PSYC 100: Research Methods in Psychology  
Fall 2016

Lecture: MWF 1:20pm - 2:25pm, J. Baskin Auditorium 101  
Section A: Monday 5:00pm-7:00pm  
Section B: Tuesday 9:00am-11:00am  
Section C: Tuesday 11:00am-1:00pm  
Section D: Tuesday 1:00pm-3:00pm  
Section E: Tuesday 3:00pm-5:00pm  
Section F: Tuesday 5:00pm-7:00pm  
Section G: Wednesday 5:00pm-7:00pm  
Section H: Thursday 9:00am-11:00am  
Section I: Thursday 11:00am-1:00pm  
Section J: Thursday 1:00pm-3:00pm  
Section K: Thursday 3:00pm-5:00pm  
Section L: Thursday 5:00pm-7:00pm  
All sections in Social Sciences 2 104

**Instructor**  
Dr. Christy M. Byrd  
cmbyrd@ucsc.edu  
Office: Social Sciences 2, Room 347  
Office Hours: Monday 10-11am and by appointment:  
http://meetme.so/ChristyByrd

**Teaching Assistants**  
<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Sections</th>
<th>Office Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicole White</td>
<td><a href="mailto:nilywhit@ucsc.edu">nilywhit@ucsc.edu</a></td>
<td>A, G</td>
<td>T 12-1pm RC 127</td>
</tr>
<tr>
<td>Christine Rosales</td>
<td><a href="mailto:abwalsh@ucsc.edu">abwalsh@ucsc.edu</a></td>
<td>D, E</td>
<td>M 3-4pm SS2 203</td>
</tr>
<tr>
<td>Abby Walsh</td>
<td><a href="mailto:abwalsh@ucsc.edu">abwalsh@ucsc.edu</a></td>
<td>B, C</td>
<td>W 9-10am SS2 203</td>
</tr>
<tr>
<td>David Gordon</td>
<td><a href="mailto:dalegord@ucsc.edu">dalegord@ucsc.edu</a></td>
<td>F, L</td>
<td>M 12-1pm SS2 206</td>
</tr>
<tr>
<td>Itzel Aceves</td>
<td><a href="mailto:eacevesa@ucsc.edu">eacevesa@ucsc.edu</a></td>
<td>H, I</td>
<td>M 12-1pm SS2 221</td>
</tr>
<tr>
<td>Brad Thompson</td>
<td><a href="mailto:bradt@ucsc.edu">bradt@ucsc.edu</a></td>
<td>J, K</td>
<td>T 11:50-12:50pm Terra Fresca</td>
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</tbody>
</table>

**Required Text**  
*You may use an earlier edition of this textbook, but you are responsible for being aware of any discrepancies with the latest edition.*  
The text is available for purchase online and at the bookstore. Copies are also on reserve at McHenry Library.

**Strongly Recommended**  

**Optional Free Online Study Materials**  

**Course Overview**  
In this course you will learn the process of psychological methods and design. You will also learn to conduct your own research project, including writing a literature review, collecting data,
analyzing data using simple statistical tests, and producing an APA style report. Throughout the course, you will work on a research project based on your interests.

Objectives
At the end of this course, you will be able to:
1. Demonstrate familiarity with the major concepts in research methods and design
2. Be able to read, understand, and evaluate psychological research
3. Design and conduct a basic study to address psychological questions using appropriate research methods
4. Use APA style effectively in an empirical research paper

Requirements
- Pretest
- Participation and Homework (20%)
  - 3 Project Exams (60%)
  - 1 Final Exam (20%)

Pretest: You must complete the pretest by 10am on September 30th or you will receive a No Pass. The pretest will be available on eCommons beginning September 23rd.

Participation and Homework: You are required to attend the first lecture or you will be dropped from the course. The first week you may attend any section, after that you must attend the section in which you are enrolled.

