

Las Positas College  
3000 Campus Hill Drive  
Livermore, CA 94551-7650  
(925) 424-1000  
(925) 443-0742 (Fax)

**Course Outline for PSYC 2**  
**PSYCHOLOGICAL METHODOLOGY**  
**Effective: Fall 2009**

**I. CATALOG DESCRIPTION:**

PSYC 2 — PSYCHOLOGICAL METHODOLOGY — 3.00 units

Introduction to the use of the scientific method in the study of human and animal behavior. Coverage of descriptive, experimental, and non-experimental methods commonly used in psychological research. Topics will include ethical principles in research, hypothesis development and testing, observational methods, survey research, the fundamentals of experimental design, basic data analysis, and the presentation of research findings. Strongly Recommended: Psychology 1. 3 hours lecture.

3.00 Units Lecture

**Prerequisite**

PSYC 1 - General Psychology

**Grading Methods:**

Optional

**Discipline:**

	<b>MIN</b>
<b>Lecture Hours:</b>	54.00
<b>Total Hours:</b>	54.00

**II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT:**

**III. PREREQUISITE AND/OR ADVISORY SKILLS:**

**Before entering the course a student should be able to:**

A. PSYC1

**IV. MEASURABLE OBJECTIVES:**

**Upon completion of this course, the student should be able to:**

1. describe the historical and philosophical roots of scientific psychology
2. recognize the difference between psychological concepts and operational definitions
3. discuss how historical, social, and cultural factors bias scientific investigation
4. demonstrate the ability to write up research results in APA format
5. describe the advantages and disadvantages of various sampling procedures
6. contrast the strengths and weaknesses of various research methods used in the behavioral sciences
7. evaluate the types of experimental designs including between-subjects, within-subjects, single-subject, factorial designs, and quasi-experiments
8. demonstrate the ability to use descriptive and inferential statistical procedures
9. evaluate the use of validity and reliability in the behavioral sciences
10. discuss the ethical considerations associated with conducting human and animal research

**V. CONTENT:**

- A. The role of scientific inquiry in psychology
  1. Non-scientific approaches to studying behavior: a historical overview
  2. Philosophical roots of scientific method: rise of empiricism and rationalism
  3. Understanding the scientific method
    - a. Theories and hypotheses in science
    - b. Measuring psychology: concepts and operational definitions
    - c. Multimethod approach to science
    - d. Cumulative nature of science
  4. Historical, social, and cultural context in science
    - a. Ethnocentrism
    - b. Anthropocentrism
- B. Scientific writing and presentations
  1. Literature searches and determining source quality
  2. Writing a literature review
  3. APA format for research reports
  4. Peer review processes in science

- C. Descriptive statistics
  - 1. Measurement scales
  - 2. Central tendency measures
  - 3. Measures of variability
- D. Sampling
  - 1. Populations and samples
  - 2. Representative samples based on age, SES, ethnicity/race, religion, sexuality, disability, and other factors
  - 3. Probability and nonprobability sampling
- E. Behavioral observation
  - 1. Types of behaviors in human and nonhuman animals
    - a. Participant reactivity
  - 2. Validity and reliability in behavioral observations
  - 3. Naturalistic observation
  - 4. Participant observation
  - 5. Field experiments
- F. Survey and interview methods
  - 1. Types of survey and interview questions
  - 2. Validity and reliability in survey research
  - 3. Types of collection techniques (print, telephone, Internet)
  - 4. Demand characteristics and response bias
  - 5. Longitudinal and cross-sectional research
- G. Indirect measures
  - 1. Physical trace techniques
  - 2. Archival and content analysis
- H. Hypothesis testing
  - 1. Non-experimental (correlational) methods
    - a. Testing the results of correlation studies
    - b. Correlation coefficients and chi-squared procedures
    - c. Correlation and causality
  - 2. Experimental method
    - a. Requirements for determining causation
    - b. Internal and external validity
    - c. Control and randomization in experiments
    - d. Independent, dependent, and confounding variables
  - 3. Data organization and analysis
    - a. The null hypothesis
    - b. Statistical significance, effect sizes, and power analysis
    - c. t-test and one-way ANOVA procedures
  - 4. Designing an experiment
    - a. Between-groups designs
    - b. Within-groups designs
    - c. Factorial designs
    - d. Case studies and single-case designs
    - e. Quasi-experimental designs
- I. Ethical aspects of research
  - 1. Informed consent
  - 2. Confidentiality
  - 3. Deception and debriefing
  - 4. Ethics protocols for human and animal research
    - a. Institutional Review Board (IRB)
    - b. Institutional Animal Care and Use Committee (IACUC)

#### VI. METHODS OF INSTRUCTION:

- A. **Lecture** - Lectures on major themes and concepts
- B. Readings from texts, supplementary materials, primary source materials
- C. **Discussion** - Discussion and problem solving of significant or controversial issues
- D. **Demonstration** - Demonstrations and simulations
- E. **Audio-visual Activity** - Utilization of video and/or CD-ROM excerpts
- F. **Student Presentations** -
- G. **Written exercises and case studies** - Written assignments

#### VII. TYPICAL ASSIGNMENTS:

- A. Reading: 1. Read chapter five from "Doing Psychological Experiments" and prepare a concept map of the steps in conducting an experiment. Include the necessary evaluations by an Institutional Review Board to insure ethical procedures.
- B. Writing: 1. Write a critique of a published research article. Keep in mind the criteria for evaluating research presented in class and in the text. 2. Write-up the results of the observational study of human behavior or the survey project in APA format. The paper must include all parts of a research paper, including title page, abstract, introduction, methods, results, and references. C. Project (emphasis on problem solving and critical thinking): 1. Working in a group setting, develop a hypothesis and design an experiment using the techniques and concepts introduced in class and in the text. Identify the threats to validity that might be encountered in doing the experiment and how they can be overcome. 2. Given a research problem, formulate at least two approaches that could be used to carry out research on the problem. Discuss the strengths and weaknesses associated with each approach identified.

#### VIII. EVALUATION:

##### A. **Methods**

- 1. Exams/Tests
- 2. Quizzes
- 3. Oral Presentation
- 4. Projects
- 5. Home Work
- 6. Other:
  - a. Quizzes or examinations
  - b. Written assignments
  - c. Projects
  - d. Presentations

##### B. **Frequency**

1. Several quizzes or examinations
2. Several written assignments (worth at least 30% of final grade)
3. At least four projects
4. Final presentation

IX. TYPICAL TEXTS:

1. Shaughnessy, J., Zechmeister, E., Zechmeister, J. *Research Methods in Psychology*. 8th ed., McGraw-Hill, 2009.
2. McBurney, D., White, T. *Research Methods*. 7th ed., Wadsworth, 2007.
3. Trochim, W. *Web Center for Social Research Methods*. 1st ed., Atomic Dog Publishing, 2006.

X. OTHER MATERIALS REQUIRED OF STUDENTS: