

**SW948, CS901, PA974: Quantitative Methods for Social Science Research
Spring 2014**

Instructors: Katherine Magnuson and Lonnie Berger
Class: Friday 9:00-11:30 a.m., School of Social Work, Room 114
Offices: School of Social Work, Room 206 (Magnuson) 311 (Berger) **Office Hours:** by appointment
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COURSE DESCRIPTION

This doctoral-level course is designed to expand students' understanding and skills in the methods, techniques, and problems encountered in conducting quantitative behavioral and social sciences research, and to enable students to become critical analysts of empirical studies. The course covers the general principles of theory development, quantitative research methods, and the processes of accumulation of knowledge. Topics include: common types of quantitative research; reviewing the research literature; research proposal development; problem and hypothesis formulation; research design; data-gathering techniques; measurement; sampling; and general approaches to data analysis. Some attention is also given to the philosophy of science and human subjects research ethics and requirements.

Students should have an idea of a research study they want to explore. Dissertation ideas are strongly encouraged, although not required. Through the course, students should push their thinking in regard to their research interests/plans, evaluate alternative methods for addressing their research agendas, and gain experience that will further their research goals.

Because research is a social enterprise, there will be considerable time devoted to interaction in class among students and to peer-review. Active participation in group discussions is a must. It is also imperative that all assignments are prepared and disseminated by specified deadlines.

OBJECTIVES

1. To further develop the ability to conceptualize and critically evaluate research of relevance to the social and behavioral sciences.
2. To clarify the connection between theories, conceptual frameworks, and the quantitative hypothesis testing process.
3. To deepen students' understanding of the principles of quantitative research design, sampling, measurement, and data collection, and to explore these issues in a context of selecting the most appropriate techniques for addressing a given research question.

4. To examine how quantitative research methods can be used in studying social problems.
5. To review the linkage between research questions and methods of data analysis.
6. To attend to ethical issues in the conduct of social research.
7. To consider factors of race and ethnicity, and other aspects of human diversity, and how they affect the research process.
8. To expose students to the process of proposal preparation, using the NIH format for an individual predoctoral fellowship.

COURSE FORMAT

The course is organized as a seminar. Students are expected to take an active role in class discussions. The assigned readings are voluminous. Class sessions will include limited lecture and considerable discussions of the readings and opportunities for student presentations. Students are responsible to provide each other with extensive comments and feedback on all assignments, and may be assigned to consultation groups, which will be a vehicle for feedback in the preparation of the research proposal (see below).

ASSIGNMENTS

Brief summary and analysis papers (2)

Each student is expected to write a brief reading summary and analysis paper for 2 sessions out of the following session numbers: 3, 6, 7, 8, 9, 11, and 12. We will ask for your session preferences and then assign them—the back page of the syllabus lists your options. The research articles for the session should be summarized in no more than 2 double spaced pages and discussed in approximately 2 additional pages. The papers should be exchanged via e-mail with the instructor and the other students in the course by 11:59 p.m. on the Monday prior to the class in which the readings are due. They are intended to provide students with the opportunity to synthesize and critique the research articles and to apply the key concepts raised in the text book to the analyses presented in the empirical articles. Students completing papers for a particular session will be responsible for summarizing and critiquing the required articles in class and for helping to launch the seminar discussion.

Research proposal and written feedback to other students

All other assignments for the class revolve around the development of a research proposal. The topic of the proposal is selected by the student. We will devote considerable class time to the process of proposal development, which will give you the opportunity to give and receive feedback, sharpen your understanding of research methods, and deepen your knowledge of the specific issue you have selected

for your proposal. The proposal will be prepared in the format of an NIH Individual Pre-Doctoral Fellowship application, which you can submit for funding in the future.

The proposal will be completed in four stages. First, you will write the Specific Aims and Significance sections, and will distribute them to other students in the class (due the Friday before Session 4). After consultation with the instructor and other students, work will begin on the second assignment, which is a draft of the research design (due the Friday before Session 10). The third assignment is a draft of the full proposal (due the Friday before Session 14 or 15), including copies/detailed descriptions of the measures you plan to use. The final proposal is due by 5:00 p.m. on Wednesday, May 14, 2014.

