PH800: Advanced Research Methods
Spring 2014
JDP in Public Health - Health Behavior Concentration
Division of Health Promotion and Behavioral Science, Graduate School of Public Health
College of Health and Human Services, San Diego State University

Instructor
Jessica Gorman, PhD, MPH
Email: jgorman@ucsd.edu
Office: 858-822-5351

Meeting Time
Wednesday, 1-3:40pm

Location
PFSA-413

Office Hours
By appointment, Tuesday and Thursday

Course Description
Advanced Research Methods is a required course for first-year doctoral students in the Joint Doctoral Program in Public Health (Health Behavior). The course will focus on research process and study design. This includes: conceptualizing research questions and hypotheses, observational study designs, quasi-experimental and experimental study designs, and an introduction to qualitative research and mixed methods.

Health Behavior Concentration Core Competencies
The emphasis of this course is on competencies 3, 4 and 5 (bolded).

1. Demonstrate a sound grasp of the major influential theories and models of health behavior change.
2. Demonstrate knowledge of best practices for measuring health behaviors and related risk factors, and use psychometric principles to develop new reliable and valid measurement instruments.
3. Use mixed research methods to address health behavior research questions and to plan interventions.
4. Design effective interventions to motivate a change in population health behavior.
5. Demonstrate a sound grasp of study designs that examine the effectiveness of theoretically-based interventions in health behavior.
6. Demonstrate a sound grasp of the evidence of the effectiveness of policy interventions, particularly those focused on environmental incentives, in promoting healthy behaviors.
7. Demonstrate skills in writing research proposals that would be competitive at the National Institutes of Health and comparable funding organizations.

Required Reading


Optional text:

Course Requirements
In-class activities and student-led discussion: 30 points
5 homework assignments: 50 points total (10 points each)
Methods section of manuscript and peer review: 80 points
Final exam: 40 points
200 points total
In-class participation is expected. This includes regular attendance, completion of assignments, contribution to discussion, and providing useful feedback to others. Please plan to attend all classes.

**Final grade will be based on the following:**

1) **In-class activities and student-led discussion (30 points)**
   - 10 points possible for in-class activities
   - 10 points possible for student-led discussion
   - 10 points possible for peer-reviews of student-led discussion

**Guidelines for student-led discussion**
The main goal of student-led discussion is to develop knowledge and critical thinking about the topic area and to provide an opportunity for students to practice their skills in moderating a group discussion. Students should prepare a brief overview of their topic and at least 5 discussion questions ahead of time. The questions are due to the instructor on the Monday prior to the class session. Questions should be open-ended to encourage discussion, for example How? What? Why? questions. The discussion is expected to be about 30 minutes in length.

**Guidelines to assist with preparation and peer review of student-led discussion**
For peer review, mark (0-2) for each of the five criteria to obtain a score out of 10 points possible. The final score will be based on the average peer-review score received for each of the five criteria below.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Most or all of the time (2)</th>
<th>Some of the time (1)</th>
<th>None of the time (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provided a clear introduction to the topic and statement of discussion goals (5-10 min)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engaged and involved the audience, with the goal of equitable participation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used varied and effective discussion questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engaged in active listening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provided synthesis of discussion points</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2) **5 homework assignments: 50 points**
10 points possible per assignment, including 3 points for participating in class discussion of assignment

3) **Methods section for a manuscript describing a nonrandomized study design and peer review:** 80 points
   - 40 points possible for final methods section for manuscript
   - 20 points possible for completing peer review of a student methods section
   - 20 points possible for oral presentation

**Guidelines for methods section assignment:** Draft due April 16, Final due May 7
Prepare a draft of the methods section for a manuscript describing a nonrandomized design of a behavioral intervention study (excluding statistical analyses and sample size calculations). Prepare this manuscript section as if you have completed the study. You are only being asked to report on the methods for this assignment. The manuscript should be spelling and grammar checked. Maximum length is 1000 words (not including references). Please use 1 inch margins, Times New Roman or Arial 12pt font, and double space. Citations and references follow formatting for AJPH.

Content should include the following (based on Transparent Reporting of Evaluations with Nonrandomized Designs):

**Participants**
1. Eligibility criteria for participants, including criteria at different levels of recruitment/sampling plan (e.g., cities, clinics, subjects)
2. Method of recruitment (e.g., referral, self-selection), including the sampling method
3. Recruitment setting
4. Settings and locations where the data were collected

**Interventions**
Details of the interventions intended for each study condition and how and when they were administered, specifically including:
1. Content: what was given?
2. Delivery method: how was the content given?
3. Unit of delivery: how were the subjects grouped during delivery?
4. Deliverer: who delivered the intervention?
5. Setting: where was intervention delivered?
6. Exposure quantity and duration: how many sessions or episodes or events were intended to be delivered? How long were they intended to last?
7. Time span: how long was it intended to take to deliver the intervention to each unit?
8. Activities to increase compliance or adherence (e.g., incentives)

**Objectives**
1. Specific objectives and hypotheses

**Outcomes**
1. Clearly defined primary and secondary outcome measures
2. Methods used to collect data and any methods used to enhance the quality of measurements
3. Information on validated instruments such as psychometric and biometric properties

**Assignment Method**
1. Unit of assignment (the unit being assigned to study condition, e.g., individual, group, community)
2. Method used to assign units to study conditions, including details of any restriction (e.g., blocking, stratification, minimization)
3. Inclusion of aspects employed to help minimize potential bias induced due to non-randomization (e.g., matching)

**Blinding (masking)**
1. Whether or not participants, those administering the interventions, and those assessing the outcomes were blinded to study condition assignment; if so, statement regarding how the blinding was accomplished and how it was assessed.

