PSY R104: INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY

Originator
lchaparro

College
Oxnard College

Discipline (CB01A)
PSY - Psychology

Course Number (CB01B)
R104

Course Title (CB02)
Introduction to Experimental Psychology

Banner/Short Title
Intro Experimental Psychology

Credit Type
Credit

Start Term
Fall 2021

Catalog Course Description
This psychological methods course emphasizes research design; experimental procedures and techniques; descriptive methodology; and the collection, analysis and interpretation of research data.

Taxonomy of Programs (TOP) Code (CB03)
2001.00 - Psychology, General

Course Credit Status (CB04)
D (Credit - Degree Applicable)

Course Transfer Status (CB05) (select one only)
A (Transferable to both UC and CSU)

Course Basic Skills Status (CB08)
N - The Course is Not a Basic Skills Course

SAM Priority Code (CB09)
E - Non-Occupational

Course Cooperative Work Experience Education Status (CB10)
N - Is Not Part of a Cooperative Work Experience Education Program

Course Classification Status (CB11)
Y - Credit Course

Educational Assistance Class Instruction (Approved Special Class) (CB13)
N - The Course is Not an Approved Special Class

Course Prior to Transfer Level (CB21)
Y - Not Applicable

Course Noncredit Category (CB22)
Y - Credit Course

Funding Agency Category (CB23)
Y - Not Applicable (Funding Not Used)

Course Program Status (CB24)
1 - Program Applicable

General Education Status (CB25)
Y - Not Applicable

Support Course Status (CB26)
N - Course is not a support course

Field trips
May be required

Grading method
Letter Graded

Does this course require an instructional materials fee?
No

Repeatable for Credit
No

Is this course part of a family?
No

Units and Hours

Carnegie Unit Override
No

In-Class

Lecture
Minimum Contact/In-Class Lecture Hours
52.5
Maximum Contact/In-Class Lecture Hours
52.5

Activity

Laboratory

Total in-Class

Total in-Class
Total Minimum Contact/In-Class Hours
52.5
Total Maximum Contact/In-Class Hours
52.5

Outside-of-Class

Internship/Cooperative Work Experience

Paid

Unpaid

Total Outside-of-Class

Total Outside-of-Class
Minimum Outside-of-Class Hours
105
Maximum Outside-of-Class Hours
105

Total Student Learning

Total Student Learning
Total Minimum Student Learning Hours
157.5
Total Maximum Student Learning Hours
157.5

Minimum Units (CB07)
3
Maximum Units (CB06)
3

Prerequisites
PSY R101; and PSY R103 or MATH R105 or MATH R105H

Entrance Skills
Entrance Skills
Ability to interpret statistical data and use statistics in designing and validating research.

Prerequisite Course Objectives
MATH R105-Distinguish among different scales of measurement and their implications
MATH R105-Interpret data displayed in table(s) and graphically
MATH R105-Apply concepts of sample space, probability, and counting techniques
MATH R105-Calculate measure of central tendency and variation for a given data set
MATH R105-Identify the standard measures of obtaining data and identify advantages and disadvantages of each (i.e. use appropriate language)
MATH R105-Calculate the mean and variance of discrete distribution(s)
MATH R105-Calculate probability using normal and t-distributions
MATH R105-Distinguishing the difference between sample and population distributions and analyze the role played by the Central Limit Theorem
MATH R105-Construct and interpret confidence intervals
MATH R105-Determine and interpret levels of statistical significance (e.g. p-values)
MATH R105-Interpret the out of a technology-based statistical analysis
MATH R105-Identify the basic concepts of hypothesis tests involving Type I and II errors
MATH R105-Determine the appropriate hypothesis test involving samples from one and two populations, conduct the appropriate test, and interpret the results
MATH R105-Using linear regression and ANOVA analysis for estimation and inference and interpret the associated statics
MATH R105-Use appropriate statistical techniques to analyze and interpret applications based on data from various disciplines including, but not limited to business, social science, psychology, life science, health science, and education
MATH R105H-Distinguish among different scales of measurement and their implications
MATH R105H-Interpret data displayed in table(s) and graphically
MATH R105H-Apply concepts of sample space, probability, and counting techniques
MATH R105H-Calculate measure of central tendency and variation for a given data set
MATH R105H-Identify the standard measures of obtaining data and identify advantages and disadvantages of each (i.e. use appropriate language)
MATH R105H-Calculate the mean and variance of discrete distribution(s)
MATH R105H-Calculate probability using normal and t-distributions
MATH R105H-Distinguishing the difference between sample and population distributions and analyze the role played by the Central Limit Theorem

