

For Reference Only – Fall Quarter 2011 Syllabus Not Yet Available
Required Text is Used in all 3 Sections of Research Methods (Dr. Gomez, Dr. Raney,
and Dr. Weaver)

COURSE SYLLABUS
Ph.D. Research Methods

NOTE: Required Readings and Required Software are used in all 3 sections of Research Methods (Dr. Gomez, Dr. Raney, and Dr. Weaver)

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LABORATORY MEETINGS: TBA

REQUIRED READINGS: Required for all 3 sections of Research Methods (Dr. Gomez, Dr. Raney, and Dr. Weaver)

Goodwin, C.J. (2007). *Research Methods in Psychology: Methods and Design*. 5th edition. John Wiley & Sons, Inc: Hoboken, NJ. ISBN 9780471763833. (Can use 6th edition too!)

Additional readings will be provided at end of lecture notes in Word Document.

Recommended Texts for Laboratory:

Paul Kinnear and Colin Gray. *IBM SPSS Statistics 18*. ISBN: 978-1-84872-047-3

Website: <http://www.psypress.com/spss-made-simple/>

Required Software: Required for all 3 sections of Research Methods (Dr. Gomez, Dr. Raney, and Dr. Weaver)

SPSS Graduate Pack-Graduate Version 17.0 or higher (Available at PGSP computer lab, Stanford Bookstore, or from the SPSS web site: <http://www.spss.com/>). Be sure to get the student discount.

From e-academy. It can be rented \$139.99/year and can be downloaded directly from the site

http://estore.eacademy.com/index.cfm?loc=estore/soft_main&store_id=1&parentID=112&CFID=450114&CFTOKEN=22417471

Class Grading (3 units):

| | |
|------------------------|-----|
| Midterm Examination #1 | 25% |
| Midterm Examination #2 | 25% |
| Final Examination | 25% |
| Research Proposal | 25% |

Laboratory Grading (1 unit):

| | |
|-------------------|--|
| Final Examination | 50% |
| Lab Assignments | 50% (Assignments are due at beginning of next Lab session) |

NOTES:

On Docutek, the MS Power Point presentations of all lectures (except Lecture 3) represent the materials that will be presented if the class was taught in class. There are corresponding lecture notes for all lectures in MS Word. Please print out or save those notes. They consist of more detailed information from lecture as well as additional required readings. Be also aware of additional handouts that correspond to certain lectures. Although there are no homework assignments for Lecture, you will turn in a research proposal outline during Week 6 and the final research proposal at the end of the quarter, Week 11. It is due the same time as Finals Week, so please do not procrastinate!

Lab assignments will be given every week. They consist of turning in article summaries as well as SPSS assignments to the Teaching Assistant. You will also learn how to make a PowerPoint Poster Presentation of your research proposal and how to use EndNote. These assignments were designed to help you better understand the Research Methods material as well as learn useful tools to help you with future classes and with your professional development.

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Please note the attendance policy listed in the student handbook. If you do not attend 75% of the classes (thus cannot miss more than 1 class lecture) you will receive a failing grade. But if you missed class due to emergencies, absences, etc., just let me know as courtesy. I can also help you go over any material missed during your absence. Also, policies regarding Student Grievances can be found in the PGSP PhD program's student handbook.

COMPETENCIES

| Course Competencies (Learning Outcomes) | Type of Competency | How Taught | Assessment Methods/ Measures | Standards of Comparison / Criteria |
|--|--------------------|---|--|--|
| 1. Describe the basic characteristics of research studies in psychology. | Knowledge | Reading assignments, Lectures, Classroom participation | Multiple Choice and Essay Examination | 95% of students will meet the criterion of 70% correct answers on the exam. |
| 2. Explain different research methods used by psychologists. | Knowledge | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignments: critical reviews of articles; Multiple Choice and Essay Examination | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam. |
| 4. Describe how various research designs address different types of questions and hypotheses | Knowledge | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignments: critical reviews of articles; Multiple Choice and Essay Examination | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam. |
| 5. Articulate strengths and limitations of various research designs | Knowledge, Skill | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignments: critical reviews of articles; Multiple Choice and Essay Examination | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam. |
| 6. Distinguish the nature of designs that permit causal inferences from those that do not | Knowledge | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignments: critical reviews of articles; Multiple Choice and Essay Examination | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam. |

