



El Camino College
COURSE OUTLINE OF RECORD – Approved

I. GENERAL COURSE INFORMATION

Subject and Number: Psychology 109B
Descriptive Title: Research Methods in the Behavioral Sciences
Course Disciplines: Psychology or Sociology
Division: Behavioral and Social Sciences

Catalog Description:

This course is centered on the philosophy of science in general and the scientific method in particular. Students develop individual research studies with these elements: literature review, hypothesis, design and method, data collection and analysis, and discussion, oral presentation, and manuscript preparation (APA Publication Style).

Note: Psychology 109B is the same course as Sociology 109B

Conditions of Enrollment:

Prerequisite: Psychology 101 or Psychology 101H or Sociology 101 or Sociology 101H and Mathematics 150 or Mathematics 150H or Psychology 109A or Sociology 109A with a minimum grade of C

Course Length:	X Full Term	Other (Specify number of weeks):
Hours Lecture:	3.00 hours per week	TBA
Hours Laboratory:	3.00 hours per week	TBA
Course Units:	4.00	

Grading Method: Letter
Credit Status: Associate Degree Credit

Transfer CSU: X Effective Date: Prior to July 1992
Transfer UC: X Effective Date: Prior to July 1992

General Education:
El Camino College:

CSU GE:
D9 - Psychology
Term: Fall 2007 **Other:**

IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. Logic of the Scientific Method

On examination (e.g., m/c, T/F, fill-in, matching essay), written essay, research paper, and/or oral presentation, students will be able to explain and critique essential components of the scientific method in psychological research.

2. Fundamental Principles

On examination (e.g., m/c, T/F, fill-in, matching, essay), written essay, research paper, and/or oral presentation, students will be able to explain and apply essential elements of the scientific method in psychological research.

3. Everyday Application

On examination (e.g., m/c, T/F, fill-in, matching, essay), written essay, research paper, and/or oral presentation, students will be able to evaluate both the adequacy and relevance of research in their efforts to understand everyday life experiences (e.g., choose a diet plan, decide if a treatment or product is safe and effective, vote for or against a proposition).

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Apply basic Philosophy of Science concepts (i.e., empiricism, rationalism, objectivity, falsifiability) to (a) differentiate science, philosophy, religious & cultural traditions, intuition, and authority; (b) explain how two basic characteristics are central to science; and (c) explain differing interpretations of the goals of science.
2. Explain how research topics can come from different sources by defining and differentiating these concepts: Hypothetico-Deductive method (including theory, hypothesis, and prediction), common sense, casual observation, and practical problems.
3. Analyze different ethical issues in research (i.e., deception, informed consent, privacy, and confidentiality).
4. Explain the role of variables in research by (a) defining and differentiating these types of variables: hypothetical versus concrete, qualitative versus quantitative, predictor (independent) versus response (dependent), manipulated versus natural (subject), extraneous versus confounding and (b) explaining why psychological research is dominated by hypothetical variables and so relies upon operational definitions to remain empirical.
5. Explain the standards of variable measurement by (a) defining and differentiating these concepts: standardization, reliability (test-retest, split-half, inter-rater), and validity (face, construct, convergent, discriminant, criterion, predictive) and (b) explaining why reliability must be established before validity.
6. Explain the variety of functional relations between predictor and response variables by defining and differentiating these concepts: causal, correlational, coincidental, bidirectional, third variable.
7. Explain the issues involved in sampling participants by (a) defining and differentiating probability sampling (e.g., simple random, stratified, cluster) and nonprobability sampling (e.g., haphazard, quota) and (b) explaining why psychological research rarely employs random sampling.
8. Describe the strengths and limitations of various research designs by (a) defining and differentiating naturalistic, case study, archival, correlational, experimental, and quasi-experimental designs and (b) evaluating these designs in terms of internal validity and external validity (including the idea that only experimental designs support causal conclusions).

9. Elaborate upon the concept of conclusion validity by (a) defining and differentiating various threats to internal validity (e.g., history, maturation, testing reactivity, instrument decay, regression to the mean, placebo and expectancy effects), (b) defining and differentiating various designs for controlling threats to internal validity (e.g., pretest-posttest, posttest-only, Solomon 4 Group, repeated measure [including counterbalancing and Latin Square]), (c) explaining how complex designs enhance conclusion validity, including designs with 1 predictor variable but 3+ groups (e.g., dismantling studies) and factorial designs with 2+ predictor variables and 4+ groups (including main effects and interaction effects).
10. Define and differentiate nomothetic (group) and idiographic (single-subject) designs, especially in terms of statistical versus experimental control of error variability.
11. Prepare to participate in each step of the process of research in an academic setting by participating in a research group, including (a) composing and presenting research ideas, associated questions and issues and responding to the ideas, issues, and questions of others; (b) designing a research project through library research and consultation with peers and professor in the research group (and culminating in an APA-style written proposal); (c) carrying out the project by recruiting subject, collecting and statistically analyzing the data, and presenting the project in an APA-style written report.