Sessions 14 and 15 will be devoted to student presentations of their final proposals. For these sessions, each student will be responsible for presenting their own proposal and for completing formal written critiques of 2 of their classmates' proposals (one on each presentation day, assigned by the instructor). These critiques will be provided in the form of an NIH Summary Statement (a sample will be distributed by the instructor) and will be submitted to the instructor **electronically** by midnight the night before the relevant proposal is presented in class. The instructor will use the summary statements to provide students with (anonymous) feedback through which to revise their proposals.

GRADING

50% research proposal
20% brief summary and analysis papers (10% each)
20% critiques of proposals (10% each)
10% class presentation and participation

COURSE READINGS

The articles and chapters for each week will be posted on the class Learn@UW website (on the content page in pdf format), except for the Pedhazur and Schmelkin text, which should be purchased.

Text to purchase:

Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis: An integrated approach*. Hillsdale, NJ: Erlbaum.

Recommended texts for your future use (selective chapters used in class, on Learn@UW):

Russell, Stephen W. and David C. Morgan. 2010. "The Grant Application Writer's Workbook: National Institutes of Health." Los Olivos, CA: Grant Writers' Seminars and Workshops, LLC.

Shadish, W.R., Cook, T.D., and Campbell, D.T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. New York: Houghton Mifflin.

Course Outline

Please note that this outline is preliminary —we may make changes as the course progresses. These changes will be communicated in class and/or by e-mail. We appreciate comments and feedback about any aspect of the course as we move through the semester. If you find any of the readings and/or lectures/class discussion to be wonderful, horrible, useful, useless, etc. please let me know. Do not wait until the end of the semester – I might be able to adjust the course as we go along to suit your needs and interests.

Session #1, 1/22/14: Introduction and overview/organization of the course

Shadish et al., 1-26.

Peruse web site relevant to your mock grant proposal:

- Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellows (Known as the F31 mechanism): <http://grants1.nih.gov/grants/guide/pa-files/PA-11-111.html>

Session #2, 1/29/14: Overview of philosophical perspectives in research

Smith, Mark. 1998. *Social Science in Question*. London: Sage Publications.

pp. 75-80; 97-112: Positivism and critiques

pp. 311-320: "Situated knowledge: Gender and science"

Swigonski, Mary E. 1994. "The logic of feminist standpoint theory for social work research." *Social Work*, 39(4): 387-393.

Maxwell, Joseph A., and Kavita Mittapalli. 2010. "Realism as a Stance for Mixed Methods Research." *Mixed Methods in Social & Behavioral Research*. Second Edition. Abbas Tashakkori and Charles Teddlie, Eds. Sage: Los Angeles. Pp. 145-167.

Session #3, 2/5/14: Philosophy of science II: Problem formation, theories, conceptual frameworks, and hypotheses (post-positivism and realism)

Shadish et al., 26-32.

Pedhazur & Schmelkin, Ch. 9

Firebaugh, (2008). *Seven Rules for Social Research*, Princeton Press. Ch. 1-There should be the possibility of surprise in social research.

Lieberson, Stanley. (1985). *Making it Count: The Improvement of Social Research and Theory*. University of California Press. Ch. 1 (Introduction) and Ch. 5 (Variation, Level of Analysis, and the Research Question)

Amato, P. R. (1993). Children's adjustment to divorce: Theories, hypotheses, and empirical support. *Journal of Marriage and the Family*, 55, 23-38 (and commentaries by Kurdek, Demo, and Allen, as well as Amato's response).

DISTRIBUTE YOUR ASSIGNMENT #1 TO THE INSTRUCTORS AND CLASS VIA E-MAIL
FRIDAY 2/7/14

Session #4, 2/12/14: Specific Aims and Significance Sections—STUDENT PRESENTATIONS

Students are expected to distribute the first assignment – Specific Aims and Significance sections of the proposal -- to the entire class -- on the **Friday before this session**. Students are responsible for reading each of the papers and being prepared to critique them. Each student will then make a short presentation on their topic and will receive feedback from the class.