MATH R105H-Construct and interpret confidence intervals
MATH R105H-Determine and interpret levels of statistical significance (e.g. p-values)
MATH R105H-Interpret the out of a technology-based statistical analysis
MATH R105H-Identify the basic concepts of hypothesis tests involving Type I and II errors
MATH R105H-Determine the appropriate hypothesis test involving samples from one and two populations, conduct the appropriate test, and interpret the results
MATH R105H-Using linear regression and ANOVA analysis for estimation and inference and interpret the associated statics
MATH R105H-Use appropriate statistical techniques to analyze and interpret applications based on data from various disciplines including, but not limited to business, social science, psychology, life science, health science, and education
PSY R103-Distinguish between the concepts of Population and Sample
PSY R103-Basic sampling techniques
PSY R103-Identify the basic methods of data collection and their appropriateness; identify advantages and disadvantages of each
PSY R103-Interpret data displayed graphically and in tables
PSY R103-Explain the Nature of a data set and scales of measurement and their implications; distributions of data sets [Normal and Binomial]
PSY R103-Calculate measures of central tendency (as appropriate to the nature of a sample) and variation for a data set; location of various central tendency in skewed and normal distribution
PSY R103-Apply concepts of sample space and probability
PSY R103-Calculate mean, variance and standard deviation of a sample and population [parameter and statistic]
PSY R103-Explain Central limit Theorem and compute Z-scores and use appropriate tables to interpret outcomes
PSY R103-Construct and interpret confidence intervals, and determine and interpret levels of statistical significance including p-values
PSY R103-Formulate hypothesis tests involving samples from one and two populations
PSY R103-Calculate probabilities using normal and t-distributions
PSY R103-Calculate difference of two sample means and its significance using t-distribution and Z-testing
PSY R103-Select the appropriate technique for testing a hypothesis and interpret the result
PSY R103-Apply the techniques of hypothesis testing and determine Type I and Type II errors including one-tail test and two-tail test and interpret confidence intervals (p-values)
PSY R103-Calculate Pearson-r (product–moment correlation coefficient between two variables) and Spearman-Rho [for rank order data], including regression analysis
PSY R103-Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics
PSY R103-State the concepts involving Analysis of Variance [ANOVA]
PSY R103-Apply the computational steps for obtaining value of F and obtain level of significance for F
PSY R103-Explain inferential testing between at least three (3) groups with one independent variable and at least one dependent variable
PSY R103-Compute Chi-square statistic and use Tests for Goodness of fit and independence
PSY R103-Use SPSS and EXCEL programs to analyze assigned data set, generate appropriate graph(s) and table(s) which will facilitate the process of interpretation. Data used for statistical analysis will include all social sciences, such as business, social sciences, psychology, life science, health science, and education

Entrance Skills

Fundamental understanding of psychological theories, major concepts, and psychology's subdisciplines is required prior to designing research studies in the discipline.

Prerequisite Course Objectives

PSY R101-Demonstrate familiarity with the major concepts, theoretical perspectives, research methods, core empirical findings, and historic trends in psychology.
PSY R101-Recognize and understand the impact of diversity on psychological research, theory and application, including (but not limited to): age, race, ethnicity, culture, gender, socio-economic status, disability, and sexual orientation.
PSY R101-Understand and apply psychological principles to personal experience and social and organizational settings.
PSY R101-Demonstrate critical thinking skills and information competence as applied to psychological topics.
PSY R101-Explain (including advantages and disadvantages) and compare major theoretical perspectives of psychology (e.g., behavioral, biological, cognitive, evolutionary, humanistic, psychodynamic and socio-cultural)
PSY R101-Demonstrate knowledge and understanding of the following nine general domains: (1) biological bases of behavior and mental processes, (2) sensation and perception, (3) learning and memory (4) cognition, consciousness, (5) individual differences, psychometrics, personality, (6) social processes (including those related to socio-cultural and international dimensions), (7) developmental changes in behavior and mental processes that occur across the lifespan, (8) psychological disorders, and (9) emotion and motivation
PSY R101-Describe and demonstrate an understanding of applied areas of psychology (e.g., clinical, counseling, forensic, community, organizational, school, health)
PSY R101-Draw the distinction between scientific and non-scientific methods of understanding and analysis.

