# PSY M06: INTRODUCTION TO BEHAVIORAL RESEARCH METHODS

**Originator**
jcampbell

**Co-Contributor(s)**

| Name(s) |
| --- |
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**College**
Moorpark College

**Discipline (CB01A)**
PSY - Psychology

**Course Number (CB01B)**
M06

**Course Title (CB02)**
Introduction to Behavioral Research Methods

**Banner/Short Title**
Intro Behav Resrch Meth

**Credit Type**
Credit

**Start Term**
Fall 2022

**Catalog Course Description**
Introduces basic research concepts and principles of behavioral science; descriptive and experimental research approaches; hypothesis formation and testing; experimental variables and controls; validity and reliability; experimental and quasi-experimental research designs; and research ethics. Examines research design and methodology through a review of research in a variety of the subdivisions of Psychology.

**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**
Will not be required

**Grading method**
(L) Letter Graded

**Alternate grading methods**
(O) Student Option- Letter/Pass
(P) Pass/No Pass Grading

**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 M01 or PSY M01H and MATH M15 or MATH M15H

**Advisories on Recommended Preparation**
ENGLISH M01A

## Entrance Skills

**Entrance Skills**
PSY M01 or PSY M01H and MATH M15 or MATH M15H

**Prerequisite Course Objectives**
MATH M15-summarize data graphically by displaying data using methods from descriptive statistics, interpreting data in tables graphically by using histograms, frequency distributions, box-and whisker plots (five-number summary); find measures of central tendency for data sets: mean, median, and mode; find measures of variation for data sets: standard deviation, variance, and range; determine relative positions of data and distinguish among scales of measurements and their implications; distinguish between populations and samples; and identify the standard method of obtaining data and the advantages and disadvantages of each.
MATH M15-find simple probabilities and probabilities of compound events and compute probabilities using the complement, discrete probability distributions; apply concepts of sample space, and the binomial probability distribution.

