Fundamentals of Survey Methodology

Instructor: Philip Brenner, Ph.D.
Guest lecturer: James Lepkowski, Ph.D.

Class times: Monday-Friday, July 23-27, 2012, 8:00 AM – 12:00 noon, 1:00 PM – 5:00 PM

Class location: G150, ISR-Perry

Summary
Fundamentals is an introduction to the field of survey methodology, taught at the graduate level. It introduces principles of survey design that are the basis of standard practices in the field. The course examines research literatures that use both observational and experimental methods to test hypotheses about the quality of survey data. It presents statistical concepts and techniques in sample design, execution, and estimation, and models of behavior describing errors in responding to survey questions. The course uses total survey error as a framework to discuss coverage properties of sampling frames, sample designs, modes of data collection, field administration and the survey interviewer, nonresponse, question wording, measurement error, post-survey processing, and estimation in surveys.

1. Overview of the Course
The field of survey methodology draws on theories and practices developed in several academic disciplines—mathematics, statistics, psychology, sociology, computer science, and economics. To become an accomplished professional in the survey research field requires a mastery of research literatures as well as experience designing, conducting, and analyzing surveys.

This course introduces the student to a set of principles of survey design that are the basis of standard practices in the field. The course exposes the student to research literatures that use both observational and experimental methods to test key hypotheses about the nature of human behavior that affect the quality of survey data. It will also present important statistical concepts and techniques in sample design, execution, and estimation, as well as models of behavior describing errors in responding to survey questions. Thus, both social science and statistical concepts will be presented.

The course uses the concept of total survey error as a framework to discuss coverage properties of sampling frames, alternative sample designs and their impacts on standard errors of survey statistics, alternative modes of data collection, field administration operations, the role of the survey interviewer, impacts of nonresponse on survey statistics, the effect of question structure, wording and context on respondent behavior, models of measurement error, post survey processing, and estimation in surveys.

The course is intended as an introduction to the field, taught at a graduate level. Lectures and course readings assume that students understand basic statistical concepts (at the level of an undergraduate course) and have exposure to elements of social science perspectives on human behavior. For those lacking such a background, supplementary readings are recommended.

2. Pre-requisites and course requirements
No prior experience or course work in survey methodology is required. Many course topics are statistical in character. Students are encouraged to have a basic understanding of statistical methods, at the level of introductory statistics textbook such as Statistics, 4th edition, by Freedman, Pisani, and Purves (W.W. Norton and Company, 2011). Students are required to bring a laptop computer to class.
3. Readings
Primary readings will be from:


Additional required reading will be from:

3. Homework and Participation
There will be four homework assignments in addition to in-class group and individual assignments. Homework assignments that are to be completed outside of class should be emailed to the course grader by the beginning of class on the due date. Students are expected to come to class having completed assigned readings and should be ready to participate actively.

4. Class Schedule

Day 1: July 23
Morning: Introduction, Inference and Error in Surveys (Brenner)
Lecture: Introduction to survey methodology; Steps of the process of a survey
Key concepts and principles of survey quality
Readings: Groves, et al. (2009), Chapters 1 and 2
Exercise: Group exercise – Study design vignettes

Afternoon: Sampling I (Lepkowski)
Lecture: Probability sampling; Simple Random and Systematic sampling; Stratification
Readings: Groves, et al. (2009), Chapters 3 and 4
Kalton (1983), Chapters 1-4
Exercise: Sampling exercise (start in class; due Tuesday morning)

Day 2: July 24
Morning: Sampling II (Lepkowski)
Lecture: Cluster and multistage sampling; Other probability designs
Sampling frames; Selection weights; Computing sampling errors
Examples of sample designs
Readings: Groves, et al. (2009), Chapters 3 and 4
Kalton (1983), Chapters 5-8
Exercise: Group exercise – Sampling variance and sampling weights
Afternoon: Mode of Data Collection (Brenner)
Lecture: Face-to-face, Telephone, Self-administered, and Administrative records
Readings: Groves, et al. (2009), Chapter 5
Exercise: Mode vignettes exercise (start in class, due Wednesday morning)

Day 3: July 25

Morning: Computer Assisted Data Collection (Brenner)
Lecture: Methods of computer assisted data collection; Impact on survey errors
Web surveys
Readings: Groves, et al. (2009), Chapter 5
Exercise: Group work – Web survey critiques

Morning: Questions and Questionnaires (Brenner)
Lecture: Overview of response behavior; Comprehension; Memory search
Estimation and judgment; Delivery of response
Readings: Groves, et al. (2009), Chapter 7
Converse and Presser (1986), Chapters 1-3
Exercise: Question writing exercise (start in class, due Thursday morning)

Day 4: July 26

Morning: Pretesting (Brenner)
Lecture: Focus groups; Cognitive interviews; Expert review; Pretests; Pilot tests
Readings: Groves, et al. (2009), Chapter 8
Exercise: Group work – Pretesting short instrument w/ classmates

Afternoon: Interviewing (Brenner)
Lecture: Recruiting and hiring of interviewers; Interviewer training
Evaluation of interviewing performance; Management of data collection effort
Readings: Groves, et al. (2009), Chapter 9
Fowler and Mangione (1990), Chapters 1-5
Exercise: Round-robin interviewing exercise (start in class; report due Friday morning)

Day 5: July 27

Morning: Nonresponse (Brenner)
Lecture: Contacting sample units; Gaining the cooperation of sample units
Monitoring the progress of data collection; Response rates
Readings: Groves, et al. (2009), Chapter 6
Kalton (1983), Chapter 9
Exercise: Group work — Computing AAPOR response rates
Afternoon: Post-Survey Processing; Estimation (Lepkowski)

Lecture: Editing data; Coding; Imputation; Construction of unit weights
         Variance estimation; Analysis of survey data

Readings: Groves, et al. (2009), Chapter 10
          Kalton (1983), Chapters 10-11

Exercise: Imputation exercise (complete in class)