HBEH 760: Advanced Research Methods I, Fall 2013
Department of Health Behavior
Gillings School of Global Public Health
Tuesday and Thursday, 11-12:15, 1303 McGarvan-Greenberg
Course Website: Accessible through Sakai, at http://sakai.unc.edu/

Teaching Team
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Office Hours: By Appointment

Course Description
Advanced Research Methods I and II, HBEH 760 and 761, are required for first-year doctoral students in the Department of Health Behavior. The courses are organized by modules and team-taught by department faculty. Emphasis in the first semester (HBEH 760) is on issues related to the research process and study design while emphasis in the second semester (HBEH 761) is on statistical software, sampling, and selected analytic topics. Modules covered in the first semester are: Conceptualizing Research Questions and Hypotheses, Measurement, Experimental and Quasi-Experimental Study Designs, and Observational Study Designs. Modules covered in the second semester are: SAS and Analytic Fundamentals, Sampling, Attrition and Missing Data, Mediation and Moderation, and Introduction to Multilevel and Longitudinal Data Analysis. The class is taught through a combination of didactic instruction, engaged discussion, critiquing of journal articles, student presentations, and in-class exercises.

Course Objectives
At the completion of the course students will be able to:

- Conceptualize research problems in terms of research questions, hypotheses, and conceptual models
- Apply concepts of validity and reliability in assessing measures and demonstrate understanding of latent variables
- Critique research designs in terms of internal validity
- Select and apply appropriate methods for answering questions that address topics of significance to public health
- Critically analyze research from the literature in terms of the appropriateness of the study design, sample, measures, data analysis, results, and interpretation

Grading and Assignments
The quality of the course depends on your preparation for and participation in discussion and assignments. You are expected to read the assigned readings before class and come to class prepared to contribute to the discussion. You will lead discussion of one or more journal club papers, with the expectation that you will prepare questions for guiding the class discussion. Other assignments include a student presentation on data collection modes, graded exercises assigned as homework, a midterm exam, and a final exam. Written assignments will be submitted to instructors using the drop
box feature in Sakai and are due prior to the start of class on the day they are due. Grades will be based on: graded homework exercises (30%), mid-term exam (30%), final exam (30%), and contribution to class discussion, including journal clubs and student presentations (10%).

**Honor Code**

Students must observe the Honor Code in all course assignments. You are expected to produce your own work, except where group work is specifically allowed. In all written assignments, you must not plagiarize the work of others. The instrument defining the Honor Code defines plagiarism as "deliberate or reckless representation of another's words, thoughts, or ideas as one's own without attribution in connection with submission of academic work, whether graded or otherwise." If you have questions about your responsibility under the honor code, please bring them to one of the instructors or consult with the office of the Dean of Students or the Instrument of Student Judicial Governance. This document, adopted by the Chancellor, the Faculty Council, and the Student Congress, contains all policies and procedures pertaining to the student honor system.

Please include the following pledge on all written assignments: “On my honor, I have neither given nor received unauthorized aid on this assignment.”

**Course Evaluations**

Student evaluations are critical to course development and improvement. Time is set aside in the last class for completing the official on-line departmental/school evaluation.

**Required Readings**


Other readings (see Course Schedule) are available electronically on the Sakai website.

**Course Schedule**

8/20  Introduction and Course Overview

8/22  Units of Analysis, Variables, and Levels of Variables


8/27  Relationships among Variables: Mediation, Confounding, and Moderation

*Ungraded homework exercise handed out (discuss answers 9/3)*


8/29 Writing Research Questions and Hypotheses


9/3 Role of Theory and Conceptual Models in Research

Discuss answers to the ungraded homework exercise


9/5 In Class Exercise on Developing Theoretically Informed Conceptual Models

*Homework 1 handed out (Due on September 17, 2013)*

9/10 Journal Club #1 (Student Leaders)


Module 2: Measurement (Susan Haws & Susan Ennett)

9/12 Introduction to Measurement and the Concept of Latent Variables


**NOTE:** The article below is a nice reference to have. Read p. 605-top of 617 for high level understanding.


**9/17** Basic Properties of Measures and How We Assess Them: Reliability


*Homework 1 Due; Homework 2 handed out (due on September 26, 2013)*

**9/19** Basic Properties of Measures and How We Assess Them: Validity


**Note:** The article below is assigned again because it contains material related to validity. You’ve probably already made your way through it.


**9/24** A Non-technical Introduction to Factor Analysis

**Note:** See page numbers below. Skip the part about factor rotation.


**Note:** The article below is an important reference to have. Read for high-level understanding and introduction to terminology.

9/26 In Class Exercise on Measurement

Homework 2 Due

10/1 Question and Questionnaire Design


10/3 Journal Club #2 (Student Leaders)


10/8 Data Collection Modes (Student presentations): In-person and telephone interviews, mail and web surveys, ecological momentary assessment (EMA)

10/10 MIDTERM (In class exam, 11:00-12:15, to be held in Health Science Library Room 329)

Module 3: Experimental and Quasi-Experimental Study Designs (Susan Ennett)

10/15 Causation and Internal Validity


10/17 FALL BREAK- NO CLASS

10/22 Randomization and Experimental Designs


10/24 Factorial Designs


10/29 In Class Exercise on Factorial Designs

10/31 Pre- and Quasi-Experimental Designs


11/5 Interrupted Time-Series Designs


Homework 3 handed out (due on November 19, 2013)
In Class Discussion on Randomized Controlled Trials


Module 4: Observational Study Designs (Susan Ennett & Luz McNaughton Reyes)

Cross-sectional and Repeated Cross-sectional Designs


Longitudinal Panel and Cohort Sequential Designs


Ecological and Contextual Designs


Optional:


*Homework 3 due.*

11/21  *In Class Exercise on Selecting Research Designs*

*Homework 4 handed out (due on December 3, 2013)*

11/26  *Journal Club #3 (Student Leaders)*


11/28  *THANKSGIVING, NO CLASS*

12/3  *Course wrap up and evaluations*

*Homework 4 due*

12/13  *FINAL EXAM* (In class exam, 12:00-2:00, to be held in Health Science Library Room 329)