You are expected to attend each lecture and discussion section, arriving on time and having completed the assigned readings and homework. Homework will be graded based on completion from 0-3 points. Late assignments will receive a 1-point penalty. Quizzes will also be given in lecture and/or section and will be worth 3 points if completed. Participation in lecture and section will be worth 3-6 points. If you arrive to section late or leave class early you may lose some participation points.

If you are absent from lecture or section, or you have to leave class early, you do not need to email the professor or your TA. You are responsible for obtaining notes from a classmate. To make-up for lost participation points, first, each student receives one “Free Pass” worth 9 participation points that you may turn in at any point in the quarter. Second, you may make-up up to an additional 9 participation points by attending an on-campus lecture or workshop based on psychology and writing a 2-page report. The presentation must be approved in advance by your TA, who will give you details for the report.

Project Exams: Each exam will consist of two components: a take-home portion and an in-class portion. They will test your knowledge of basic concepts and your ability to apply those concepts to a research project based on your interests. For the take-home portion, you are allowed to use your own notes and the textbook and to consult with your TA for assistance. However, the written component must be entirely your own work. No notes are allowed for the in-class portion of the exam.
If you will be absent during an exam or need other accommodations, contact the instructor with documentation *at least 1 week* before the exam. Exam make-ups will only be allowed if you contact the instructor at least 1 week before the exam or have a documented emergency.

*Exam 1 (15% of grade)*: You will evaluate the reliability and validity of your observational study from PSYC 10 or another class, locate 3 empirical and 1 review articles on the topic in PsycInfo, and complete a detailed IRB application.

*Exam 2 (20% of grade)*: You will design a questionnaire, administer it to a sample, and analyze the results using a two forms of descriptive statistics and one of following: t-test, ANOVA (F-test), chi-square test, or correlation. You will locate 3 empirical and 1 review article in PsycInfo and create an IRB application, including a consent form.

*Exam 3 (25% of grade)*: You will design and carry out an experimental study.

**Final Exam:** The final exam is cumulative and will consist of multiple-choice and short answer questions based on material presented in class and in the textbook and your project exams.

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A+</td>
<td>98.00-100%</td>
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<tr>
<td>A</td>
<td>93.00-97.99%</td>
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<td>A-</td>
<td>90.00-92.99%</td>
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<tr>
<td>B+</td>
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<td>B</td>
<td>83.00-85.99%</td>
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<td>B-</td>
<td>80.00-82.99%</td>
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<tr>
<td>C+</td>
<td>76.00-79.99%</td>
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<td>C</td>
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<td>C-</td>
<td>65.00-69.99%</td>
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<td>60.00-64.99%</td>
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<tr>
<td>F</td>
<td>&lt;60.00%</td>
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**Does not satisfy major requirements or prerequisites:**

**Course Policies**

**Contacting the Instructor**

Please use the following link to schedule a meeting outside of office hours: [http://meetme.so/ChristyByrd](http://meetme.so/ChristyByrd). Otherwise, email is the best way to contact me. Please include “PSYC 100” in the subject line. I will respond to student emails only between 10am and 12pm each day. If you email me after 12pm, please do not expect a response until the next morning. Before emailing, please:

- review the syllabus
- read my latest announcements
- review the relevant resources on eCommons

To make sure your question isn't answered in those places.

**Academic Honesty**

You are responsible for the integrity of your work. Academic dishonesty will not be tolerated. If you are found guilty of cheating or plagiarizing, you will receive a zero on the assignment. You may also be given a failing grade for the course and/or referred to your provost. Academic dishonesty includes submitting someone else’s work under your own name, collaborating with
someone else on an individual paper, or including another person’s written words or ideas into your work without appropriate attribution. If you are unsure as to what constitutes academic dishonesty, please meet with the instructors. Information is also available here: http://library.ucsc.edu/help/howto/citations-and-style-guides.

Principles and procedures concerning academic integrity are available at this link: http://www.ue.ucsc.edu/academic_integrity.

Accommodations for Disabilities
Any student who thinks they may need an accommodation based on the impact of a disability should contact the instructor privately to submit their Accommodation Authorization and discuss specific needs, preferably within the first two weeks of the quarter. Please contact the Disability Resource Center at 831-459-2089 in room 146 Hahn Student Services or by e-mail at drc@ucsc.edu to coordinate those accommodations.