Requisite Justification

Requisite Type
Prerequisite

Requisite
MATH R105

Requisite Description
Course not in a sequence

Level of Scrutiny/Justification
Required by 4 year institution

Requisite Type
Prerequisite

Requisite
MATH R105H

Requisite Description
Course not in a sequence

Level of Scrutiny/Justification
Required by 4 year institution

Requisite Type
Prerequisite

Requisite
PSY R101

Requisite Description
Course in a sequence

Level of Scrutiny/Justification
Content review

Student Learning Outcomes (CSLOs)	
	Upon satisfactory completion of the course, students will be able to:
1	Discuss the Scientific Method by naming and explaining each step.
2	Define population (the entire group in question) and sample (a portion of the population).
3	Describe three types of experimental design and the advantages and disadvantages of each.
4	Discuss the Hawthorne effect and its implications on the researcher.
5	Describe what the classic Prison study at Stanford University taught Zimbardo and others.

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1	State key topics and subdisciplines studied in the field of Psychology
2	Describe and apply the Scientific Method
3	Identify the goal of research and summarize a collection of research findings
4	Apply observational techniques and research methods related to research questions, hypotheses, and the interpretation of data
5	Explain key concepts related to experimental methods such as correlation, causation, sampling procedures, and statistical tests
6	Develop and define hypotheses. Select appropriate research designs to test hypotheses

7	Identify types of errors and various forms of biases
8	Recognize levels of significance and the generalizability of study results
9	Examine ethical issues related to the treatment of humans and animals in the conduct of experimental research
10	Demonstrate proficiency in APA style by writing a research paper/literature using citing and other procedures using APA style

Course Content

Lecture/Course Content

1. Introduction
   a. Scientific and nonscientific approaches to knowledge
   b. Dependent and independent variables
   c. Validity and reliability
   d. Scientific method and its goals
   e. Causal and correlational relationships
   f. Samples and sampling methods
   g. Theoretical and operational definitions
   h. Selection of appropriate statistical tests (chi-square, correlation, t-tests, ANOVA)
   i. Evaluating peer-reviewed literature
   j. APA format
2. Ethical Issues in the Conduct of Psychological Research
   a. APA ethical standards
   b. Risk/benefit ratio of research
   c. Use of deception in research
   d. Human and animal subject use
3. Descriptive Methods — Observation and Survey Research
   a. Observational techniques and rationale
   b. Reactivity, demand characteristics, observer bias, expectancy effects, and other biases
   c. Theories, research questions, hypotheses
   d. Interpretation and limits of correlational data
   e. Levels of measurement
4. Unobtrusive Measures of Behavior (physical trace methods, archival research methods, content analysis)
5. Experimental Methods
   a. Independent Group Designs
   b. Repeated Measures Designs
   c. Reasons to use and limitations of experimental methods
   d. Counterbalancing and practice effects
6. Main effects and interaction effects using both table and graph methods
7. Other Research Designs
   a. Single-Case Research Design
   b. Quasi-Experimental Designs
8. Program Evaluation
   a. Characteristics of true experiments and quasi-experiments

Laboratory or Activity Content

None

Methods of Evaluation

Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):
Written expression

Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):
Essay exams
Essays
Group projects
Objective exams

Projects
Problem-Solving Assignments
Quizzes
Reports/papers
Research papers

Instructional Methodology

Specify the methods of instruction that may be employed in this course

Computer-aided presentations
Class activities
Class discussions
Case studies
Distance Education
Group discussions
Instructor-guided interpretation and analysis
Instructor-guided use of technology
Internet research
Lecture
Small group activities

Describe specific examples of the methods the instructor will use:

1. The instructor will instruct on how to do American Psychological Association citing and formatting procedures, give examples and answer questions.
2. The instructor will assign the student (in a group)to design a research study utilizing one of the methods learned in class.
3. The instructor will instruct the student to conduct the study they designed above.
4. The instructor will require the student to document that study in a manuscript utilizing American Psychological Association Manuscript guidelines

Representative Course Assignments

Writing Assignments

1. Taking observational notes in an archival or case study research or an actual experiment
2. Reporting/collating/summarizing notes into formal reports with the aid of tables, histograms and graphs making sure to interpret the data
3. Essays, e.g. on competing theories, interpretations, and research questions (within experimental psychology) on the appropriate use of sampling procedures and statistical tests
4. Designing research projects, for example: questionnaires, case studies, surveys, questionnaires sampling methods, levels of significance
5. Writing research papers that discuss and report on the entirety of a carefully designed experimental project (in APA format) including such issues as ethics of the study

Critical Thinking Assignments

1. The student will document analysis of a famous research study, either historical or contemporary and describe the consequences of the design of the project and if it is truly objective and if the design influenced the outcomes.