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|---|------------------|---|---|--|
| 7. Evaluate the appropriateness of conclusions derived from psychological research. | Knowledge, Skill | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignments: critical reviews of articles; Multiple Choice and Essay Examination; Research Proposal | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal |
| 8. Interpret basic statistical conclusions | Knowledge, Skill | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignments: critical reviews of articles; Multiple Choice and Essay Examination | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam. |
| 9. Distinguish between statistical significance and practical significance | Knowledge | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignments: critical reviews of articles; Multiple Choice and Essay Examination | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam. |
| 10. Describe effect size and confidence intervals | Knowledge | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignments: critical reviews of articles; Multiple Choice and Essay Examination | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam. |
| 11. Evaluate the validity of conclusions presented in research reports | Knowledge, Skill | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignments: critical reviews of articles; Multiple Choice and Essay Examination | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam. |
| 12. Design and conduct basic studies to address psychological questions using appropriate research methods. | Knowledge, Skill | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignment, Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal |

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|--|--|---|---|--|
| 13. Locate and use relevant databases, research, and theory to plan, conduct, and interpret results of research studies | Knowledge, Skill | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignment, Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal |
| 14. Formulate testable research hypotheses, based on operational definitions of variables | Knowledge, Skill | Reading assignments, Lectures, Classroom participation, lab assignments | Lab assignment, Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal |
| 15. Select and apply appropriate methods to maximize internal and external validity and reduce the plausibility of alternative explanations | Knowledge, Skill | Reading assignments, Lectures, Classroom participation, lab assignments | Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal |
| 16. Collect, analyze, interpret, and report data using appropriate statistical strategies to address different types of research questions and hypotheses | Knowledge, Skill | Reading assignments, Lectures, Classroom participation, lab assignments | Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal |
| 17. Recognize that theoretical and sociocultural contexts as well as personal biases may shape research questions, design, data collection, analysis, and interpretation | Knowledge, Skill, Professional and Ethical Attitudes | Reading assignments, Lectures, Classroom participation, lab assignments | Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal |

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| <p>18. Follow the APA Code of Ethics in the treatment of human and nonhuman participants in the design, data collection, interpretation, and reporting of psychological research.</p> | <p>Professional and Ethical Attitudes</p> | <p>Reading assignments, Lectures, Classroom participation, lab assignments</p> | <p>Lab assignment, Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation</p> | <p>95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal</p> |
| <p>19. Generalize research conclusions appropriately based on the parameters of particular research methods.</p> | <p>Knowledge, Skill</p> | <p>Reading assignments, Lectures, Classroom participation, lab assignments</p> | <p>Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation</p> | <p>95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal</p> |
| <p>20. Exercise caution in predicting behavior based on limitations of single studies</p> | <p>Knowledge, Skill, Professional and Ethical Attitudes</p> | <p>Reading assignments, Lectures, Classroom participation, lab assignments</p> | <p>Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation</p> | <p>95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal</p> |
| <p>21. Recognize the limitations of applying normative conclusions to individuals</p> | <p>Knowledge, Skill, Professional and Ethical Attitudes</p> | <p>Reading assignments, Lectures, Classroom participation, lab assignments</p> | <p>Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation</p> | <p>95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal</p> |
| <p>22. Acknowledge that research results may have unanticipated societal consequences</p> | <p>Knowledge, Skill, Professional and Ethical Attitudes</p> | <p>Reading assignments, Lectures, Classroom participation, lab assignments</p> | <p>Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation</p> | <p>95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal</p> |

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|---|--|---|---|--|
| 23. Recognize that individual differences and sociocultural contexts may influence the applicability of research findings | Knowledge, Skill, Professional and Ethical Attitudes | Reading assignments, Lectures, Classroom participation, lab assignments | Multiple Choice and Essay Examination; Research Proposal; Lab assignment: Poster Presentation | 95% of students will successfully complete the lab assignments for critically reviewing articles; 95 % of students will meet the criterion of 70% correct answers on the exam; 95 % of students will meet the criterion of 70% of for critically reviewing the research study in their research proposal |
|---|--|---|---|--|

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READING ASSIGNMENTS AND LECTURES

WEEK 1: September 14, 2010

Lecture 1: Introduction; Goals; Scientific Thinking

Readings: Goodwin: Chapter 1 & 3

WEEK 2: September 21, 2010

Lecture 2: Research Ethics

Lecture 3: Communicating Results of Psychology Research (No Powerpoint presentation)

Readings: Goodwin: Chapter 2, Appendix A: pp 435-466, Appendix B: pp 467-471.

