SW948, CS901, PA974: Quantitative Methods for Social Science Research  
Spring 2012

Instructors:  Associate Professor Katherine Magnuson and Professor Stephanie Robert  
Class:  Friday 9:00-11:30 a.m., School of Social Work, Room 300  
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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 Tuesday 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 Tuesday before Session 5). 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 Tuesday before Session 10). The third assignment is a draft of the full proposal (due the Tuesday 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 16, 2012.

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:**


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


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 us know. Do not wait until the end of the semester—we might be able to adjust the course as we go along to suit your needs and interests.

Session #1, 1/27/12: Introduction and overview/organization of the course

Shadish et al., 1-26.
Peruse website relevant to your mock grant proposal:

Session #2, 2/3/12: Overview of philosophical perspectives in research

  pp. 75-80; 97-112: Positivism and critiques
  pp. 311-320: "Situated knowledge: Gender and science"

Session #3, 2/10/12: Philosophy of science II: Problem formation, theories, conceptual frameworks, and hypotheses (post-positivism and realism)

Shadish et al., 26-32.
Pedhazur & Schmelkin, Ch. 9

Session #4, 2/17/12: The structure of the research proposal
Overview of the NIH research proposal
Generating fundable research

Required readings:

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)

Distribute your Assignment #1 to the instructors and class via e-mail
Tuesday 2/21/12

Session #5, 2/24/12: 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 Tuesday 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 #6, 3/2/12: 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
American Psychologist, 54, 424-433.
Mental Health Journal, 41, 129-139.
Newman et al. (1996). Depressive symptom experiences among older women: A comparison of

Session #7, 3/9/12: Measurement II

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


Session #8, 3/16/12: Research Design I
(KM gone)
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.

Session #9, 3/23/12: 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.

Distribute Assignment #2 to the Class Via E-mail Tuesday 3/27/12

Session #10, 3/30/12: Student Presentations
(KM gone)
Students are expected to distribute the second assignment — the research design — to the entire class on the **Tuesday 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, 4/13/12: Endogeneity and Causality I**

(SR gone)

Firebaugh, Chapter 5- Compare like with like


**Session #12, 4/20/12: Endogeneity and Causality II**

(SR gone)


**Session #13, 4/27/12: Ethical and Human Subjects Issues in Social Sciences Research**

GUEST SPEAKER JAN GREENBERG

(KM gone)

*Readings to be announced and loaded on Learn@UW.*

**DISTRIBUTE ASSIGNMENT #3 TO THE CLASS VIA E-MAIL TUESDAY 5/1/12**

**Session #14, 5/4/12: STUDENT PRESENTATIONS**

(SR gone)
Distribute Assignment #3 to the class via e-mail Friday 5/8/12

Session #15, 5/11/12: Student Presentations

Final Assignment Due by 5 p.m. Wednesday 5/16/12!!!
Brief Paper Sign-Up Form

Name:

E-mail:

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

___ Session #3, 2/10/12: Philosophy of science II: Problem formation, theories, conceptual frameworks, and hypotheses

___ Session #6, 3/2/12: Measurement I: Construct Validity and External Validity

___ Session #7, 3/9/12: Measurement II

___ Session #8, 3/16/12: Research design I

___ Session #9, 3/23/12: Research Design II & Sampling and Representativeness

___ Session #11, 4/13/12: Endogeneity and Causality I

___ Session #12, 4/20/12: Endogeneity and Causality II