental condition in such a way that any given participant is as likely to be assigned to one condition as another.

**random error** The operation of extraneous variables in a chance manner to increase variability of scores within groups.

**random sampling** Selecting samples in such a way that each sample of a given size has the same probability of being selected; each element in the population has an equal chance of being selected.

**random sampling error** A sample is biased (does not accurately represent the intended population) simply due to chance.

**range** Measure of variability defined as the difference between the highest and lowest scores in a distribution.

**ratio scale** A scale with the properties of an interval scale but with a true zero, so that ratios between quantities can be expressed.

**rationalism** The use of reason and logic as the basis for knowledge.

**reactive measures** Observations of behavior made with the person aware that he or she is being observed.

**reductionist** A person who seeks to explain complex phenomena in terms of relatively simple and basic building blocks.

**region of rejection** Portion of the area under a curve that includes values of a test statistic that lead to a rejection of $H_0$.

**regression to the mean** Individuals high or low on one testing are found to be closer to (regress toward) the mean on a subsequent testing.

**reliability** The consistency of the measuring instrument.

**reliability coefficient** A statistic that measures the reliability of observations.

**repeated measures** Correlated samples design in which scores in the groups are clustered into sets because the same participants participate in all conditions.

**repeated measures factorial design** Experimental design with two independent variables in which the same participants participate in all conditions.

**replication** An independent repetition of an experimental procedure under as similar conditions as the experimental materials permit.

**reversible behavior** When behavior returns to baseline after treatment is withdrawn.

**sample** A subset of a population.

**sampling distribution** A theoretical probability distribution of possible values of some sample statistic that would occur if we were to draw all possible samples of a fixed size from a given population.

**sampling error** The fact that samples drawn from the same population will rarely provide identical estimates of the population parameter of interest.

**selection** Behavioral observations are affected by the particular participants chosen for the study or the particular participants assigned to the treatment conditions.
simple effect  An effect of one independent variable is not found over all levels of a second independent variable.
single-blind study  Only the participant is unaware of the condition to which he or she is being exposed.
split-half reliability  Reliability established by comparing responses to half the questions on a test with responses on the other half of the same test.
standard deviation  The square root of the variance; on average, how far scores are from the mean.
stratified random sample  Random samples are selected from different strata or subgroups of the population.
suppression  A decrease of responding when compared to baseline levels.
survey  Using an interview, questionnaire, or inventory in an attempt to estimate opinions, attitudes, and characteristics of a population based on a sample.
systematic error (confounding)  Intermixing of effects of extraneous variables with possible effects of the independent variable; variability in scores between groups that is the result of variables other than the independent variable.
systematic observation  Observations planned and prepared in advance, including control over conditions under which the observations are made.
systematic sampling error  A sample is biased because it was not properly drawn by the researcher.
systematic variance  Variability in scores between groups that is the result of the manipulation of the independent variable.
task  Behavioral observations are affected if what participants are asked to do is not the same for all groups or conditions.
tautological (circular) reasoning  Using a definition as an explanation, thus reasoning in a circle—for example, they are fighting because they are hostile; I know they are hostile because they are fighting.
test–retest reliability  Reliability established by administering the same test twice to the same individuals.
testing effects  Behavioral observations during subsequent testing are affected by prior testing or observational experiences in the study.
theory  A system of ideas or a set of principles, often dealing with mechanisms or underlying reasons for behavior, that help us organize and assimilate the empirical relationships (observations) that we discover.
third variable  The variable that actually causes changes in two variables (X and Y) and that explains the relationship between X and Y.
time-series design  Repeated measurements of the dependent variable over time with an introduction of the independent variable at a particular point in time.
transient effects  Short-term effects of prior conditions, such as fatigue or boredom.
Type I error  An error made when $H_0$ is true but is mistakenly rejected.
Type II error  An error made when $H_0$ is actually false but is not rejected.
unobtrusive measures  Measures recorded from individuals without their awareness.
validity  A valid instrument measures what it purports to measure.
variable  A condition that can vary or change in quantity or quality.

variance  Measure of variability based on the squared deviations of scores from the mean.

yoked control  Procedure in which two participants are simultaneously exposed to the same condition but the behavior of only one participant determines exposure to the treatment.