MATH M15-standardize a normally distributed random variable; use normal distribution tables to find probabilities for normally distributed random variables and the t-distribution; use the Central Limit Theorem to find probabilities for sampling distributions.
MATH M15-construct and interpret confidence intervals for proportions and means.
MATH M15-identify the basics of hypothesis testing and perform hypothesis testing for means, proportions and standard deviations from one population, and difference of means and proportions from two populations, including finding and interpreting p-value and examining Type I and Type II error.
MATH M15-find linear least-squares regression equations for appropriate data sets; graph least-square regression equations on the scatter plot for the data sets; find and apply the coefficient of correlation.
MATH M15-use the chi-square distribution to test independence and to test goodness of fit.
MATH M15-conduct a one-way Analysis of Variance (ANOVA) hypothesis test.
MATH M15-select an appropriate hypothesis test and interpret the result using p-value; use appropriate statistical technique to analyze and interpret applications based on data related to business, social sciences, psychology, life sciences, health sciences or education, and interpret results using technology-based statistical analysis.
MATH M15H-summarize data graphically by displaying data using methods from descriptive statistics, interpreting data in tables graphically by using histograms, frequency distributions, box-and whisker plots (five-number summary); find measures of central tendency for data sets: mean, median, and mode; find measures of variation for data sets: standard deviation, variance, and range; determine relative positions of data and distinguish among scales of measurements and their implications; distinguish between populations and samples; and identify the standard method of obtaining data and the advantages and disadvantages of each.
MATH M15H-find simple probabilities and probabilities of compound events and compute probabilities using the complement, discrete probability distributions; apply concepts of sample space, and the binomial probability distribution. Honors: And the Poisson distribution.
MATH M15H-standardize a normally distributed random variable; use normal distribution tables to find probabilities for normally distributed random variables and the t-distribution; use the Central Limit Theorem to find probabilities for sampling distributions.
MATH M15H-construct and interpret confidence intervals for proportions and means.
MATH M15H-identify the basics of hypothesis testing and perform hypothesis testing for means, proportions and standard deviations from one population, and difference of means and proportions from two populations, including finding and interpreting p-value and examining Type I and Type II error.
MATH M15H-find linear least-squares regression equations for appropriate data sets; graph least-square regression equations on the scatter plot for the data sets; find and apply the coefficient of correlation.
MATH M15H-use the chi-square distribution to test independence and to test goodness of fit.
MATH M15H-conduct a one-way Analysis of Variance (ANOVA) hypothesis test.
MATH M15H-select an appropriate hypothesis test and interpret the result using p-value; use appropriate statistical technique to analyze and interpret applications based on data related to business, social sciences, psychology, life sciences, health sciences or education, and interpret results using technology-based statistical analysis.
MATH M15H-Honors: find probabilities using Poisson distributions.
MATH M15H-Honors: estimate binomial probabilities.
MATH M15H-Honors: find and use standard deviations.
PSY M01-explain major theories and concepts of human behavior during consecutive eras.
PSY M01-apply methods and research findings in psychology including the scientific approach, research design, the use of statistics, and ethics to understand the role of reviewing scientific evidence throughout the study of human behavior.
PSY M01-analyze biological bases of behavior, including the relationship between human behavior, neurological functioning, and perception/cognition.
PSY M01-recognize major developmental changes across the lifespan in behavior and mental processes.
PSY M01-distinguish between altered and waking consciousness and understand components of stages of sleep.
PSY M01-differentiate among three types of learning: classical conditioning, operant conditioning, and observational learning.
PSY M01-explain current models of memory and the role of brain functioning.
PSY M01-distinguish between the current theories of motivation and emotion.
PSY M01-compare and contrast major personality theories (e.g., psychoanalytic, social learning, and trait factor theories).
PSY M01-analyze the effect of stress on physical functioning and factors that influence resilience.
PSY M01-identify factors used to establish abnormal behavior, understand the classification system of the current Diagnostic and Statistical Manual of Mental Disorders, and list criteria for psychological disorders such as mood disorders, anxiety disorders, and schizophrenia.
PSY M01-identify therapeutic approaches for psychological disorders.
PSY M01-explain how social psychology principles influence such attitudes and behaviors as obedience, conformity, prejudice, aggression, and prosocial behavior.
PSY M01-recognize the role of applied psychology (e.g., clinical, community, and health).
PSY M01-distinguish between sensation and perception and understand the subjective nature of perception.
PSY M01H-explain major theories and concepts of human behavior during consecutive eras.
PSY M01H-apply methods and research findings in psychology including the scientific approach, research design, the use of statistics, and ethics to understand the role of reviewing scientific evidence throughout the study of human behavior.
PSY M01H-analyze biological bases of behavior, including the relationship between human behavior, neurological functioning, and perception/cognition.
PSY M01H-recognize major developmental changes in behavior and mental processes across the lifespan.
PSY M01H-distinguish between altered and waking consciousness and understand components of stages of sleep.
PSY M01H-differentiate among three types of learning: classical conditioning, operant conditioning, and observational learning.
PSY M01H-explain current models of memory and the role of brain functioning.
PSY M01H-distinguish between the current theories of motivation and emotion.
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PSY M01H-explain how social psychology principles influence such attitudes and behaviors as obedience, conformity, prejudice, aggression, and prosocial behavior.
PSY M01H-recognize the role of applied psychology (e.g., clinical, community, and health).
PSY M01H-distinguish between sensation and perception and understand the subjective nature of perception.
PSY M01H-HONORS OBJECTIVES: evaluate how findings from classic experiments in psychology can be applied to human behavior and mental processes.
PSY M01H-HONORS OBJECTIVES: analyze peer-reviewed scholarly articles on psychological topics such as self-control, prejudice, or depression to understand how psychologists use the scientific method to better understand behavior and mental processes.
PSY M01H-HONORS OBJECTIVES: analyze current events in terms of psychological concepts and theories.

