

**SURVEY DESIGN AND METHODOLOGY – 1.0 credit  
(PUB HLTH 438)  
Summer Quarter 2007**

**Time:**           **Tues. 6:00 p.m. – 9:00 p.m.**

**Location:**      **680 N. Lake Shore Drive, Suite 1102, large conference room**

**Course instructors (office hours by appointment):**

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**I. Course Description**

This applied course will focus on methodological issues regarding the design, implementation, analysis, and interpretation of surveys and questionnaires in public health research. Various types of self-report data will be discussed, including knowledge, attitudes, behaviors, and patient-reported outcomes such as general health status, pain, fatigue, etc. Design issues will include wording of items and response scales, multilingual translations, sampling, timing of assessments, and respondent and staff burden. Implementation issues will include formatting and layout, methods of administration (paper-and-pencil, interviews, computer-based), interviewer training and participant recruitment. Analysis issues will include psychometric measurement properties (dimensionality, scoring, reliability, validity), cross-sectional and longitudinal analytic models and techniques, missing data, and clinical significance. Interpretive issues will include guidelines for reports and manuscripts, and internal and external validity. This course will primarily focus on study designs using nonprobability sampling, e.g., convenience samples recruited at selected clinics/sites. A brief overview will be provided regarding probability sampling, that is, studies where each element in the population of interest has a measurable chance of selection. This course will emphasize hands-on experience in the design, administration, analysis and interpretation of survey data from public health research studies. Students will be required to apply knowledge and skills obtained in the two prerequisite courses: Introduction to Biostatistics and Introduction to Epidemiology. Specifically, students will be asked to demonstrate competence with the following:

- Enter raw survey data into a statistical software package (e.g., Stata, SPSS, SAS).
- Conduct and interpret basic statistical tests (e.g., t-test, chi-square).
- Select the appropriate statistical test depending on the type(s) of data involved (e.g., nominal, dichotomous, ordinal, interval).

Students are strongly encouraged to review relevant material from the prerequisite courses prior to the first day of class.

## II. Prerequisites

Pub Hlth 302 Introduction to Biostatistics  
Pub Hlth 304 Introduction to Epidemiology

## III. Course Objectives

This course is designed to familiarize students with the use of self-report data. After completion of the course, students should be able:

- To describe advantages and disadvantages of different methods of survey administration
- To define psychometric measurement properties of self-report data
- To describe common sources of bias and how to prevent and control for them
- To assess the quality of survey research findings and their relevance to public health research
- To create, administer and analyze a survey

## IV. Teaching Format

New material will be presented in lectures and reading assignments. Homework assignments will be either handed in for evaluation or will be discussed in class as outlined below. Students will be expected to read the assigned reading material prior to the lecture or the discussion. **Participation in group discussions is mandatory.**

## V. Student Evaluation

- a) Homework and classroom participation - Homework assignments will count towards 25% of the student evaluation. Some homework will be handed in, and some homework will be discussed in class. Students are expected to come to class prepared and to take part in the classroom discussions.
- b) Individual Projects – Each student will develop a study protocol that involves the administration of a survey instrument. The protocol will include study rationale, sampling plan, method of survey administration, data management, and data analysis. Students may propose to use an existing survey in their projects, but they must also generate additional original survey items. Students will not be expected to actually conduct the study during this course. On the last day of the course, each student will give a brief presentation on this project. This project will count towards 40% of the student evaluation.
- c) Presentation - There will be one presentation (15%) in the middle of the quarter. Each student will present to the class the research question for their quarter project, the study design and sampling plan, and a formatted survey. Students will be asked to critique each other's presentation and offer advice and comments for improvement.

## VI. Course Evaluation

The MPH Program administers web-based course evaluations to students for each course near the end of the quarter. ***Your completion of both the unit (course) and faculty evaluation components is required; failure to complete either of the evaluations will result in an incomplete grade until the evaluations are submitted.*** You will be sent the Web link and instructions via email later in the quarter. You will have about two weeks time to complete the evaluations before grades are submitted.

## **VII. Academic Integrity**

Academic integrity at Northwestern University is based on a respect for individual achievement that lies at the heart of academic culture. Every faculty member and student, both graduate and undergraduate, belongs to a community of scholars where academic integrity is a fundamental commitment. The Programs in Public Health abides by the standards of academic conduct, procedures, and sanctions as set forth by The Graduate School at Northwestern University. Students are responsible for knowledge of the information provided by The Graduate School on their Web page at <http://www.tgs.northwestern.edu/studentsvcs/ethics/>.

Additionally, faculty reserve the right to use the “Safe Assignment: Plagiarism Detection Tool” that is part of the Course Management System. Info about this tool is found at <http://course-management.northwestern.edu/tipsheets.html>.

## **VIII. Textbook**

Czaja R, Blair J. Designing Surveys: A Guide to Decisions and Procedures, Second Edition. Thousand Oaks, CA: Pine Forge Press, 2005.

Additional reading material will be provided on Blackboard.

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Session	Date	Topic	Please read in advance.	
			Required	Recommended
1	Jul 3	<b>Brief overview of the objectives of the course, the course schedule, readings and student projects</b> <b>Overview of quarter projects</b> <b>Introduction to surveys</b> <b>Introduction to research</b>	Czaja & Blair, p. 1-7; p12 fig. 2.1  Scheuren Ch. 1	Czaja & Blair, Ch. 2
2	Jul 10	<b>Design and development (Part 1)</b> - Wording of items and response scales - Cultural and linguistic issues - Pretesting	Czaja & Blair, p. 59-83 Czaja & Blair, p. 103-123	Pasick et al. Pub Health Rep. 116 Suppl 2001; 1:223-242
3	Jul 17	<b>Design and development (Part 2)</b> - Sampling - Timing of assessments - Respondent and staff burden	Czaja & Blair, p. 99-101 & p. 125-130  McDermott et al., 2002	
4	Jul 24	<b>Design and development (Part 3)</b> - Formatting and Layout  <b>Implementation (Part 1)</b> - Methods of administration	RTI Formatting Guidelines Czaja & Blair, p. 85-99 Czaja & Blair Ch. 3 Scheuren Ch 3 & Ch 6	
6	Jul 31	<b>Student presentations</b>		
5	Aug 7	<b>Implementation (Part 2)</b> - Interviewer training - Participant recruitment - Ethical issues in survey research - Pilot testing	Czaja & Blair p. 214-227 Fowler p. 147-153 CORE Interview SOP	
7	Aug 14	<b>Preparing Survey Data for Analysis</b> - Data entry and manipulation <b>Multi-item scales</b> - Development and scoring - Reliability and validity	Medical Outcomes Trust, Sept. 1995 CORE data entry and data management SOPs	Ware et al., 2000; Ch. 6 - 8
8	Aug 21	<b>Analysis</b> - Analytic models and techniques - Clinical significance - Reporting and Interpretation	Fayers & Machin p. 157-167 & p172-182 Fayers and Machin Ch. 15 Fowler p. 137-146	
9	Aug 28	<b>Quarter Projects Due</b> <b>Course summary - Putting it all together</b>		