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. Learning 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 handed in for evaluation and/or discussed in class. Students will be expected to read the assigned reading material prior to the lecture or the discussion. In-class exercises will be included in some sessions. Participation in group discussions is mandatory.

V. Student Evaluation
a) Homework and classroom participation - Homework assignments will count towards 35% 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. This project will count towards 50% of the student evaluation.

c) Presentation - There will be one presentation (15%) in the latter half of the quarter. Each student will present to the class the research question for her/his quarter project, the study design and sampling plan, and representative survey questions. 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. Your evaluation of the course and faculty is anonymous; your identity cannot be linked with your responses.

VII. Textbook


Additional reading material will be posted on the course’s Blackboard site, available at [https://courses.northwestern.edu/webapps/login/](https://courses.northwestern.edu/webapps/login/) if you are registered for the course.

VIII. Academic Integrity

Every Northwestern faculty member and student belongs to a community of scholars where academic integrity is a fundamental commitment. The Program in Public Health abides by the standards of academic conduct, procedures, and sanctions as set forth by The Graduate School at Northwestern University. Students and faculty are responsible for knowledge of the information provided by The Graduate School on their Web page at [http://www.tgs.northwestern.edu/academics/academic-services/integrity/index.html](http://www.tgs.northwestern.edu/academics/academic-services/integrity/index.html)

Academic misconduct includes, but is not limited to:
1. Receiving or giving unauthorized aid on examinations or homework
2. Plagiarism
3. Fabrication
4. Falsification or manipulation of academic records
5. Aiding or abetting any of the above

The PPH follows The Graduate School’s procedure for evaluating alleged academic misconduct, as outlined on the TGS website. [http://www.tgs.northwestern.edu/academics/academic-services/integrity/dishonesty/index.html](http://www.tgs.northwestern.edu/academics/academic-services/integrity/dishonesty/index.html)

Faculty reserve the right to use the “Safe Assignment: Plagiarism Detection Tool” that is part of the Course Management System to evaluate student assignments. Information about this tool can be found at [http://www.it.northwestern.edu/education/course-management/support/assessments/safeassignment.html](http://www.it.northwestern.edu/education/course-management/support/assessments/safeassignment.html)
<table>
<thead>
<tr>
<th>Session</th>
<th>Date</th>
<th>Instructor(s)</th>
<th>Topic</th>
<th>To be read in advance</th>
<th>Homework Assignment (due date)</th>
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<tbody>
<tr>
<td></td>
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<td>Brief overview of the objectives of the course, course schedule, and readings</td>
<td>Blair et al., 2013, Ch 1 &amp; 3</td>
<td>Quarter Project Topic and Objectives (due Jul. 8)</td>
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<tr>
<td>1</td>
<td>Mon., Jul. 1</td>
<td>Hahn &amp; Yount</td>
<td>Overview of quarter projects</td>
<td>McDermott et al., 2002</td>
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<td>Introduction to research</td>
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<td>Introduction to surveys</td>
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<td>Overview of common theoretical frameworks</td>
<td>Scheuren, Ch. 1</td>
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<td>Design and development (Part 1)</td>
<td>Blair et al., 2013, Ch 4, 8 &amp; 10 (including App. 3, pp 277-289)</td>
<td>Draft of Survey Questions for Quarter Project (due Jul. 15)</td>
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<td>2</td>
<td>Mon., Jul. 8</td>
<td>Yount</td>
<td>- Wording of items and response scales</td>
<td>Scheuren, Ch. 3</td>
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<td>- Pretesting</td>
<td>Hak et al., 2008</td>
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<td>Implementation (Part 1)</td>
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<td>- Methods of administration</td>
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<td>Introduction to qualitative research methods</td>
<td>Brod et al., 2009</td>
<td>Warnecke et al., 1997, Beaton et al., 2000, Johnson et al., 2003, Johnson et al., 2006, Dolcinar, 2007</td>
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<td>Cultural and linguistic issues</td>
<td>Warnecke et al., 1996</td>
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<td>Kandula et al., 2007</td>
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<td>- Sampling</td>
<td>Blair et al., 2013, Ch 5, 6, 7 (through p 140), pp 156-159, pp 227-229 (Ch 9)</td>
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<td>- Choosing endpoints</td>
<td>Blair et al., 2013, pp 140-155 (Ch 7)</td>
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<td>- Timing of assessments</td>
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<td>- Respondent and staff burden</td>
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<td>4</td>
<td>Mon., Jul. 15</td>
<td>Hahn</td>
<td>Preparing Survey Data for Analysis</td>
<td>Medical Outcomes Trust, 2002</td>
<td>Data Entry and Analysis (due Jul. 29)</td>
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<td>- Data entry and manipulation</td>
<td>Ware et al., 2000; Ch. 6 - 8</td>
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<td>Multi-item scales (development and scoring)</td>
<td>Fowler, 2009, Ch. 9</td>
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<td>Reliability and validity</td>
<td>Blair et al, 2013, pp 37-39 (Ch 3)</td>
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| Mon., Jul. 29 | Yount | Design and development (Part 3)  
- Formatting and layout  
- Introducing the study  
Implementation (Part 2a)  
- Pilot testing | Mullin et al., 2000  
(Formatting)  
Blair et al., 2013, Ch 9, pp 274-275 (Ch 10) | Prepare Slides for Oral Presentation on Aug. 5 or Aug. 7  
Draft Cover Letter or Script, and Formatted Survey for Quarter Project (due Aug. 12) |
| Mon., Aug. 5  | Hahn & Yount | Student presentations | | |
| Wed., Aug. 7 | Hahn & Yount | Student presentations | | |
| Mon., Aug. 12 | Yount | Implementation (Part 2b)  
- Interviewer training  
- Participant recruitment  
- Ethical issues in survey research | Blair et al., 2013, Ch 11  
Fowler, 2009, Ch. 11  
CORE Interview SOP | |
| Wed., Aug. 14 | Hahn | Analysis  
- Analytic models and techniques  
- Clinical significance  
- Reporting and Interpretation  
Course summary | Fayers & Machin, 2007, Ch. 12 & Ch. 16  
Johnson & Wislar, 2012 | |
| No class  | Wed., Aug. 21 | Quarter Projects Due (5 p.m.) | | |