WEEK 3: September 28, 2010

Lecture 4: Scale of measurement

Lecture 5: Reliability

Readings: Goodwin: Chapter 4 & Chapter 5

WEEK 4: October 5, 2010

Midterm 1

WEEK 5: October 12, 2010

Lecture 6: Validity

Lecture 7: Introduction to Experimental Research

Lecture 8: Experiment Designs: Controlling for Problems

Readings: Goodwin: Chapter 6

***WEEK 6: October 19, 2010**

Lecture 9: Single Factor Design

Lecture 10: Factorial Designs.

Readings: Goodwin: Chapter 7 & Chapter 8

***Outline of Research Proposal Due.**

WEEK 7: October 26, 2010

Lecture 11: Correlational Designs

Lecture 12: Observational Research and Survey Research Methods

Readings: Goodwin: Chapter 9 and Chapter 12

WEEK 8: November 2, 2010

Midterm 2

WEEK 9: November 9, 2010

Lecture 13: Quasi-Experimental Designs

Readings: Goodwin: Chapter 10

WEEK 10: November 16, 2010

Lecture 14: Alternative Methods; Single case studies, ABAB Design, ROC, Focus Groups

Readings: Goodwin: Chapter 11

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WEEK11: November 23, 2010
FINAL EXAMINATION
Research Proposal Due.

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LECTURE AND ASSIGNMENT GOALS AND OBJECTIVES

LECTURE: SCIENTIFIC THINKING; GOALS IN RESEARCH; CAUSALITY

Lecture Goals:

Describe the scientific method.

Describe the role that research methodology and statistics play in the scientific method.

Describe that one's philosophical assumptions need to be identified before engaging the scientific method.

Lecture Outcomes:

Define illusory correlation and identify examples.

Describe the scientific method.

Explain the role of methodology and statistics in the scientific method.

Explain the relation between theory, hypothesis, and data with deductive and inductive procedures.

Required Terminology:

| | | |
|---------------------|---------------------------------------|-------------------------------|
| Authority | Availability Heuristic | 4 Types of Causality |
| Reasoning | Illusory Correlation | Theory |
| Apriori Method | Scientific Method | Relation btwn Theory and Data |
| Experience | Probabilistic Statistical Determinism | Deduction |
| Empiricism | Objectivity | Hypothesis |
| Belief Perseverance | Data-Driven | Induction |
| Confirmation Bias | Scientific Method | |

Lab Assignment: Using electronic journal databases for literature reviews: PsycInfo, Medline, Ovid

Competency Objectives: Identify research proposal topics; Conduct online literature searches for their research proposals.

DUE THE WEEK OF SEPT 21. See Lab Syllabus on pages 14 and 15 for all lab assignments.

LECTURE: RESEARCH ETHICS

Lecture Goals:

Describe basic APA ethical principles guiding research

Describe the role of the Institutional Review Board

Lecture Outcomes:

Be able to answer questions based on APA ethics manual

Be able to write an ethical research proposal

Required Terminology:

| | |
|---|---|
| Ethics Code 2002 | 8.07 Deception |
| General Principles | 8.08 Debriefing |
| Principles A through E | 8.09 Humane Care and Use of Animals |
| 8.01 Institutional Approval | 8.10 Reporting Research Results |
| 8.02 Informed Consent | 8.11 Plagiarism |
| 8.03 IC for Recording | 8.12 Publication Credit |
| 8.04 Client, Student, & Subordinate Res Subj. | 8.13 Duplicate Publication of Data |
| 8.05 Dispensing Informed Consent | 8.14 Sharing Research Data for Verification |
| 8.06 Offering Inducements | 8.15 Reviewers |

Lab Assignment: Learning to use Endnote

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Competency Objectives: Using a computer program to cite their research paper correctly

Lab Assignment: Online Plagiarism Certificate Program

Competency Objectives: Understand how to avoid making plagiarism mistakes on their research proposal.

LECTURE: MEASUREMENT AND DATA ANALYSIS: RELIABILITY

Lecture Goals:

- Describe the different scales of measurement.
- Describe IVs, DVs, and how to operationalize them
- Describe relationship between a construct and a variable
- Describe the fundamentals of Classic Reliability Theory
- Differentiate between the different forms of reliability
- Describe what factors influence internal reliability
- Describe standard error of measurement and how it is a form of reliability
- Describe the limitations of Classical Reliability Theory.
- Be able to apply the concepts you have learned to clinical and research situations
- Describe the advantages and disadvantages of Item Response Theory.