Challenging Exam Grades
If you are concerned about your grade on an exam, you must first review your exam answers with your teaching assistant. Then you must submit a written appeal describing the reason(s) your grade should be changed. Please keep in mind that challenging a grade will not guarantee that your score will change.

Course Communication: The instructor and TAs will use email and eCommons to communicate about the course, including giving feedback on assignments and making announcements about homework assignments and changes to the syllabus. It is essential that you read all communications.

Distribution of Course Materials: Please note that students may be disciplined for selling, preparing, or distributing course lecture notes for any commercial purpose, whether or not the student himself or herself took the notes. The unauthorized sale of lecture notes (and handouts, readers or other course materials) is a violation of campus policies, state law and may also constitute copyright infringement subject to legal action.

For more information about the policy, please see this email from UCSC's Vice Provost and Dean of Undergraduate Education (Dec 2010): http://its.ucsc.edu/security/copyright-notes.html
<table>
<thead>
<tr>
<th>Date</th>
<th>Week</th>
<th>Topic</th>
<th>Reading/Assignment</th>
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<tbody>
<tr>
<td>9/23</td>
<td>0</td>
<td>Introductions</td>
<td></td>
</tr>
<tr>
<td>9/26</td>
<td>1</td>
<td>The Scientific Method, Claims and Validity</td>
<td>Chapters 1, 2, 3</td>
</tr>
<tr>
<td>9/28</td>
<td></td>
<td>Claims and Validity Cont’d, Sources of Information</td>
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<tr>
<td>9/30</td>
<td></td>
<td>Arguments in Research</td>
<td>Complete pretest by 10am</td>
</tr>
<tr>
<td>10/3</td>
<td>2</td>
<td>Measurement, Reliability and Construct Validity</td>
<td>Chapter 5, Chapter 6 p.168-177, Chapter 4</td>
</tr>
<tr>
<td>10/5</td>
<td></td>
<td>Observations and Ethical Research</td>
<td></td>
</tr>
<tr>
<td>10/7</td>
<td></td>
<td>APA Style</td>
<td>p.498-521</td>
</tr>
<tr>
<td>10/10</td>
<td>3</td>
<td><strong>Exam 1 In-Class</strong></td>
<td>Exam 1 Take-Home</td>
</tr>
<tr>
<td>10/12</td>
<td></td>
<td>Surveys and Consent Forms</td>
<td>Chapter 6 p.157-168</td>
</tr>
<tr>
<td>10/14</td>
<td></td>
<td>Frequency Claims and Descriptive Statistics</td>
<td>Statistics Review: Descriptive Statistics</td>
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<tr>
<td>10/17</td>
<td>4</td>
<td>Association Claims and Correlations</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>10/19</td>
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<td>Interpreting Inferential Statistics</td>
<td>Statistics Review: Inferential Statistics</td>
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<tr>
<td>10/21</td>
<td></td>
<td>Sampling</td>
<td>Chapter 7</td>
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<tr>
<td>10/24</td>
<td>5</td>
<td><strong>Survey Day</strong></td>
<td>Submit your formatted survey by 10am</td>
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<tr>
<td>10/26</td>
<td></td>
<td>APA Style Method and Results</td>
<td>p.492-496</td>
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<tr>
<td>10/28</td>
<td></td>
<td>Writing Arguments</td>
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<td>10/31</td>
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<td><strong>Exam 2 In-Class</strong></td>
<td>Exam 2 Take-Home</td>
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<tr>
<td>11/2</td>
<td></td>
<td>Withdrawal deadline</td>
<td>Causal Claims and Experiments</td>
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<tr>
<td>11/4</td>
<td></td>
<td>Experiments Cont’d</td>
<td></td>
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<tr>
<td>11/7</td>
<td>7</td>
<td>Complex Experimental Designs</td>
<td>Chapter 12</td>
</tr>
<tr>
<td>11/9</td>
<td></td>
<td>APA Style Introductions and Discussions</td>
<td>p.488-492, 496-501</td>
</tr>
<tr>
<td>11/11</td>
<td></td>
<td><em>No Class – Veteran’s Day</em></td>
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<tr>
<td>11/14</td>
<td>8</td>
<td><strong>Experiment Day</strong></td>
<td>Submit your survey/stimuli by 10am</td>
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<tr>
<td>11/16</td>
<td></td>
<td>Generalization</td>
<td>Chapter 14</td>
</tr>
<tr>
<td>11/18</td>
<td></td>
<td>Careers in Psychology Review</td>
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<tr>
<td>11/21</td>
<td>9</td>
<td><strong>Exam 3 In-Class</strong></td>
<td>Exam 3 Take-Home</td>
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<tr>
<td>11/23</td>
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<td><em>No Class</em></td>
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<tr>
<td>11/25</td>
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<td><em>No Class – Thanksgiving Break</em></td>
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<tr>
<td>11/28</td>
<td>10</td>
<td>Frequency Claims Revisited</td>
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<tr>
<td>11/30</td>
<td></td>
<td>Association Claims Revisited</td>
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<tr>
<td>12/2</td>
<td></td>
<td>Causal Claims Revisited</td>
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<tr>
<td>12/7</td>
<td></td>
<td>Finals Week</td>
<td>12-3pm Final Exam</td>
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**Final Exams**