Session #5, 2/19/14: The structure of the research proposal
GUEST SPEAKER—MARSHA MAILICK

Overview of the NIH research proposal
Generating fundable research

Required readings:

Creswell, John W., Ann Carroll Klassen, Vicki L. Plano Clark, Katherine Clegg Smith. 2011. "Best Practices for Mixed Methods Research in the Health Sciences". Commissioned by the Office of Behavioral and Social Sciences Research, NIH.

Skim sample research proposals (on Learn@UW)

Session #6, 2/26/14: Measurement I: Construct Validity and External Validity

Reliability and validity (realism)

Types of measures

Constructing scales and indices and the selection of measures

Shadish et al., Chapter 3

Pedhazur & Schmelkin, Ch. 4

Rogler, L.H. (1999). Methodological sources of cultural insensitivity in mental health research. *American Psychologist*, 54, 424-433.

Stein, et al. (2005). Measuring personal loss among adults coping with serious mental illness. *Community Mental Health Journal*, 41, 129-139.

Newman et al. (1996). Depressive symptom experiences among older women: A comparison of alternative measurement approaches. *Psychology and Aging*, 11, 112-116.

*Clark, L.A. and Watson, D. (1995). Constructing Validity: Basic Issues in Objective Scale Development. *Psychological Assessment*, 7(3): 309-319.

Session #7, 3/5/14: Measurement II

Pedhazur & Schmelkin, Ch. 5 (and skim chapter 6 if you don't have much background).

- Roosa, M.A., Deng, S., Nair, R.L. and Burell, G.L. (2005). Measures for Studying Poverty in Family Research. *Journal of Marriage and Family*, 67: 971-988.
- Pamela Paxton. 1999. "Is Social Capital Declining in the United States? A Multiple Indicator Assessment." *American Journal of Sociology*, 105: 88-127.
- Richter, L. & Johnson, P. B. (2001). Current methods of assessing substance use: A review of strengths, problems, and developments. *Journal of Drug Issues*, 31, 809-832.

Session #8, 3/12/14: Research design I

Quantitative designs

Longitudinal versus cross-sectional designs

Threats to internal and external validity

Types of effects

Pedhazur & Schmelkin, Ch. 12-14

Shadish et al., Chapter 2

Cook et al. (2005). Results of a multisite randomized trial of supported employment interventions for individuals with severe mental illness. *Archives of General Psychiatry*, 62, 505-512.

Pruchno, R. A., & Resch, N. L. (1989). Mental health of caregiving spouses: Coping as mediator, moderator, or main effect? *Psychology and Aging*, 4, 454-463.

Sue, S. (1999). Science, ethnicity, and bias: Where have we gone wrong? *American Psychologist*, 54, 1070-1077.

*Mackinnon et al. (2000). Equivalence of the mediation, confounding and suppression effect. *Prevention Science*, 1, 173-181.

Session #9, 3/26/14: Research Design II & Sampling and Representativeness

Probability and non-probability sampling methods

Sample size, power analysis, problems of attrition, non-response, and missing data

Pedhazur & Schmelkin, Ch. 15

Shadish et al., Chapter 11

Duncan, G. J. (2008). When to promote and when to avoid a population perspective. *Demography*, 45, 763-784.

Teitler, J. O., Reichman, N. E., & Sprachman, S. (2003). Costs and benefits of improving response rates for a hard to reach population. *Public Opinion Quarterly*, 67, 126-138.

*Hofler, M., Pfister, F. et al (2005). The use of weights to account for non-response and dropout. *Social Psychiatry and Social Epidemiology*, 40, 291-299.

*Winship, C. & Radbill, L. (1994). Sampling weights and regression analysis. *Sociological Methods & Research*. 23, 230-257.