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	3	I	Approaches to Knowledge A. Intuition B. Authority C. Empirical D. Scientific 1. Goals a) Description b) Prediction c) Control d) Explanation 2. Defining Characteristics a) Objectivity b) Testability
Lecture	3	II	Types of Behavioral Research A. Sources of Research Ideas B. Null and Research Hypotheses C. Mainstream Hypothetico-Deducto Research
Lecture	3	III	Ethics in Research A. Infamous Psychological Studies 1. Milgram's <i>Obedience Study</i> (1962) 2. Zimbardo's <i>Stanford Prison Experiment</i> (1971) B. Medical Studies Sparking Public Outrage 1. Tuskegee <i>Syphilis Study</i> (1932-1972) 2. Guatemala <i>Syphilis Study</i> (1946-1948) C. The Belmont Report (1979) 1. Beneficence 2. Autonomy

			<ul style="list-style-type: none"> 3. Justice D. <i>APA Ethics Code</i> <ul style="list-style-type: none"> 1. Informed Consent 2. Deception 3. Debriefing E. Three Central and Separate Concepts: <ul style="list-style-type: none"> 1. Privacy 2. Confidentiality 3. Anonymity F. <i>Institutional Review Boards</i> <ul style="list-style-type: none"> 1. Risk/Benefit Analysis 2. Exempt (No Risk) Research 3. Minimal (Everyday Life) Risk Research 4. Greater than Minimal Risk Research G. Fraud H. Plagiarism (Including Self-Plagiarism) I. Nonhuman Animal Research <ul style="list-style-type: none"> 1. Humane Care 2. Unnecessary Pain (Cruelty) 3. <i>Institutional Animal Care and Use Committee (IACUC)</i> 4. <i>APA Guidelines for Ethical Conduct in the Care and Use of Nonhuman Animals</i>
Lecture	3	IV	<ul style="list-style-type: none"> Operational Definitions <ul style="list-style-type: none"> A. Mainstream Operationism (Logical Positivism) B. Nonmainstream Operationism (Phenomenological and Pragmatic) C. Criteria of Variable Measurement <ul style="list-style-type: none"> 1. Reliability 2. Validity 3. Assessment Techniques
Lecture	3	V	<ul style="list-style-type: none"> Variables <ul style="list-style-type: none"> A. Validity <ul style="list-style-type: none"> 1. Internal Validity (cause and effect conclusions) 2. External Validity (generalizability to other research setting and “the real world”) 3. Construct Validity (Operational Definitions) B. Relationships Between Variables <ul style="list-style-type: none"> 1. Correlational <ul style="list-style-type: none"> a. Bidirectionality b. Third Variables 2. Causal <ul style="list-style-type: none"> a. Random Assignment b. Manipulation of Independent Variable
Lecture	3	VI	<ul style="list-style-type: none"> Fundamental Methodological Issues <ul style="list-style-type: none"> A. Sampling Techniques B. Techniques of Survey Construction C. Methods of Independent Variable Manipulation D. Types of Sensitivity of Dependent Variable Measures

Lecture	6	VII	Descriptive Research Methods A. Naturalistic Observation B. Systematic Observation C. Case Studies D. Archival Research E. Survey Research
Lecture	6	VIII	Experimental Designs A. Threats to Internal Validity: Confounds 1. History 2. Maturation 3. Reactivity 4. Instrument Decay 5. Statistical Regression 6. Demand Characteristics 7. Placebo Effects 8. Expectancy Effects
Lecture	7	IX	Spectrum of Designs A. Posttest-Only B. Pretest-Posttest C. Independent Groups D. Repeated Measure
Lecture	8	X	Specific Methods A. Random Assignment B. Counterbalancing C. Latin Squares and Randomized Blocks D. Debugging Techniques E. Pilot Studies F. Manipulation Checks
Lecture	6	XI	Complex Experimental Designs: Factorial Designs A. Main Effects and Interactions B. Advantages of Factorial Designs
Lecture	3	XII	Single-Subject Designs
Lab	18	XIII	The Process of Research in an Academic Setting A. Participating in a Research Team B. Developing and Proposing a Research Project
Lab	24	XIV	Data Collection and Analysis A. Levels of Measurement 1. Nominal (Qualitative) 2. Ordinal 3. Interval 4. Ratio B. Parametric Tests (Interval, Ratio Levels of Measurement) 1. Two Group <i>t</i> -test a. Independent Groups b. Dependent Groups (e.g., Repeated Measures, Matched Groups) 2. Analysis of Variance (ANOVA) a. Single Factor (One Way) ANOVA

