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PSYX 523.01: Research Design

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PSYX 523 – Research Design

Spring 2017

Skaggs Building, 111; Monday/Wednesday 9:30-10:50 am

Contact Information

Instructor: Nathan Insel, Ph.D.

Email: nathan.insel@umontana.edu

Office Hours: Skaggs Rm 362, Mon. & Tues. 2:15-3:30 and by appointment

Course Description

This course concerns the logic of causal inference in social science research. It begins by considering the potential obstacles to causal inference, including faulty measurement, unrepresentativeness, spuriousness, specification errors, and other problems that can lead to inappropriate causal inferences. With that background, the course then discusses experimental and non-experimental research designs, examining the inferential pitfalls peculiar to each design. Although it does cover some of the basics of the analysis of variance and other statistical procedures, it is not intended to be a statistics or data analysis course. Instead, the aim is to convey the logic behind various data analytic procedures and the different problems that can limit the conclusions using these tools. It compares various frameworks for understanding errors in surveys and other research designs and applies these frameworks to understanding the inferential problems that arise in research.

Reading Material

- Experimental and Quasi-Experimental Designs (Shadish, Cook, and Campbell)
- Selected readings on Moodle (see reading schedule for full citations)

Course Evaluation

In this class you will be learning from the readings, the presentations you give to one another, your research report, and the discussions that you participate in. The breakdown of your final grade will be as follows:

- Presentation of reading materials (25% of final grade)
- Reading questions (15% of final grade)
- Participation in discussion (10% of final grade)
- Written report (25% of final grade)
- Oral presentation of hypotheses & plan for design (10% of final grade)
- Oral presentations of hypothesis (15% of final grade)

Presentation of reading materials

Each student will be responsible for presenting two, 30-40 min lectures that summarize the main points of the reading for that day. The presentations do not have to be creative or exciting, but they should clearly explain the most important ideas and terms from the chapter.

Reading questions

Each week there will be an assigned reading. Before each class, you will be expected to email me 1-2 questions (or comments) about the reading. I will also forward these to the presenter. Questions need to be substantive. This means they must demonstrate that you have read and thought about the material. You do *not* need to include a detailed summary of the reading, only show that you are thinking

about the material, ideally by going beyond it. Examples may include the following: “In this example experiment, how might factor-X influence the validity?”, “In this experiment that has no controls, how might a second experiment that addresses ____ to help confirm the hypothesis?”, or “In my own experiment, I will address this by doing ____.” It’s better to error by being too thorough. Questions will not receive a letter grade, each will receive “full credit” (100%), “half credit” (50%), or “no credit” (0%).

Participation in discussion

Each class will include a 30-40 min discussion on the readings. As with the reading questions, each discussion session will be evaluated as “full credit”, “half credit”, or “no credit.” As with the reading questions, I will be looking for participation that demonstrates familiarity with the readings. Note that I will also be taking-part in the discussions to help fill-in gaps or confusion that may remain following the readings and summary presentation.

Research Proposal & Presentation (30% & 10% of final grade)

The research proposal will consist of a literature review, statement of hypothesis with justification, proposed research design and methods (including subjects, apparatus/materials, and procedure), proposed statistical analysis, and interpretation of hypothesized and alternative results. The proposal **MUST** adhere to APA format. The process for writing the paper will be formally scripted in 7 steps (see class schedule below for due dates):

- 1) Choose a topic and present rationale for your interest
- 2) Preliminary literature search: Generate 1 page summaries of 6 critical articles and hand-in the summaries and a copy of the abstract for each article to the instructor
- 3) Submit rough draft of literature review
- 4) Present for discussion your hypothesis and proposed research design & analysis
- 5) Submit rough draft of hypothesis, methods and results
- 6) Present entire proposal in class
- 7) Hand in final paper to the instructor (20 page maximum plus references)

Course Policies

General

Success in this class will depend on your attendance. I understand there will be circumstances beyond your control that, on occasion, will require you to leave class early or be absent. Please plan accordingly by notifying me before class. You should always feel free to ask any questions in class. Also, please feel free to see the instructor about any classroom issue during office hours.