Lecture Outcomes:

- Describe the different scales of measurement.
- Explain the relationship between a construct and a variable
- Explain the assumptions and definitions of Classic Reliability Theory
- Define the different forms of reliability covered in class
- Explain how different factors influence reliability
- Discuss the logic of the standard error of measurement and be able to compute it
- Compare the advantages and limitations of Classical Reliability Theory and Item Response Theory

Required Terminology:

| | | |
|--------------------------------|-------------------------------|---------------------------------|
| Scales of Measurement | Operational Definition | Intraclass Correlation |
| Qualitative | Reliability | Alpha Reliability |
| Quantitative | Validity | Split-Half Reliability |
| Nominal Scale | Assumptions of Classical Test | Kuder-Richardson coefficient |
| Ordinal Scale | Theory | Chronbach's alpha |
| Interval Scale | Reliability Theory | Interobserver or Interrater |
| Ratio Scale | Generalizability Theory | Reliability |
| Discrete Variables | Test-Retest Reliability | Item to Total Correlation |
| Dichotomous Variable | Important Components of | Parallel Items on Alternate |
| Continuous Variables | Retest Reliability | Forms |
| Construct | Standard error of measurement | Factors that affect reliability |
| Model of Construct to Variable | Retest Correlation | Item Response Theory |

Lab Assignment: Introduction to SPSS

Competency Objectives: Learning the basic procedures of a statistical program

Lab Assignment: Using SPSS to test the reliability of certain measures in a database

Competency Objectives: Conducting correlations to test the reliability of measures in an SPSS database

LECTURE: MEASUREMENT AND DATA ANALYSIS: VALIDITY

Lecture Goals:

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Describe the different types of validity
Describe what information the multitrait-multimethod matrix provides
Describe what factors influence validity

Lecture Outcomes:

Be able to define the different kinds of validity
Be able to discuss what factors influence validity and why
Discuss convergent and discriminant validity using the multitrait-multimethod matrix
Be able to read an MTMM table to examine the reliability and validity of a measure.

Required Terminology:

| | | |
|--------------------|---------------------|-------------------------------|
| Face Validity | Predictive Validity | Multitrait-Multimethod Matrix |
| Content Validity | Concurrent Validity | Discriminant validity |
| Criterion Validity | Construct Validity | |

Lab Assignment: Using SPSS to test the validity of certain measures in a database

Competency Objectives: Conducting correlations to test the validity of measures in an SPSS database

Lab Assignment: MTMM

Competency Objectives: Interpreting an MTMM table for reliability, validity, and problems with the MTMM table

LECTURE: INTRODUCTION TO EXPERIMENTAL RESEARCH

Lecture Goals:

Describe different uses of control group
Describe how to insure that the desired impact of the independent variable is achieved
Describe what a confounding variable is
Describe the difference between between vs. within subject designs
Describe internal, external, construct, & statistical conclusion validity
Describe the possible threats to internal validity
Describe different types of experimental designs

Lecture Outcomes:

Differentiate between control of extraneous factors and control of the independent variable
Be able to apply psychometric concepts when constructing the dependent variable
Be able to define what a confounding variable is
Identify differences between various designs in terms of between vs. within
Identify possible construct validity threats and ways to protect against them
Identify possible internal validity threats and ways to protect against them

Required Terminology:

| | | |
|------------------------|--------------------------------|------------------------------|
| Descriptive Statistics | Dependent variable | External Validity |
| Inferential statistics | Independent variable | Internal Validity |
| Population | Types of Independent variables | Threats to Internal Validity |
| Sample | Experimental/Treatment Group | The Solomon Design |
| Participants/ subjects | Control group | Nuisance variables |
| Random sampling | Confounding variable | Between-Subjects design |
| Population parameter | Correlational study | Random assignment |
| Sample statistics | Quasi-experimental method | Block randomization |
| Experiment | Statistics Conclusion Validity | Matching |

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|--|------------------------|-------------------|
| Within-Subject Design | Progressive effects | Attrition |
| Advantages of within-subject design | Carry over effects | Experimenter bias |
| Disadvantages of within-subject design | Counterbalancing | Subject Bias |
| Sequence or order effects | Latin square | Hawthorne effect |
| | Cross-sectional design | |
| | Longitudinal study | |

LECTURE: SINGLE FACTOR DESIGN

Lecture Goals:

Describe the logic of hypothesis testing
Describe when to accept & reject null hypothesis
Describe relationship between alpha, beta, and power
Describe factors affecting power

Lecture Outcomes:

Explain the logic of hypothesis testing
Explain when to accept & reject null hypothesis
Be able to describe the possible decisions for the outcomes of an experiment (alpha and beta errors, etc.)
Graph and create a chart of the probability relationships between alpha, beta, and power
Explain the difference between a Type I versus a Type II error
Explain factors affecting power

Required Terminology:

| | |
|--|---------------------------------------|
| Experiment hypotheses | Alpha level, or level of significance |
| Null Hypothesis | Power |
| Alternative Hypothesis | Factors Affecting Power |
| Type I error | Magnitude of effect size |
| Type II error | Confidence Interval |
| Table and graph for hypotheses decision making | |

Lab Assignment: Poster Making using PowerPoint

Competency Objectives: Create a poster of their Research Proposal

LECTURE: FACTORIAL DESIGNS

Lecture Goals:

Describe the notational system for research designs (2x2, 2x3, 2x2x2)
Describe main effects and interactions and how to identify them in graphs and means tables
Explain how many interactions and main effects are present in higher-order designs
Describe how to calculate the number of subjects needed for particular designs
Describe the terminology used to describe factorial designs
Describe the difference between main effects and interactions
Describe between subjects and within subjects designs

Lecture Outcomes:

Be able to describe any factorial design in terms of number of levels of each IV and number of factors involved
Be able to identify the presence/absence of main effects and interactions in a table
Be able to identify the presence/absence of main effects and interactions in a graph
Be able to analyze and graph a 3-way design in terms of various main effects and interactions

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Factorial experiments
The Advantages of Factorial Designs
3-Way Factorial Design
Completely Crossed Factorials
The AXBXC Interaction

Simple interaction
Comparison of Factorial Designs
Advantages of Within-Subjects Factorial Designs
Advantages of a Mixed Factorial Design

LECTURE: CORRELATIONAL DESIGNS

Lecture Goals:

Describe what a correlation is
Explain the assumptions of correlations
Describe the various problems involved in interpretation of correlations
Describe difference between correlations and correlational research designs
Explain what can be addressed w/ correlational designs
Explain the assumptions of regressions
Describe how & why researchers use factor analysis

Lecture Outcomes:

Explain the characteristics of correlations
Compute a correlation by hand
Compute the regression equation by hand
Graph a scatterplot
Explain the issues and limitations of correlations

Required Terminology:

| | | |
|------------------------------------|--------------------------------|-------------------------|
| Correlation | Linear transformations | Factor analysis |
| 3 Characteristics of a Correlation | Bivariate normal distribution | Factor |
| The 4 Major Uses of Correlations | Regression | Factor loading |
| Interpreting Correlations | Regression line | Uses of Factor Analysis |
| Ceiling effect | Homoscedasticity | |
| Floor effect | Standard error of the estimate | |
| Restriction of range | Regression to the mean | |
| Coefficient of Determination | Multiple Regression | |

LECTURE: OBSERVATIONAL RESEARCH AND SURVEY RESEARCH METHODS

Lecture Goals:

Describe the different types of observational designs (with or without intervention): naturalistic versus participant observation.
Describe the different types of sampling
Describe the differences between cross-sectional, longitudinal, and successive independent sample (sequential) designs
Describe the potential flaws of survey research.

Lecture Outcomes:

Explain the pros and cons of naturalistic and participant observations.
Explain the risks of observational research
Describe the differences between different types of survey designs.
Describe how & why sampling is an important issue for survey research
Be able to identify the best sampling approach given the study question and resources.

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Be able to identify and explain the pros and cons for cross-sectional, longitudinal, or successive independent sample (sequential) designs

Explain the potential flaws of survey research and identify ways to reduce different types of potential flaws

Required Terminology:

Observational research

Naturalistic Observation

Participant Observation

Time Sampling

Situation or Event Sampling

Classification of Observational
Methods

Observation without
Intervention

Observation with Intervention

Unobtrusive measures

Physical Traces

Archival Records

Qualitative Records of Behavior

Quantitative Measures of
Behavior

Analysis of Observational Data

Observer Reliability

Risks of Observational Research

Influence of the Observer

Observer Bias

Researcher control in different
observation methods

Survey research

Survey Instrumentation

Response structure

Survey order

Filter items

Cross-check items

Pretesting or piloting the survey

Split sample comparisons

Reactivity

Social desirability

Response acquiescence

Correlational research

Sampling in survey research

Convenience sampling

Simple random sampling

Stratified Sampling

Cross-Sectional Design

Successive Independent
Samples Design

Longitudinal Design

Reliability and Validity of Self-

Report Measures

Correlation and Causality

Spurious correlations

Lab Assignment: Poster Presentation

Competency Objectives: Learn to present their poster of their research proposal to the lab