			b. 2+ Factor (Factorial) ANOVA 3. Pearson Product-Moment Correlation (Pearson r) 4. Regression Analysis C. Nonparametric Test (Nominal, Ordinal Levels of Measurement) 1. Chi-Square Goodness of Fit 2. Mann-Whitney U Test 3. Spearman's r
Lab	12	XV	Preparing the APA-Style Manuscript A. Review and Analysis of Relevant Research 1. Quality of Methodology (e.g., controlling confounding variables) 2. Proper Data Analysis (e.g., confirming statistical assumption are met) 3. Justifiable Conclusions (e.g., avoiding causal inferences from correlational designs) 4. Synthesizing Analysis to Form Testable Hypothesis B. Designing Methodology Necessary to Test Hypothesis C. Selecting Statistical Techniques Appropriate to Data D. Forming Conclusions Supported by Methodology and Statistical Analysis
Total Lecture Hours		54	
Total Laboratory Hours		54	
Total Hours		108	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:

Substantial writing assignments

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:

Based upon readings from your textbook on causal inference in scientific research, write a two-page essay in which you design a study of the effects of sleep deprivation on academic performance that maximizes the strength of the conclusions (in terms of both internal and external validity) while identifying and addressing potential ethical and pragmatic issues.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

1. Research and demonstrate a positive correlation between exposure to pornography and sex offensive behavior. In a two- to three-page essay, describe the conclusion that many laypersons are likely to form and then critique this conclusion. Include in your answer alternative conclusions based upon your knowledge of logical relationships between scientific variables.

2. In a two- to three-page essay, compare the strengths and limitations of nomothetic (group) designs and idiographic (single-subject) designs. Include considerations of both internal and external validity.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Essay exams
Reading reports
Written homework
Laboratory reports
Field work
Term or other papers
Multiple Choice
True/False

V. INSTRUCTIONAL METHODS

Discussion
Laboratory
Lecture
Multimedia presentations

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study
Skill practice
Required reading
Written work

Estimated Independent Study Hours per Week: 6

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Paul Cozby, Scott Bates. Methods in Behavioral Research. McGraw-Hill Education, 2017.

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Psychology 101 or	
Psychology 101H or	
Sociology 101 or	
Sociology 101H and	
Course Prerequisite Mathematics-150 or	Sequential
Course Prerequisite Mathematics-150H or	Sequential
Course Prerequisite Psychology-109A or	Sequential
Course Prerequisite Sociology-109A	Sequential

B. Requisite Skills

Requisite Skills
<p>Ability to apply knowledge about basic research design to more in depth analysis of issues pertaining to the planning, design, execution, and analysis of a research study.</p> <p><u>MATH 150</u> Identify, compare and contrast various types of data and sampling techniques.</p> <p><u>MATH 150H</u> Identify, compare and contrast various types of data and sampling techniques.</p>
<p>Ability to apply knowledge about basic research design to more in depth analysis of issues pertaining to the planning, design, execution, and analysis of a research study.</p> <p><u>PSYC 109A</u> Define and differentiate the following basic research concepts: population and sample, parameter and statistic; predictor (independent) variable and response (dependent) variable; extraneous variable and confounding variable; manipulated and natural (subject) variable; operational definition; correlation and causation.</p>
<p>Ability to apply knowledge about basic research design to more in depth analysis of issues pertaining to the planning, design, execution, and analysis of a research study.</p> <p><u>SOCI 109A</u> Define and differentiate the following basic research concepts: population and sample, parameter and statistic; predictor (independent) variable and response (dependent) variable; extraneous variable and confounding variable; manipulated and natural (subject) variable; operational definition; correlation and causation.</p>

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
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D. Recommended Skills

Recommended Skills

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact
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Course created by Maria Marshall on 03/01/1978.

BOARD APPROVAL DATE:

LAST BOARD APPROVAL DATE: 03/23/2020

Last Reviewed and/or Revised by Richard Mascolo on 01/29/2020

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