## Requisite Justification

**Requisite Type**
Recommended Preparation

**Requisite**
ENGL M01A or ENGL M01AH

**Requisite Description**
Other (specify)

**Specify Other Requisite Description**
Recommended level of communication skill

**Level of Scrutiny/Justification**
Required communication/computation skill

**Requisite Type**
Prerequisite

**Requisite**
PSY M01 or PSY M01H

**Requisite Description**
Course in a sequence

**Level of Scrutiny/Justification**
Required by 4 year institution

**Requisite Type**
Prerequisite

**Requisite**
MATH M15 or MATH M15H

**Level of Scrutiny/Justification**
Required by 4 year institution

**Student Learning Outcomes (CSLOs)**

| | Upon satisfactory completion of the course, students will be able to: |
|---|---|
| 1 | demonstrate an understanding of perspectives, theories, and core concepts in Psychology. |
| 2 | evaluate the validity of scientific studies and claims using scientific principles. |
| 3 | demonstrate proficiency in APA style. |

| | |
|---|---|
| 4 | recognize and understand the impact and value of diversity on psychological research, theory, and application, including but not limited to: age, race, ethnicity, culture, gender, socioeconomic status, disability, and sexual orientation. |

**Course Objectives**

| | **Upon satisfactory completion of the course, students will be able to:** |
|---|---|
| 1 | explain the basic principles of the scientific method, including the value of empirical, scientific understanding and how it differs from other methods of acquiring information. |
| 2 | demonstrate proficiency in APA style. |
| 3 | explain the ethical treatment of human and animal participants in research and the institutional requirements for conducting research. |
| 4 | differentiate among several types of reliability and validity. |
| 5 | demonstrate knowledge of general research designs, experimental and non-experimental methods, and standard research practices. |
| 6 | describe Cook and Campbell's (1979) major types of confounding variables and how each may be controlled. |
| 7 | critically evaluate research reports with a focus on construct, external, and internal validities. |
| 8 | generate hypotheses and select appropriate research designs to test them. |

## Course Content

**Lecture/Course Content**

**(10%) Scientific Approach**

- Scientific and nonscientific approaches to knowledge and understanding
- Factors associated with strong scientific theories and hypotheses
- Scientific method and its goals
- Conceptual and operational definitions
- Probabilistic nature of science

**(10%) APA Style**

- Basic content and sections included in APA style empirical articles
- Basic APA format for empirical articles
- How to access and use resources for questions regarding current APA style guidelines
- How to search for scholarly journal articles in psychology

**(10%) Ethics**

- Review of historical studies (e.g., Milgram studies) that underscore the need for ethical standards in human research
- Basic ethical principles of Belmont Report
- Primary APA ethical standards for human and animal research

**(20%) Claims, Validity, and Reliability**

- Common research claims (frequency, association, and causal) and types of methodologies used to justify these claims
- Construct validity and operational definitions
- External validity including samples and sampling methods
- Internal validity and IVs, DVs, and third variables/confounds
- Cook and Campbell's (1979) major types of confounding variables and how each may be controlled
- Measures of reliability such as test-retest reliability, inter-rater reliability, and internal reliability

**(15%) Descriptive Research Methods (Observation and Survey Research)**

- Observational techniques and rationale
- Reactivity, demand characteristics, observer bias, expectancy effects, and other biases
- Construct validity of survey questions
- Limits of correlational data

**(20%) Experimental Research Designs**

- Characteristics of true experiments including the importance of a control group
- Strength and limitations associated with between-subjects and within-subjects designs
- Methods to overcome order effects in within-subjects designs

- Purpose of factorial designs and interpretation of main effects and interactions

**(15 %) Quasi-Experimental and Other Designs**

- Distinguish between experimental and quasi-experimental designs
- Limitations of quasi-experimental designs in terms of causal claims
- Other designs such as single-case, longitudinal, or cross-sectional