Reading Assignments

1. Reading chapters from the primary textbook, for example, on the topic of the "Scientific method and methods applied in the conduct of social scientific experimental research"
2. Reading other research studies in the field of psychology, such as those published through the American Psychological Association; for example, on studies which illustrate independent group designs versus repeated-measure designs
3. Reading/critiquing other student papers on the topics of: design; correct use of experimental methodologies; appropriate applications of experimental technique such as correlation coefficient.
4. Evaluating peer-reviewed literature

Other assignments (if applicable)

1. Preparation for class presentation of research study on "Randomization and the use of controls in research design"

Outside Assignments

Representative Outside Assignments
1. The student will read 10 studies utilizing a chosen research method such as unobtrusive design and analyze the advantages of these studies in preventing the Hawthorne effect.
2. When documenting the above study which they design, the student will do a literature review focusing on the sample type and ability to be representative of the phenomena being studied.
3. The student will created a chart of all research methods studied in class such as correlation and experimental design and determine the best use of these methods.

Articulation

C-ID Descriptor Number
PSY 200

Status
Approved

Comparable Courses within the VCCCD
PSY M06 - Introduction to Behavioral Research Methods
PSY V07 - Introduction to Research Methods in Social and Behavioral Sciences

District General Education

A. Natural Sciences

B. Social and Behavioral Sciences

B2. Social and Behavioral Sciences
Approved

C. Humanities

D. Language and Rationality

E. Health and Physical Education/Kinesiology

F. Ethnic Studies/Gender Studies

Course is CSU transferable
Yes

CSU Baccalaureate List effective term:
Fall 1995

CSU GE-Breadth

Area A: English Language Communication and Critical Thinking

Area B: Scientific Inquiry and Quantitative Reasoning

Area C: Arts and Humanities

Area D: Social Sciences

D Social Sciences
Approved

Area E: Lifelong Learning and Self-Development

Area F: Ethnic Studies

CSU Graduation Requirement in U.S. History, Constitution and American Ideals:

UC TCA

UC TCA
Approved

IGETC

Area 1: English Communication

Area 2A: Mathematical Concepts & Quantitative Reasoning

Area 3: Arts and Humanities

Area 4: Social and Behavioral Sciences

Area 4: Social and Behavioral Sciences
Approved

Area 5: Physical and Biological Sciences

Area 6: Languages Other than English (LOTE)

Textbooks and Lab Manuals

Resource Type
Textbook

Description
Martin, DW (2008). *Doing Psychology Experiments (Thks is the most recent year available)*. Belmont, Ca. Wadsworth CENGAGE Learning.

Resource Type
Textbook

Description
Cozby, Paul C. Bates, Scott (2017). *Methods in Behavioral Research* (13th). New York McGraw Hill. 1259676986

Resource Type
Textbook

Description
Elmes, D.G., Kantowitz, B.H. Roediger, H.L. (2011). *Research Methods in Psychology*. Wadsworth Publishing .

Resource Type
Other Resource Type

Description
American Psychiatric Association, (latest edition) Publication Manual of the American Psychological Association, Washington DC, Author..

Distance Education Addendum

Definitions

Distance Education Modalities

Hybrid (51%–99% online)
Hybrid (1%–50% online)
100% online

Faculty Certifications

Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.

Yes

Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities. Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.