Drop Date

Be sure to review important information online regarding the University [Drop/Add policy](#). Beginning the 46th instructional day of the semester through the last day of instruction before scheduled examinations, students must petition to drop.

Academic Misconduct

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the [Student Conduct Code](#).

Disability Modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work you and Disability Services to provide an appropriate modification.

Course Outline			
Date	Topics	Assigned reading	Presenter
Jan 23 rd & Jan 25 th	Overview of course & research design; replication crisis and methods	Open Science Collaboration (2015). Estimating the reproducibility for psychological science. <i>Science</i> , 349, 1-7. Keppel, G (1991). <i>Design and analysis: a researcher's handbook (3rded.)</i> , Englewood Cliffs, N.J: Prentice Hall.	Nathan Insel
Jan 30 th	Causes, experiments, and quasi-experiments	Shadish, Cook, & Campbell – Chapter 1	1
Feb 1 st	Statistical conclusion validity and internal validity	Shadish, Cook, & Campbell – Chapter 2 Deadline: choose proposal topic and present rationale for interest	2
Feb 6 th	Construct validity and external validity	Shadish, Cook, & Campbell – Chapter 3	3
Feb 8 th	Power & Experimental design (part 1)	Cohen, J. (1992). A Power Primer. <i>Psychological Bulletin</i> , 112, 155-159.	Nathan Insel
Feb 13 th	Experimental design part 2	Kirk, 2003 (Schinka, J., & Velicer, W. F. (Eds.) (2003). <i>Research Methods in Psychology</i> . Volume 2 of <i>Handbook of Psychology</i> (I. B. Weiner, Editor-in-Chief). New York: John Wiley & Sons.	Nathan Insel
Feb 15 th	Experiments without a control	Shadish, Cook, & Campbell – Chapter 4 Preliminary literature search assignment due	4
Feb 20 th	PRESIDENT'S DAY—NO CLASSES		
Feb 22 nd	Quasi-experiments with a control	Shadish, Cook, & Campbell – Chapter 5	5
Feb 27 th	Quasi-experiments:	Shadish, Cook, & Campbell – Chapter 6	6

	interrupted time-series designs		
Mar 1 st	Regression discontinuity designs	Shadish, Cook, & Campbell – Chapter 7 Draft of lit. review due	7
Mar 6 th	Randomized experiments: rationale, designs, and conditions conducive to doing them	Shadish, Cook, & Campbell – Chapter 8	8
Mar 8 th		APA Ethical principles of Psychologist and code of conduct 2010 : Sections 1, 6, 7, & 8	Dr. Laura Kirsch
Mar 14 th		In-class presentations of hypothesis & proposed research design & analysis	
March 16 th		In-class presentations of hypothesis & proposed research design & analysis	
Mar 20 th & 22 nd	SPRING BREAK—NO CLASS		
Mar 27 th	Practical problems 1: ethics participant recruitment, and random assignment	Shadish, Cook, & Campbell – Chapter 9	9
Mar 29 th	Practical problems 2: treatment implementation and attrition	Shadish, Cook, & Campbell – Chapter 10	10
Apr 3 rd	Generalized causal inference: a grounded theory	Shadish, Cook, & Campbell – Chapter 11	11
Apr 5 th	Generalize causal inference: methods for single studies	Shadish, Cook, & Campbell – Chapter 12 Apr 15: Rough draft of hypothesis, methods, & results due	12
Apr 10 th	Generalized causal inference: methods for multiple studies	Shadish, Cook, & Campbell – Chapter 13	13
Apr 12 th	A critical assessment of our assumptions	Shadish, Cook, & Campbell – Chapter 14	14
Apr 17 th	Formal paper presentations	Formal paper presentations	
Apr 19 th	Formal paper presentations	Formal paper presentations	
April 24 th	Formal paper presentations	Formal paper presentations	
April 26 th	Formal paper presentations	Formal paper presentations	

May 1st

catch-up/make-up

Research paper due