A. Overview of the Course

This course concerns the different sources of errors in estimates derived from survey data. It does not cover random sampling error or estimation, but focuses on the other major sources of survey errors. More specifically, it concerns:

1) Coverage error, which results from the failure to give every member of the population a chance of selection into the sample;

2) Nonresponse error, which results from the failure to collect data on all members of the sample;

3) Measurement error, which results from the failure of the recorded responses to reflect the true characteristics of the respondents; and

4) Editing and processing errors, which result from the failure to convert responses accurately into an analysis file.

The goal of survey design is to minimize the size of these and other errors (e.g., through interviewer training, sample design, efforts at persuading sample persons to cooperate) subject to the cost constraints on any survey. One difficulty in finding the best design reflects the fact that there are often tradeoffs between different sources of error. Each design feature also carries with cost implications for the survey. In addition, several of these errors can be linked to one another in practice — attempting to decrease one may merely increase another (e.g., reducing nonresponse by aggressively persuading sample persons to cooperate may result in larger measurement errors in the survey data).

The course reviews research on these topics. It examines the interplay of errors and costs in survey designs. After introducing various conceptions of survey error, we will examine the different
sources of survey error one by one. Although much of the survey methodology literature deals with one error source in isolation of others, we will try to integrate different works to explore relationships among errors.

This course presents research that attempts to examine the causes of survey errors. The course assumes that the students already know the basic steps of a survey research project. It is not a practicum in survey research, but instead covers many of the considerations on which survey design decisions should be based. This is not a "how-to" course, but rather investigates the basic principles, derived from the empirical literature, that might apply to diverse types of surveys.

The methods literature on survey error has two major strands, one exploring how to reduce survey errors and the other how to measure them. For each of the error sources, there will be readings on efforts to reduce the error and additional readings on how to measure them. In addition, we will also review theoretical perspectives on causes of errors. In short, for each error source we will address three questions:

1. What is the cause of the error?
2. What techniques can be used to reduce the error in practice?
3. What statistical models can be used to measure the error source?

B. Grading

Grading will be based on three components:

- Participation in class discussion demonstrating understanding of the required readings (10% of grade);
- A mid-term in-class exam (40% of grade);
- A final in-class exam (50% of grade).

I reserve the right to give quizzes on the readings if I think students are not doing them.

The midterm examination will be given during the regular class time on October 16; the final examination will be given during the regular class time on December 11. Both exams will be in-class examinations, closed book.

C. Office Hours

Office hours by appointment.
D. Course Readings

There is one required text (Groves, Survey Errors and Survey Costs, Wiley, 1989) and two recommended texts (Fuller, Measurement Error Models, Wiley, 1989; Lessler and Kalsbeek, Nonsampling Error in Surveys, 1992). Other course readings will be available via C-Tools.

E. Lecture Topics, Readings, and Schedule

SEPTEMBER 4 — OVERVIEW; INTRODUCTION TO SURVEY ERRORS

Required Readings:

Groves, Survey Errors and Survey Costs, Chapter 2.


Other key references:


SEPTEMBER 18 — COVERAGE OF THE TARGET POPULATION I

Required Readings:

Groves, Chapter 3, Section 3.1-3.5


Other key references:


Lessler and Kalsbeek, Chapters 3 and 4.


**September 24 -- COVERAGE OF THE POPULATION II**

Required Readings:

Groves, Chapter 3, Section 3.6-3.8


Other key references:


OCTOBER 2 -- NONRESPONSE RATES AND NONRESPONSE ERROR

Required Readings:


Other key references:


OCTOBER 9 -- STATISTICAL MODELS FOR NONRESPONSE

Required Readings:


Lessler and Kalsbeek, Chapter 8, Section 8.0 - 8.1.6

Other Key References:


OCTOBER 23 -- WEIGHTING AND IMPUTATION

Required Readings:


Other Key References:


OCTOBER 30 – Midterm

NOVEMBER 6 – OVERVIEW OF SURVEY MEASUREMENT ERROR

Required Readings:

Groves, Chapter 7


Other Key References:


Lessler and Kalsbeek, Chapter 10


**NOVEMBER 13 - ESTIMATING MEASUREMENT ERROR**

Required Readings:


Other Key References:


NOVEMBER 20 -- MEASUREMENT ERROR: THE INTERVIEWER

Required Readings:

Groves, Chapter 8


Other Key References:


NOVEMBER 27 -- MEASUREMENT ERROR: THE RESPONDENT AND THE QUESTIONNAIRE

Required Readings:

Groves, Chapter 9


Other Key References:


**DECEMBER 4 -- PROCESSING ISSUES IN SURVEYS**

Required Readings:


Other Key References:


**DECEMBER 11 -- FINAL EXAMINATION**