**Laboratory or Activity Content**

N/A

## 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):**

Computational homework
Essay exams
Group projects
Individual projects
Objective exams
Oral analysis/critiques
Oral presentations
Quizzes
Reports/papers
Research papers
Written analyses
Written homework
Classroom Discussion
Projects
Participation
Reports/Papers/Journals

## Instructional Methodology

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

Audio-visual presentations
Case studies
Class activities
Class discussions
Collaborative group work
Computer-aided presentations
Demonstrations
Distance Education
Field experience/internship
Field experience/non-internship
Field trips
Group discussions
Guest speakers
Instructor-guided interpretation and analysis
Instructor-guided use of technology
Internet research
Large group activities
Lecture
Small group activities

**Describe specific examples of the methods the instructor will use:**

demonstrations, audio/visual presentations, class discussions, and small group activities to explain the course content. In addition, the instructor will model problem solving, and how to interpret and analyze research findings.

## Representative Course Assignments

**Writing Assignments**

- Respond to short answer exam questions
- Create written proposal including theory generated hypotheses as well as appropriate methodology to test the hypotheses
- Analyze a peer-reviewed research report and write a report regarding the study's level of construct, external, and internal validities

**Critical Thinking Assignments**

- Analyze mock IRB proposals to ensure that the proposed research adheres to APA ethical standards for human research
- Synthesize research results from peer-reviewed research reports
- Identify psychological constructs and generate multiple ways to operationalize them

**Reading Assignments**

- Read and study selected chapters from the textbook as well as the accompanying lecture notes; then, answer assigned questions
- Read a published APA style empirical article and then analyze the contents of the different sections such as Introduction, Methods, and Discussion

## Outside Assignments

**Representative Outside Assignments**

- Conduct a literature search using appropriate databases
- Complete assigned readings
- Identify research articles in scholarly journals that demonstrate research designs discussed in class
- Properly format empirical studies in APA style
- Develop research proposals
- Visit a research lab at a local institution

## Articulation

**C-ID Descriptor Number**

PSY 200

**Status**

Approved

**Equivalent Courses at 4 year institutions**

| University | Course ID | Course Title | Units |
|---|---|---|---|
| UC Irvine | SOCECOL 10 | Research Design | 4 |
| UC Davis | PSYCH 41 | Research Methods in Psychology | 4 |
| UC San Diego | COGS 14A | Introduction to Research Methods | 4 |

**Comparable Courses within the VCCCD**

PSY R104 - Research Methods in Psychology
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:**
F1989

## 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

**Classic Textbook**
Yes

**Description**
Cozby, Paul, and Scott Bates. *Methods in Behavioral Research.* 14th ed., McGraw-Hill, 2020.

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**Resource Type**
Textbook

**Classic Textbook**
Yes

**Description**
Morling, Beth. *Research Methods in Psychology: Evaluating a World of Information.* 4th ed., Norton, 2021.

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**Resource Type**
Manual

**Description**
American Psychological Association. *Publication Manual of the America Psychological Association.* 7th ed., APA, 2020.

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**Resource Type**
Textbook

**Classic Textbook**
Yes

**Description**
Pelham, Brett W., and Blanton, Hart. *Conducting Research in Psychology: Measuring the Weight of Smoke.* 5th ed., Sage Publications, Inc., 2019.

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## Library Resources

**Assignments requiring library resources**
Research, using the Library's print and online resources including specialized databases such as EBSCO's PsychARTICLES, psychological topics in peer-reviewed scholarly journals.

**Sufficient Library Resources exist**
Yes

**Example of Assignments Requiring Library Resources**
Read articles on psychological topics in popular magazines such Scientific American Mind and Time. Then, using the Library's print and online resources, find the primary studies that were referenced in the magazine articles to determine if the secondary sources accurately summarized the methodology and results of the primary research studies.