12-3pm Final Exam
## Section Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading/Homework Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Evaluating Research</td>
<td>Chapters 1, 2, 3 Bring a paper copy of a popular media article reporting on scientific research</td>
</tr>
<tr>
<td>2</td>
<td>Reliability/Validity IRB Applications Exam 1 Preparation</td>
<td>Bring an electronic or paper copy your PSYC 10 final paper or a proposed substitute Bring an electronic or paper copy of an empirical journal article</td>
</tr>
<tr>
<td>3</td>
<td>Consent Forms and Survey Development</td>
<td>Bring your 3-item survey measure from lecture</td>
</tr>
<tr>
<td>4</td>
<td>Survey Development</td>
<td>Bring paper or electronic copies of 4 journal articles (1 review, 3 empirical) on your Exam 2 topic. At least one should be a survey study.</td>
</tr>
<tr>
<td>5</td>
<td>Meet in Computer Lab: SS1 PC: A, B, C, G, H, I, J, K SS1 Mac: D, E, F, L Data Analysis Lab</td>
<td>Bring your raw data in a spreadsheet or SPSS file</td>
</tr>
<tr>
<td>6</td>
<td>No section</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Experimental Design</td>
<td>Submit a draft of your experiment proposal by Monday 4pm, regardless of when your section is Bring 3 paper copies to section</td>
</tr>
<tr>
<td>8</td>
<td>Exam 3 Workshop</td>
<td>Bring a paper draft of your Exam 3 take-home paper</td>
</tr>
<tr>
<td>9</td>
<td>No section</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Review</td>
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</tbody>
</table>

### FREE PASS

**PSYC 100 Fall 2016**

Turn this pass in for credit for 9 participation points, up to 100% of a student’s lost participation points (no extra credit).

Must be submitted as a paper copy.

No student may turn in more than 1 Free Pass for any reason. May not be used for the first lecture or exam days.

**Must be turned in to the TA by 5pm December 2nd.** No exceptions!

Full Name _____________________________ Section Letter _______
Exam 1 Study Guide

Exam 1 is worth 15% of your final grade.

Take-Home Portion Instructions

The take-home portion must be submitted on eCommons by 1:20pm on Monday, October 10th. Late exams will receive a 5% penalty for every 24 hours. The only formatting requirements are that the files be saved as .doc, .docx, .txt, or .rtf (.pages and .pdf are not acceptable) and be named using the following convention: LastNameFirstNameDescription (for example, ByrdChristyExam1.docx). Your exam grade will be reduced by 5% if you do not follow these requirements.