**Unit of Analysis**
1. Description of the smallest unit that is being analyzed to assess intervention effects (e.g., individual, group, or community)
2. If the unit of analysis differs from the unit of assignment, the analytical method used to account for this (e.g., adjusting the standard error estimates by the design effect or using multilevel analysis)

**Guidelines for peer review of methods section:** Peer review due April 23
You will each be assigned as a blind reviewer for another student’s methods section. You will be asked to provide constructive feedback and assessment of their work based on specific criteria.

**Guidelines for oral presentation:** May 7
Present an overview of your study methods, with a focus on discussing the strengths and limitations of your study design and alternative approaches. 15 min., including questions.

**4) Final exam: 40 points**
Date and time TBD

**Grading:** Course grades will be assigned as follows based on total points accumulated for the semester:

- **A** 190-200
- **A-** 180-189
- **B+** 170-179
- **B** 160-169
- **B-** 150-159
- **C+** 140-149
- **C-** 130-139
- **C** 120-129
- **F** <120

Every effort will be made to follow the syllabus content and schedule, but modifications may become necessary as the semester progresses. In that case, I will notify students and provide an updated syllabus.

**Class 1- Jan 22: Introduction and course overview**
**Assigned reading:**

**Class 2- Jan 29: Developing research questions and hypotheses; Mediators and moderators**
**Assigned reading:**


Online resource: [http://davidakenny.net/cm/mediate.htm](http://davidakenny.net/cm/mediate.htm)

**In class activity:** Generating hypotheses and writing research questions

**Student-led discussion:** What are mediators and moderators and why do we care? / Peer evaluation of student-led discussion

**Class 3- Feb 5: The use of theory in quantitative research**

**Assigned reading:**
Creswell, J.W. Chapter 3: The use of theory, Quantitative Theory Use, pp. 51-63


Recommended:


**In class activity:** Introduce Assignment 1

**Student-led discussion:** What role does health behavior theory play in the design of cross-cultural studies? / Peer evaluation of student-led discussion

**Class 4- Feb 12: Sampling and data collection**

**Assignment 1 Due: Research Hypothesis**

**Assigned reading:**


In class activity: Compare probability and nonprobability sampling strategies/ Introduce Assignment 2

Student-led discussion: Present and discuss Assignment 1 (all).

Class 5- Feb 19: Observational Designs: Cross-sectional, longitudinal, case-control, cohort

Assignment 2 Due: Sampling plan

Assigned reading:

In-class activity: Introduce Methods section assignment / Observational designs
Student-led discussion: Present and discuss Assignment 2 (all)

Class 6- Feb 26: Observational designs: Ecological and contextual designs

Assigned reading:


Recommended:

In class activity: Observational designs
Student-led discussion: Compare the strengths and limitations of observational study designs / Peer evaluation of student-led discussion

Class 7- Mar 5: Quasi-experimental designs

Assigned reading:


In-class exercise: Threats to internal and external validity
Student-led discussion: None

Class 8 - Mar 12: Quasi-experimental designs: Interrupted time-series design
Assigned reading:


In-class exercise: Introduce Assignment 3
Student-led discussion: Compare the strengths and limitations of quasi-experimental designs/ Peer evaluation of student-led discussion

Class 9 - Mar 19: Randomization and experimental designs

Assignment 3 Due: Quasi-experimental study design

Assigned reading:


In class activity: RCT
Student-led discussion: Present and discuss Assignment 3 (all)

Class 10 - Mar 26: Factorial experimental designs
Assigned reading:


Recommended:

**In class activity:** Introduce Assignment 4 / Mid-course feedback  
**Student-led discussion:** TBD

**** No class April 2, Spring Recess ****

**Class 11- Apr 9:** Peer review and responding to reviewers

**Assignment 4 Due: Experimental Study Design**

**Assigned reading:**


**Online resources:**
http://www.equator-network.org/library/guidance-on-scientific-writing/
http://www.cdc.gov/trendstatement/

**In class activity:** Peer review / Introduce Assignment 5  
**Student-led discussion:** Present and discuss Assignment 4 (all)

**Class 12- Apr 16:** Qualitative methods: Introduction and data collection

**Assignment 5 Due: Critique**

**Methods Section Due for Peer Review**

**Assigned reading:**


**In-class activity:** Interviews/ Discuss peer review assignment  
**Student-led discussion:** Present and discuss assignment 5 (all).
Class 13- Apr 23: Qualitative methods: Analysis

Written Peer Review Due

Assigned reading:


Warr DJ. (2005). “It was fun... but we don’t usually talk about these things”: Analyzing Sociable Interaction in Focus Groups. Qualitative Inquiry, 11(2), 200-225.


Recommended:
Sandelowski M, Barroso J. (2003). Writing the proposal for a qualitative research methodology project. Qualitative Health Research, 13(6), 781-820.

Online resource:
http://www.esourceresearch.org/eSourceBook/SoftwareandQualitativeAnalysis/1LearningObjectives/tabid/380/Default.aspx

In-class activity: Qualitative Analysis / Individual discussion of revisions based on peer review and questions
Student-led discussion: None

Class 14- Apr 30: Introduction to mixed methods

Assigned reading:


Online resources:
http://obsrr.od.nih.gov/scientific_areas/methodology/mixed_methods_research/section2.aspx

In class activity: Mixed methods study design
Student-led discussion: None

Class 15: May 7

Final Methods Section Due

In-class Presentations

FINAL EXAM- Date and time TBD