## Distance Education Addendum

## Definitions

**Distance Education Modalities**
Hybrid (1%–50% online)
Hybrid (51%–99% 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 discussion boards will be used to encourage discussions among students where they can compare and contrast/discuss/analyze psychological topics involving such as correlation vs. causation; ethics in human research; and the replication crisis in psychology |
| Synchronous Dialog (e.g., online chat) | Online office hours or online group discussions |
| E-mail | Instructor-to-student and student-to-instructor contact for clarification questions, and student progress report |
| Other DE (e.g., recorded lectures) | Internet websites, videos, recorded lectures, PowerPoint presentations, and lecture notes |
| Face to Face (by student request; cannot be required) | Face-to-face meetings with students as needed by student request outside of classroom for clarification, questions, and student progress reports |
| Video Conferencing | One-on-one meetings with students by request for clarification, questions, and student progress reports. Instructor may be available on a certain day or days of the week within a certain time frame to help students and answer their questions via live video conferencing. This would be equivalent to on-line office hours. Also, the instructor may choose to present a lecture to the students via video conferencing |
| Telephone | One-on-one meetings with students by request for clarification, questions, and student progress reports |

**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 discussion boards will be used to encourage discussions among students where they can compare and contrast/discuss/analyze psychological topics involving such as correlation vs. causation; ethics in human research; and the replication crisis in psychology |
| Synchronous Dialog (e.g., online chat) | Online office hours or online group discussions |
| E-mail | Instructor-to-student and student-to-instructor contact for clarification questions, and student progress report |
| Other DE (e.g., recorded lectures) | Internet websites, videos, recorded lectures, PowerPoint presentations, and lecture notes |
| Face to Face (by student request; cannot be required) | Face-to-face meetings with students as needed by student request outside of classroom for clarification, questions, and student progress reports |
| Video Conferencing | One-on-one meetings with students by request for clarification, questions, and student progress reports. Instructor may be available on a certain day or days of the week within a certain time frame to help students and answer their questions via live video conferencing. This would be equivalent to on-line office hours. Also, the instructor may choose to present a lecture to the students via video conferencing |

| | |
|---|---|
| Telephone | One-on-one meetings with students by request for clarification, questions, and student progress reports |

**100% online Modality:**

| Method of Instruction | Document typical activities or assignments for each method of instruction |
|---|---|
| Asynchronous Dialog (e.g., discussion board) | Regular discussion boards will be used to encourage discussions among students where they can compare and contrast/discuss/analyze psychological topics involving such as correlation vs. causation; ethics in human research; and the replication crisis in psychology |
| Synchronous Dialog (e.g., online chat) | Online office hours or online group discussions |
| E-mail | Instructor-to-student and student-to-instructor contact for clarification questions, and student progress report |
| Other DE (e.g., recorded lectures) | Internet websites, videos, recorded lectures, PowerPoint presentations, and lecture notes |
| Face to Face (by student request; cannot be required) | Face-to-face meetings with students as needed by student request outside of classroom for clarification, questions, and student progress reports |
| Video Conferencing | One-on-one meetings with students by request for clarification, questions, and student progress reports. Instructor may be available on a certain day or days of the week within a certain time frame to help students and answer their questions via live video conferencing. This would be equivalent to on-line office hours. Also, the instructor may choose to present a lecture to the students via video conferencing |
| Telephone | One-on-one meetings with students by request for clarification, questions, and student progress reports |

## Examinations

**Hybrid (1%–50% online) Modality**
On campus
Online

**Hybrid (51%–99% online) Modality**
On campus
Online

**Primary Minimum Qualification**
PSYCHOLOGY

## Review and Approval Dates

**Department Chair**
03/22/2021

**Dean**
03/22/2021

**Technical Review**
09/02/2021

**Curriculum Committee**
10/19/2021

**DTRW-I**
MM/DD/YYYY

**Curriculum Committee**
MM/DD/YYYY

**Board**
MM/DD/YYYY

**CCCCO**
11/01/2021

**Control Number**
CCC000431659

**DOE/accreditation approval date**
MM/DD/YYYY