Please note: You may resubmit your assignment on eCommons at any time, including after the deadline. However, only the latest submission time, as recorded by eCommons, is noted when determining whether a paper is late.

The take-home portion will consist of four parts:
- PSYC 10 observational paper or approved substitute
- 4 scholarly articles
- Completed IRB application
- Analysis of observational paper

PSYC 10 Paper (5 points)
Submit the full final text of your final observational paper from PSYC 10 (Introduction to Developmental Psychology). If you have not completed PSYC 10 or did not take PSYC 10 at UCSC, meet with your TA to determine a substitute. The substitute must be an observational study and must be approved at least one week in advance of the exam or your grade will be reduced by 20%.

Scholarly Articles (5 points)
Use PsycINFO or Google Scholar to locate 3 empirical and 1 review article on the topic in your observational paper. You may use the existing references in the paper provided they are scholarly. List the citations in APA style on a separate page labeled “References”. For each citation, indicate how frequently the journal is published and whether it is peer-reviewed.

IRB Application (20 points)
Complete the IRB application in the Resources section on eCommons and submit with your paper. The application does not need to be signed. Fill in all parts of the application based on your paper, and make-up or leave blank any questions you cannot answer (e.g., funding agency).

Analysis (30 points)
Answer the following questions using prose (paragraphs) or bullet points. Each question is worth 1 point. Use a high level of detail when responding and use phrases from the definition to show that you understand the concept. Do not expect the TAs to fill in the gaps. An example of a good response is: “This hypothesis is a causal claim because it looks at two variables (hunger and food-seeking) and assumes that hunger is causing food-seeking. A frequency claim would only consider one variable and an associative claim only concerns a correlation, not causality.”
An example of a poor response is “This hypothesis is a causal claim because it is not a frequency claim or an associative claim.”

- Is your study empirical? Explain why or why not.
- What theory is your study based on?
- Does the theory meet the four features of a good theory, and why or why not?
- Is your study applied, basic, or translational? How do you know?
- What is your study’s hypothesis? (if you have more than one, pick one for the following questions)
- Is your hypothesis directional? Does it include the variables of interest? If not, rewrite the hypothesis to the appropriate form.
- What is the independent variable in the hypothesis? Is it manipulated or measured?
- What is the dependent variable in the hypothesis? Is it manipulated or measured?
- If you only have one variable, what is it and is it manipulated or measured?
- Give the conceptual definitions of your study variables.
- Give the operational definitions of your study variables.
- Does the hypothesis make a frequency, association, or causal claim? Explain why.
- Identify the type of measurement(s) your variables use. Chose one variable an indicate one strength and one weakness of the type of measurement.
- Identify the type of measurement scale(s) your variables use.
- Choose one of your variables and evaluate the measurement along the following dimensions. Give the definition for each, then explain how valid you think the measure is and support your conclusion. You may need to use the articles you found about the topic to help. If the dimension is not relevant, explain why not:
  - External validity
  - Statistical validity
  - Internal validity
  - Test-retest reliability
  - Inter-rater reliability
  - Internal reliability
  - Face validity
  - Content validity
  - Criterion validity
  - Convergent validity
  - Discriminant validity
- How does your study show the probabilistic nature of research?
- If you were going to conduct the study again, what type of comparison group would be appropriate, and why?
- Identify at least two confounds in your study and explain why they are confounding.
- If you were to do this study again, identity two things you would change and explain why you would change them.
- List at least two potential topics for Exam 2, where you will create a survey.