DISTRIBUTE ASSIGNMENT #2 TO THE CLASS VIA E-MAIL FRIDAY 3/28/14

Session #10, 4/2/14: STUDENT PRESENTATIONS

Students are expected to distribute the second assignment – the research design – to the entire class on the **Friday before this session**. Students are responsible for reading each others papers and being prepared to critique them. Each student will then make a short presentation on his/her research design (including data to be used), which will be critiqued by the entire class.

Session #11, 4/9/14: Endogeneity and Causality I

Firebaugh, Chapter 5- Compare like with like

Currie, J. (2003). How Do We Really Know What We Think We Know? Determining Causality. Working Paper, University of California, Los Angeles.

Duncan, G.J., Magnuson, K., and Ludwig, J. (2004). The Endogeneity Problem in Developmental Studies. *Research in Human Development*, 1(1 and 2), 59-80.

Gibson-Davis, C. & Foster, M. (2006). A cautionary tale: Using propensity scores to estimate the effect of food stamps on food insecurity. *Social Service Review*, 94-126.

Berger, et al. (2009). Estimating the “Impact” of Out-of-Home Placement on Child Well-Being: Approaching the Problem of Selection Bias. *Child Development*, 80, 1856-1876

Session #12, 4/16/14: Endogeneity and Causality II

Gennetian, L., Magnuson, K., and Morris, P. (2006). From Statistical Associations to Causation: What Developmentalists Can Learn from Instrumental Variables Techniques Coupled with Experimental Data. *Developmental Psychology*.

Magnuson, K.A., Ruhm, C. and Waldfogel, J. (2007). Does Prekindergarten Improve School Preparation and Performance? *Economics of Education Review*.

Kaushal, N., Kaestner, R., and Reimers, C. (2007). Labor Market Effects of September 11th on Arab and Muslim Residents of the U.S. *Journal of Human Resources*, 275-308.

Wong, V.C., Cook, T. D., Barnett, W. S. & Jung, K. (2008). An effectiveness-based evaluation of five state prekindergarten programs. *Journal of Policy Analysis and Management*, 27, 122-154.

Cook, T. D., Shadish, W. R., & Wong, V. C. (2008). Three conditions under which experiments and observational studies produce comparable causal estimates: New findings from within-study comparisons. *Journal of Policy Analysis and Management*, 27, 724-750.

**Session #13, 4/23/14: Ethical and Human Subjects Issues in Social Sciences Research
GUEST SPEAKER JAN GREENBERG**

Readings to be announced and loaded on Learn@UW.

DISTRIBUTE ASSIGNMENT #3 TO THE CLASS VIA E-MAIL FRIDAY 4/25/14

Session #14, 4/30/14: STUDENT PRESENTATIONS

DISTRIBUTE ASSIGNMENT #3 TO THE CLASS VIA E-MAIL FRIDAY 5/2/14

Session #15, 5/7/14: STUDENT PRESENTATIONS

FINAL ASSIGNMENT DUE BY 5 P.M. WEDNESDAY 5/14/14!!!

Brief Paper Sign-Up Form

SW948

Name:

E-mail:

Choose 4 topics for which you plan to complete brief papers (you will be assigned 2 of the 4):

___ **Session #3, 2/5/14: Philosophy of science II: Problem formation, theories, conceptual frameworks, and hypotheses—RICKY, LAURA, LANIKQUE, ANDREA**

___ **Session #6, 2/26/14: Measurement I: Construct Validity and External Validity— JUNE, TENAH, LANIKQUE, ANDREA, LAURA**

___ **Session #7, 3/5/14: Measurement II— TENAH, YING-CHUN, YONAH, TRICIA**

___ **Session #8, 3/12/14: Research design I— RICKY, YONAH, TRICIA**

___ **Session #9, 3/26/14: Research Design II & Sampling and Representativeness—JUNE, YOUNG SUN, KEIANA, KRISTY**

___ **Session #11, 4/9/14: Endogeneity and Causality I –KEIANA, VANESSA, YOUNG SUN**

___ **Session #12, 4/16/14: Endogeneity and Causality II—KRISTY, YING-CHUN, VANESSA**