LECTURE: QUASI-EXPERIMENTAL DESIGNS EXPERIMENT

Lecture Goals:

Describe the key differences between a quasi-experimental design and “true” experimental design
Be able to identify possible threats to validity w/ quasi-experimental designs
Be able to identify the limitations in making conclusions with quasi-experimental designs
Describe time series designs

Lecture Outcomes:

Correctly interpret findings for time series designs
Identify different types of time series designs

Required Terminology:

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|---|---|
| Random sampling | Single factor nonequivalent groups designs |
| Random assignment | Nonequivalent group factorial designs |
| Experimenter control | Correlational designs |
| Matching instead of randomization | Time series |
| nonequivalent group design | Interrupted time series design |
| Types of quasi-experimental designs | Noninterrupted time series design |
| Posttest Only, Nonequivalent Control Group Design | Interrupted time series design with switching |
| Pretest-Posttest Design | Problems with quasi-experiment |
| | Casual inferences |

LECTURE: OTHER RESEARCH DESIGNS AND CONCEPTS

Lecture Goals:

Explain some of the problems with developmental designs (instrumentation, salience of construct being studied)
Explain N=1 experimental designs (AB, ABAB, Multiple baseline)
Describe reasons for using, advantages & disadvantages, data interpretation, case selection options for case study method
Be able to define ROC curves, Area under the Curve, sensitivity, and specificity
Describe the mechanics of focus group research
Describe narrative analysis.

Lecture Outcomes:

De able to interpret an ABAB graph
Be able to interpret an ROC curve graph
Be able to compute sensitivity and specificity
Explain the difference between group interviewing and focus groups

Required Terminology:

| | |
|--------------------------|--------------------------|
| The Case Study Method | Sensitivity |
| Comparative case studies | Specificity |
| Time series analysis | False and True Positives |
| The ABAB Design | False and True Negatives |

Lab Assignment: Sensitivity and Specificity

Competency Objectives: Using work problems to calculate the sensitivity and specificity of a dataset.

**Ph.D.- Research Methods 2010:
Lab Syllabus and Assignments
Gomez**

TA Contact Information: Craig Landers
Email: clanders@pgsp.edu

Week 2: September 20, 2010

Learning to Use Library Databases (PsychInfo, Medline, Ovid).
Initial search for proposal ideas.
EndNote Training by Scott Hines.

Week 3: September 27, 2010

Introduction to SPSS. (5 points)
Reliability Assignment. (5 points)
2 Summaries due. (5 points)

Week 4: October 4, 2010

Validity Assignment. (5 points)
2 Summaries due. (5 points)

Week 5: October 11, 2010

MTMM Assignment. (5 points)
2 Summaries due. (5 points)

Week 6: October 18, 2010

Learning to use Powerpoint and make a poster. (5 points)
2 Summaries due. (5 points)

Week 7: October 25, 2010

Present Proposal with Poster. (5 points)
2 Summaries due. (5 points)

Week 8: November 1, 2010

Sensitivity and Specificity Assignment. (5 points)
2 Summaries due. (5 points)

Week 9: November 8, 2010

Plagiarism assignment. (35 points)

Lab Assignments for Proposals – Research Methods Fall 2010

In preparation for your proposal, please write 2 summaries (1-2 pages) of 2 articles (or book chapters, etc.) each week. (You may need to read more for your proposal, but this is what's due for lab.) These will be due via email to your TA for each week.

The summaries are ultimately meant to help you. They should serve as building blocks for the literature review portion of your proposal. Thus, you may choose any format that is useful to you. For example, you can write in outline form or bullet points, or can write in prose. Whatever format you choose, please be sure to capture the following:

- 1) Start with the reference for the article in APA format. You can type this in directly or use Endnote.
- 2) Summarize the main points of the article. What is the main argument or research question? Describe the details of the methods (what are the independent and dependent variables and how are they operationalized?) What are the main findings? What do the authors conclude?
- 3) What is your critique of the article? If you were in a conversation with the author(s) what comments and questions would you have? What are the strengths and weaknesses of the study?

Begin to think about where your topic fits in with the existing literature. It may be helpful to imagine yourself in dialogue with current scholars. Your proposal will represent your voice in the ongoing conversation on your topic.