**In-Person Instructions**

The in-person exam will consist of 20 multiple choice questions and 5 short answer questions. The questions will be based on the following learning objectives:

- Chapter 1
  - Define empiricism
- Distinguish between applied, basic, and translational research
- Define a theory
- Identify the features of a good scientific theory
- Define hypothesis
- Define data
- Explain the steps in the theory-data cycle
- Identify two characteristics of a scientific journal
- Explain the role of journalism in science, including 2 risks and 2 benefits

- Chapter 2
  - Compare and contrast research as a source of information with
    - Your experience
    - Intuition
    - Authority
  - Explain why authorities may not be a good source of information
  - Define comparison group
  - Explain how comparison groups work
  - Define confound
  - Give an example of a confound
  - Define probabilistic
  - Give an example of the probabilistic nature of research
  - Identify two types of biases of intuition
  - Give an example of a cognitive bias
  - Give an example of a motivational bias
  - Identify two guiding questions to help you read a scholarly source
  - Identify the parts of an argument
  - Identify the types of sources acceptable for this course
  - Identify three types of scientific sources
  - Identify two types of journal articles
  - Identify the components of an empirical journal article

- Chapter 3
  - Identify the components of a hypothesis
  - Define a variable
  - Distinguish between measured and manipulated variables
  - Define independent variable
  - Define dependent variable
  - Define conceptual definition/construct
  - Define operational definition/operationalization
  - Define validity
  - Describe the characteristics of a valid claim
  - Identify the four validities
  - Define construct validity
  - Define external validity
  - Define statistical validity
  - Define internal validity
  - Distinguish between frequency, association, and causal claims
  - Identify the three requirements of causal claims

- Chapter 4
  - Explain the ethical principle of respect for persons
• Explain the ethical principle of beneficence
• Explain the ethical principle of justice
• Explain the three ethical violations of the Tuskegee Syphilis Study
• Explain the composition and role of the Institutional Review Board (IRB)
• Explain the procedure for submitting an IRB application at UCSC
• Explain how an IRB might evaluate deception
• Explain the role of debriefing in a research study
• Identify three forms of research misconduct
• Explain what counts as plagiarism in this course

• Chapter 5
  • Distinguish between three types of measures
  • Distinguish between four types/scales of measurement
  • Define categorical variables
  • Define ordinal scale
  • Define interval scale
  • Define ratio scale
  • Define reliability
  • Identify three types of reliability
  • Define test-retest reliability
  • Define interrater reliability
  • Define internal reliability
  • Explain how Cronbach’s alpha is calculated and what it means when the alpha is above .70
  • Explain how a scatterplot can be used to show reliability
  • Explain how a correlation coefficient can be used to show reliability
  • Identify five types of construct validity
  • Define face validity
  • Define content validity
  • Define criterion validity
  • Explain how the known-groups paradigm can show criterion validity
  • Define convergent validity
  • Define discriminant validity

• Observational Research and APA Style
  • Define observational research
  • Give an example of one of the three problems with construct validity of observational studies
  • Be familiar with APA style sections of a manuscript, citations, and references
Exam 2 Study Guide

Exam 2 is worth 20% of your final grade. You will design a survey and administer it to your classmates in class on October 24th. You may use a paper survey or an online survey. You may use the same survey as another student, but you must have different analyses and write your papers separately.

Take-Home Portion Instructions

The take-home portion must be submitted on eCommons by 1:20pm on Monday, October 31st. Late exams will receive a 5% penalty for every 24 hours. Follow the file extension and naming requirements from Exam 1 for all parts. Your exam grade will be reduced by 5% if you do not follow these requirements.

The take-home portion will consist of five parts:

1. IRB application (10 points)
2. Consent form (10 points)
   - Include all required elements
3. Formatted survey (5 points)
   - Measure at least two variables, with at least one being a forced-choice self-report scale with at least three items
   - Include your initials and section letter in the footer
   - Save paper copy as .doc, .docx, or .pdf
   - No longer than 1 page front and back
   - Submitted by 10am for Survey Day
4. Paper in APA style (55 points):
   - No page requirement or limit
   - No abstract
   - Title page (5 points)
   - Introduction (10 points)
     - Summarize at least four articles (three empirical, one review) in three or four sentences each. Explain why they are relevant to this study.
     - Name your independent and dependent variables
     - Give the conceptual and operational definitions for your variables
     - State your hypothesis (at least one, up to three)
     - Explain whether your hypothesis is a frequency, association, or causal claim, and why
     - Explain why you think your hypothesis will be supported using a strong argument.
   - Method (20 points)
     - Participants
       - How many
       - Demographic information (if measured)
       - How recruited
       - How compensated
       - How representative is your sample? Identify at least 1 strength and 1 weakness of your sampling method(s).
       - Is your sample WEIRD? Explain at least 2 potential implications of this for your findings.
   - Measures
• For each variable, explain the type of measurement scale (categorical, ordinal, interval, or ratio)
• Cite the source of the scale or describe how you created it
• Give one example item
• Indicate the response scale
• Explain how you computed a total score
• Explain what high and low scores mean
• If relevant, explain the coding for open-ended items
• Indicate how reliable and valid your measures are, or, if you don’t have data on that, explain how you would evaluate reliability and validity. Only describe the relevant forms of reliability and validity and use a high level of detail, as in Exam 1.

