

## ***Psy 319: Quasi-experimental Design and Analysis Spring, 2003***

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### ***Overview:***

This course covers measurement, design and statistical methods necessary for deriving causal estimates when randomization is not feasible or has failed to equate groups – these are referred to as *quasi-experiments*. The class of situations that will be covered represent a subset of all conceivable cases under the label “causal modeling.” Here, it is presumed that there has been an active attempt to create alternative conditions (i.e., a fundamental element of the classic “experiment”, creating treatment and counterfactual conditions) at the individual, organizational, or community levels. One distinguishing feature of this class of “experiments” is the lack or failure of random assignment of units to conditions. A second feature is the absence of strict control over the development, delivery and maintenance of the conditions to which units have been allocated.

In addition to the use of conventional between groups designs, we will focus on statistical and design issues associated with group-based assignments, assignment based on cut-off scores, and true experiments. The last section is devoted to state-of-the-art statistical modeling (propensity score analysis, instrumental variables and selection models).

The underlying focus of the course is on the use of a mixture of design, measurement and analysis routines to develop credible evidence about focal causal hypotheses.

### ***Course Requirements***

Weekly topics and readings are listed below. These include chapters from the required text (Shadish, W., Cook, T. & Campbell, D. (2002) *Experimental and Quasi-experimental Designs for Generalized Causal Inference*. Boston, MA: Houghton Mifflin Co –**In the syllabus this is referred to as SCC**) and selected articles. Some of these articles are available from electronic journals (e.g. *JASA*) and others will be made available in through the Prometheus system.

For purpose of arriving at grades and to provide feedback throughout the course, there will be:

- (1) **take-home mid term exam (25%);**
- (2) **5 exercises (10% each) &**
- (3) **take-home final exam (25%).**

### ***Honor Code***

*I encourage you to work together on exercise and in studying for exams. But, in keeping with the Honor Code at VU, the work that you submit for a grade must be your own.*

## *Weekly Topics, Readings and Assorted Activities*

<i>Week</i>	<i>Date</i>	<i>Day</i>	<i>Topic/Readings</i>
1	1/8	W	<i>Introductions and brief overview</i>
2	1/13	M	<i>Definitions (C, E C→E, experiments and QE)</i>  SCC –Chapter 1 pp. 1-32
	1/15	W	<i>Interface with statistics.</i>  Holland, P. (1986). Statistics and causal inference. <i>Journal of the American Statistical Association</i> . 81, 945-970.
3	1/20	M	<i>Validity I: Internal and Statistical Conclusion</i>  SCC – Chapter 2 pp.33-63 Exercise 1 – Examples of Threats (due 2/3)
	1/22	W	<i>Validity II: Construct and External validity</i>  SCC – Chapter 3 pp 64-102
4.	1/27	M	<i>Case-based identification of threats to validity</i>  Jasnoski, M.L., Cordray, D.S., Houston, B.K. and Osness, W.H. (1987). Modification of Type A behavior through aerobic exercise. <i>Motivation and Emotion</i> , 11(1), 1-17.  Hughes, S.L. Cordray, D.S. & Spiker, V.A. (1985). Evaluation of a long term home care program. <i>Medical Care</i> , 22(5), 460-475.
	1/29	W	<i>Continued discussion of cases.</i>
5.	2/3	M	<i>No class</i>  <i>Exercise 1 due</i>
	2/5	W	<i>Weak QE Designs</i>  SCC – Chapter 4 pp. 103-134.
6.	2/10	M	<i>Better QE Designs</i>  SCC – Chapter 5 pp 135- 161  Exercise 2 – Evaluating validity
	2/12	W	<i>Group-based Assignment</i>

Murray, D. Moskowitz, J. & Dent (1996). Design and analysis issues in community-based drug prevention. *American Behavioral Scientist*. 39 853-867.

7. 2/17 M

*Combining Design Elements*

Cordray, D.S. (1986). Quasi-experimental analysis: A mixture of methods and judgment. *New directions for Program Evaluation*, 31, 9-27.

Cordray, D.S. (2000). Enhancing the scope of experimental inquiry in intervention studies. *Crime & Delinquency*, 46(3), 401-424.

***Exercise 2 due***

2/19 W

*An exmple of multi-method QE designs*

Lipsey, M. Cordray, D. & Berger (1981). Evaluation of a juvenile diversion program. *Evaluation Review*, 5, 282-306.

8. 2/24 M

*Synopsis*

***Distribute Midterm exam***

2/26 W

*No Class*

***Midterm exam due***

9. 3/3 M

*Spring Break*

3/5 W

*Spring Break*

10. 3/10 M

***Review midterm***

3/12 W

*Interrupted time series designs*

SCC – Chapter 6 pp171-206.

Exercise 3: Critique of ITS paper

11. 3/17 M

*Examples of ITS designs.*

Moore, K.J., Osgood, D.W., Larzelere, R.E. & Chamberlain, P. (1994). Use of pooled time-series in the study of naturally occurring clinical events and problem behaviors in a foster care setting. *Journal of Consulting and Clinical Psychology*, 62(4), 718-728.

Dennis, M.L., Ingram, P.W., Burks, M.E., Rachal, J.V. (1994). Effectiveness of streamlined admissions to methadone treatment: A simplified time-series analysis *Journal of Psychoactive Drugs*, 26 (2), 207-216.

Bloom, H.S. (1999). Estimating program impacts on student achievement using “short” interrupted time series. Prepublication copy.

West, S., Hepworth, J., McCall, M. & Reich, J.W. (1989). An evaluation of Arizona's July 1982 drunk driving law: Effects on the City of Pheonix.. *Journal of Applied Social Psychology*, 19, 1212-1237.

***Exercise 3 due***

- 3/19 W *Regression Discontinuity*  
SCC – Chapter 7 pp. 207–245.
12. 3/24 M *Example of R-D design*  
Berk, R & DeLeeuw J. (1999) An evaluation of California's inmate classification system using a generalized regression discontinuity design. *Journal of the American Statistical Association*, 94, 1045-1052.
- 3/26 W *Randomized Experiments*  
SCC Chapter 8 pp. 246-278  
Exercise 4: Develop an assignment plan and fall-back plan.
13. 3/31 M *Ethics, recruitment, and assignment*  
SCC Chapter 9 pp. 279-313.
- 4/2 W *Treatment implementation and attrition*  
SCC Chapter 10 pp 314-340  
Howard, K.I., Cox, W.M., & Saunders, S.M. (1990). Attrition in substance abuse comparative treatment research: The illusion of randomization. *National Institute on drug Abuse Research Monographs.*, 104, 66-79.  
Kazdin, A.E. & Mazurick, J.L. (1994) Dropping out of child psychotherapy; Distinguishing early and late dropouts over the course of treatment. *Journal of Consulting and clinical Psychology*, 62(5), 1069-1074.  
Little, R.J. and Yau. L. H.Y. (1998). Statistical techniques for analyzing data from prevention trials: Treatment of no-shows using Rubin's Causal Model. *Psychological Methods*, 2(2), 147-159.

***Exercise 4 due***

14. 4/7 M *Generalized causal inference*  
SCC Chapter 11 pp 341-373  
SCC Chapter 12 pp 374-416