Yes

Regular Effective/Substantive Contact

Hybrid (1%–50% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Regular use of asynchronous discussion boards encourages various types of interaction and critical thinking skills among all course participants. Questions and topics posed will allow students to discuss, compare and contrast, identify, and analyze elements of the course outcomes. Students will be required to respond to one another with substantive comments with the intent of creating a dialog. Other discussion boards may be used for Q&A and general class discussion by students and instructor to facilitate student success and strengthen student learning outcomes.
E-mail	E-mail, class announcements and various learning management system tools such as "Message Students Who" and "Assignment Comments", will be used to regularly communicate with all students on matters such as clarification of class content, reminders of upcoming assignments and/or course responsibilities, to provide prompt feedback to students on coursework to facilitate student learning outcomes, or to increase the role of an individual educator in the academic lives of a student. Students will be given multiple ways to email instructor through both the learning management system inbox and faculty provided email accounts.
Face to Face (by student request; cannot be required)	The instructor will hold weekly, scheduled office hours either in person or via-web conferencing, for students to be able to meet and discuss course materials or individual progress. Students can request additional in-person or web conferencing meetings with faculty member as needed. Faculty may encourage online students to form "study groups" in person or online.
Other DE (e.g., recorded lectures)	Faculty will use a variety of ADA compliant tools and media integrated within the learning management system to help students reach SLO competency. Tools may include: • Recorded Lectures, Narrated Slides, Screencasts • Instructor created content • OC Online Library Resources • Canvas Peer Review Tool • Canvas Student Groups (Assignments, Discussions) • 3rd Party (Publisher) Tools (MyOpenMath) • Websites and Blogs o Multimedia (YouTube, Films on Demand, 3CMedia, Khan Academy, etc.)

Synchronous Dialog (e.g., online chat)	Instructor will provide a set time each week where they will be available for synchronous chat and be available in the discussion board and can answer questions in live time.
Video Conferencing	Video tools such as ConferZoom can be used to provide live synchronous or asynchronous sessions with students. ADA compliance will be upheld with Closed Captioning during the session or of the recorded session. Recordings of all live sessions will be made available within the LMS. Video Conferences will be used to facilitate SLOs and student-to-student group meetings will also be encouraged.
Telephone	Students can request for instructor to call or vice versa in order to answer one-on-one questions about course material or student progress.

Hybrid (51%–99% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Regular use of asynchronous discussion boards encourages various types of interaction and critical thinking skills among all course participants. Questions and topics posed will allow students to discuss, compare and contrast, identify, and analyze elements of the course outcomes. Students will be required to respond to one another with substantive comments with the intent of creating a dialog. Other discussion boards may be used for Q&A and general class discussion by students and instructor to facilitate student success and strengthen student learning outcomes.
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Telephone	Students can request for instructor to call or vice versa in order to answer one-on-one questions about course material or student progress.

100% online Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Regular use of asynchronous discussion boards encourages various types of interaction and critical thinking skills among all course participants. Questions and topics posed will allow students to discuss, compare and contrast, identify, and analyze elements of the course outcomes. Students will be required to respond to one another with substantive comments with the intent of creating a dialog. Other discussion boards may be used for Q&A and general class discussion by students and instructor to facilitate student success and strengthen student learning outcomes.
E-mail	E-mail, class announcements and various learning management system tools such as "Message Students Who" and "Assignment Comments", will be used to regularly communicate with all students on matters such as clarification of class content, reminders of upcoming assignments and/or course responsibilities, to provide prompt feedback to students on coursework to facilitate student learning outcomes, or to increase the role of an individual educator in the academic lives of a student. Students will be given multiple ways to email instructor through both the learning management system inbox and faculty provided email accounts.
Face to Face (by student request; cannot be required)	The instructor will hold weekly, scheduled office hours either in person or via-web conferencing, for students to be able to meet and discuss course materials or individual progress. Students can request additional in-person or web conferencing meetings with faculty member as needed. Faculty may encourage online students to form "study groups" in person or online.
Other DE (e.g., recorded lectures)	Faculty will use a variety of ADA compliant tools and media integrated within the learning management system to help students reach SLO competency. Tools may include: • Recorded Lectures, Narrated Slides, Screencasts • Instructor created content • OC Online Library Resources • Canvas Peer Review Tool • Canvas Student Groups (Assignments, Discussions) • 3rd Party (Publisher) Tools (MyOpenMath) • Websites and Blogs o Multimedia (YouTube, Films on Demand, 3CMedia, Khan Academy, etc.)
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Telephone	Students can request for instructor to call or vice versa in order to answer one-on-one questions about course material or student progress.

Examinations

Hybrid (1%–50% online) Modality

Online
On campus

Hybrid (51%–99% online) Modality

Online
On campus

Primary Minimum Qualification
PSYCHOLOGY

Review and Approval Dates

Department Chair
09/04/2020

Dean
09/07/2020

Technical Review
10/28/2020

Curriculum Committee
10/28/2020

DTRW-I
MM/DD/YYYY

Curriculum Committee
12/09/2020

Board
MM/DD/YYYY

CCCCO
12/18/2020

Control Number
CCC000264682

DOE/accreditation approval date
MM/DD/YYYY