  • Procedure
    • Describe what happened in such a way that a stranger would be able to repeat the study exactly
    • Do not repeat information from other sections
  o Results (15 points)
    • Two descriptive statistics for each variable (choose from: mean, median, mode, and standard deviation)
      • Justify your selection of statistics
    • One inferential statistical test (choose from: t-test, ANOVA (F-test), chi-square test, or correlation)
      • Justify your selection of statistics
      • Identify the null hypothesis, alpha level, test statistic, p-value, and confidence interval
      • Indicate whether you reject or retain the null hypothesis
      • For correlation: say whether strength is weak, moderate, or strong
    • Explain whether your research hypothesis is supported
    • Explain why you cannot make a causal claim about your data
  • Extra credit (2 points): figure or table (must be in APA style)
    • Create a figure or table to represent one of your statistics. Choose from: frequency table, histogram, scatterplot, means table, or chi-square table
  o References page listing 1 review and 3 empirical articles (5 points)

**In-Person Instructions**
The in-person exam will consist of 30 multiple choice questions and 5 short answer questions. The questions will be based on the following learning objectives:

  • Chapter 6
    o Define open-ended question
    o Define forced-choice format
    o Define Likert scale
    o Define semantic differential format
    o Identify a leading question
    o Identify a double-barreled question
    o Identify a negatively worded question
Explain ways to avoid negative influences on accurate responding
Explain the importance of informed consent
Justify the components of each required element of a consent form

- **Descriptive Statistics**
  - Define descriptive statistics
  - Distinguish between a sample and a population
  - Define a frequency distribution
  - Explain the purpose of a histogram
  - Distinguish between mean, median, and mode
  - Describe how the standard deviation is calculated
  - Explain what can be understood from a standard deviation
  - Explain how a z-score is calculated
  - Explain how the correlation coefficient $r$ is calculated
  - Identify Cohen’s guidelines for determining the strength of an effect
  - Identify the guidelines for determining the strength of a correlation

- **Correlations (Chapter 8)**
  - Define bivariate correlation
  - Explain the importance of a large effect size
  - Evaluate the validity of a claim based on a correlation coefficient

- **Inferential Statistics**
  - Define inferential statistics
  - Define null hypothesis testing
  - Distinguish between a research hypothesis and a statistical hypothesis
  - Identify the steps in null hypothesis testing
  - Define alpha level
  - Distinguish between Type I and Type II errors
  - Define power
  - Explain the five factors that affect power
  - Distinguish between different types of inferential tests and when each is appropriate

- **Chapter 7**
  - Distinguish between biased sample and representative sample
  - Identify two ways to get a biased sample
  - Explain two probability (random) sampling techniques
  - Explain four intentionally biased sampling techniques
  - Distinguish between random sampling and random assignment
  - Describe factors that influence when a representative sample is not a priority

- **APA Style**
  - Identify the components included in a method section
  - Identify the components included in a results section
**Exam 3 Study Guide**

Exam 3 is worth 25% of your final grade. You will design an experiment and administer it to a sample. You may conduct your experiment in class on November 14\textsuperscript{th} or collect data outside of class. You may collect data with another student, but you must have different analyses and write your papers separately.

**Take-Home Portion Instructions**

The take-home portion must be submitted on eCommons by 1:20pm on Monday, November 21\textsuperscript{st}. Late exams will receive a 5% penalty for every 24 hours. Follow the file extension and naming requirements for all parts; additionally, the paper must follow the APA style guidelines in the Publication Manual. Your exam grade will be reduced by up to 10% if you do not follow these requirements.

The take-home portion will consist of three parts:

- IRB application (10 points)
- Consent form (10 points)
- APA style research paper (80 points)
  - No page requirement or limit
  - Title page (5 points)
  - Abstract (10 points)
    - No more than 150 words
  - Introduction (20 points)
    - Describe previous research and your research question
    - Cite at least four journal articles (3 empirical, 1 review)
    - Give the conceptual and operational definitions for your variables
    - State your hypothesis
    - Justify your hypothesis using a well-formed argument
  - Method (15 points)
    - Participants
      - How many
      - Demographic information (if measured)
      - How recruited
      - How compensated
    - Measures/Materials
      - Cite the source of the scale/task or describe how you created it
      - Give one example item
      - Indicate the response scale
      - Explain how you computed a total score
      - Explain what high and low scores mean
      - If relevant, explain the coding for open-ended items
    - Procedure
      - Describe what happened in such a way that a stranger would be able to repeat the study exactly
      - Do not repeat information from other sections
  - Results (10 points)
    - Include at least one descriptive statistic and one inferential test
    - Justify your choice of statistics
    - Extra credit (2 points): Create a figure or table
Discussion (10 points)

- Summarize your study
  - Explain whether your hypothesis was supported or not
  - If you did not obtain significant results, explain whether it is more likely that 1) your study did not have enough between-group variability or 2) your study had too much within-group variability and why
  - Indicate how your results relate to each of the studies you cited in the introduction

- Evaluate your study on at least 3 relevant areas of reliability and/or validity using well-formed arguments

- Indicate at least two directions for future research

References (5 points)

Appendix (5 points)

- Include copies of your survey/task stimuli
- Include a scan or photo of your raw data
- It is acceptable to include a link to a Google Drive folder or to upload as a separate file on eCommons (make a note in your paper)

In-Person Instructions

The in-person exam will consist of 40 multiple choice questions and 5 short answer questions. The questions will be based on the following learning objectives:

- Chapters 10 and 11
  - Define a simple experiment
  - Define random assignment
  - Define conditions
  - Define control group
  - Define treatment group
  - Distinguish between an independent groups design and a within-groups design
  - Distinguish between a posttest-only design and a pretest/posttest design
  - Explain the pros and cons of posttest-only and pretest/posttest designs
  - Distinguish between a concurrent-measures design and a repeated-measures design
  - Explain three advantages of within-groups designs
  - Define order effects
  - Define demand characteristics
  - Explain three disadvantages of within-groups designs
  - Define manipulation check
  - Define pilot study
  - Understand how to evaluate internal validity in experiments
  - Understand how to evaluate construct validity in experiments
  - Understand how to evaluate external validity in experiments
  - Understand how to evaluate statistical validity in experiments
  - Explain at least three types of experimental confounds and how they can be avoided

- Chapter 12
  - Define moderator
  - Define main effect
  - Define interaction effect
- Define factorial design
- Explain how factorial designs are useful for testing limits
- Explain how factorial designs can test theories
- Define marginal mean
- Understand how to interpret main effects and interactions in tables and figures
- Explain the following types of factorial designs: independent-groups, within-groups, and mixed
- Explain the implications of increasing the number of levels in a factorial design vs. increasing the number of independent variables

**APA Style**
- Identify the components of an introduction
- Identify the components of a discussion section

**Chapter 14**
- Explain the importance of replication, the weight of the literature, and external validity
- Define replication
- Distinguish between direct replication, conceptual replication, and replication-plus-extension
- Distinguish between theory-testing mode and generalization mode
- Explain the implications of theory-testing or generalization mode for external validity
- Explain how generalization mode is used in cultural psychology
- Define ecological validity
- Explain why ecological validity may or may not be necessary