PUBH 754: Research Frameworks and Methods for Assessing and Improving Population Health
Spring 2017

**Class sessions:** Tuesdays, 2:00 – 3:15 pm

**Location:** MHRC 1001 (except for the first class on 1/17 – look for an email about class location!)

**Faculty:** Anna Schenck, PhD, MSPH, Professor of the Practice (anna.schenck@unc.edu)
Marie Lina Excellent, MD, MPH, Lecturer (marilina@live.unc.edu)

Office hours are available by appointment. To schedule an appointment with Dr. Schenck, please contact Chantal Donaghy: Donaghy@email.unc.edu. For an appointment with Dr. Excellent, contact her directly.

**Course Overview**
This is a 3-credit course designed to provide students with the fundamental research and analytic methods needed by public health leaders to assess the effectiveness, efficiency and equity of healthcare in order to improve population health. The focus will be on research skills needed by practitioners with the objective of improving health outcomes. This course is being taught in a hybrid fashion, and has both asynchronous and synchronous components. Students can watch on-line lectures and complete assigned activities prior to the session for which they are assigned. All students are expected to participate in the scheduled weekly class sessions, either in-person or online.

**Competencies:** This course is promotes development of the following MPH competencies identified by the Council for Education on Public Health:

- Apply epidemiological methods to the breadth of settings and situations in public health practice
- Select quantitative and qualitative data collection methods appropriate for a given public health context
- Evaluate policies for their impact on public health and health equity
- Select methods to evaluate public health programs
- Communicate audience-appropriate public health content, both in writing and through oral presentation

**Course Objectives:** At the end of this course, students will be able to:

1. Use conceptual models to illustrate public health issues and identify intervention opportunities
2. Understand how to identify and implement evidence based public health strategies
3. Identify public health measures and recognize characteristics of good measures and reliable sources for public health measures
4. Identify public health databases and be able to extract data relevant to public health practice questions
5. Define, critique and use study designs applicable for public health practice


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Supplemental Text (selected chapters will be required reading but you are not required to purchase the book):


Additional Readings: In addition to readings in the required text, this course will draw on readings selected from multiple sources. Readings will include methods-based materials and examples of the methods drawn from peer-reviewed literature. Reading required materials prior to class will be expected, as much of the class time will be spent discussing assigned materials. Please refer to the course Sakai site for the “official” list of reading assignments.

Assignments: In addition to completing assigned readings, students are expected to participate in three other types of assignments, each detailed below.

Assignments specific to your individual research topic: Students select a public health practice setting and topic to be the focus of their individual assignments throughout the course. Brief assignments will target different research skills, such as developing a problem statement, selecting appropriate measures, identifying and selecting appropriate interventions, assessing the impact of interventions. Assignments should be no more than one page in length. Written assignments should be submitted on the date indicated on the syllabus. Students should be prepared to discuss the assignment during class and engage in discussion of other student’s assignments.

Class discussion leader: Students are expected to lead the class discussion around an assigned article illustrating a research or analytic approach once during the semester. Sign up will take place during the first class period. As discussion leader, you will be expected to summarize the article and develop a few thought-provoking questions to lead the discussion. You should draw on the academic readings in developing the questions, which should address the research methods used in the article and the impact the methods have on the conclusions the authors make.

Final Project: Using a guide which I will provide, you will develop a structured abstract describing a study you propose and give a presentation to the class about your study. Your presentation and materials submitted to accompany the presentation will take the place of the final exam. This presentation will build on earlier assignments and cover a comprehensive plan to investigate a public health concern, identify potential solutions and a study plan to demonstrate the worth of the selected solution. Final projects will be due and presentations will be completed during the University assigned exam period for this class.

Attendance: Students are expected to attend and participate in every session. Because this class only meets once a week, any absence will result in missing a substantial amount of material. If you must miss a class session, please notify Dr. Schenck by email prior to the session.

Grades: Student evaluation will be based on four separate components:

1. **Class participation – 5%**
   
   Your grade for participation will be based on the following criteria: the extent to which you demonstrate you have read and thought about the readings, the extent to which you have thoughtfully completed the assignment, and the extent to which you demonstrate you can apply the concepts by making constructive suggestions and comments about other students’ assignments. I am more interested in the quality of your participation and comments than the quantity.

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2. **Written assignments based on your selected topic – 40%**
   Written assignments will be graded based on your demonstration of understanding of the research methods concepts covered in the assignment.

3. **Class discussion leader - 15%**
   Your grade for the session you lead will be based on the extent to which you can use the article to illustrate research design methods and concepts from the substantive readings and the extent to which you successfully engage students in the discussion.

4. **Final presentation - 40%**
   You will be given an outline to follow in preparing your presentation. Your grade will be based on the extent to which you demonstrate understanding and appropriate application of the course materials and the clarity of your presentation.

**Valuing Diversity**
Promoting and valuing diversity in the classroom enriches learning and broadens everyone’s perspectives. Inclusion and tolerance can lead to respect for others and their opinions, which is valuable in itself and is critical to maximizing the learning that occurs in this course. Therefore, this class follows principles of inclusion, tolerance, and respect for multiple and diverse points of view.

**The University of North Carolina Honor Code**
While the Instrument is continuously amended to address new circumstances and challenges, it remains the foundation of the system of student self-governance. The Instrument is available online.

For more than 130 years, Carolina students have pledged not to lie, cheat, or steal. Students enjoy a great deal of freedom at Carolina and have been entrusted to hold each other accountable for maintaining a just and safe community. As such, students hear and decide all alleged cases of conduct and academic integrity violations.

**About the Honor Code**
The Honor Code is the heart of integrity at Carolina. In brief, the Honor Code says that all students shall "Refrain from lying, cheating, or stealing," but the Honor Code means much more. It is the guiding force behind the students' responsible exercise of freedom, the foundation of student self-governance here at UNC-Chapel Hill. The University maintains an Honor Code because we believe that all members of our community should be responsible for upholding the values that have been agreed upon by the community. A written Honor Code is an affirmation of our commitment to high standards of conduct inside and outside of the classroom.

The Honor Code is found in a document known as the Instrument of Student Judicial Governance. The Instrument is the University's official document containing the rules and regulations that guide the Honor System. The list of prohibited conduct and the possible sanctions given by the Honor Court can all be found in the Instrument. This document also includes information on the rights and responsibilities of all members of our community to the Honor System and under the Honor System.

**IMPORTANT REMINDER:** The Final Project must have the honor code pledge on the cover page or last page. Assignments submitted without the honor code pledge will not be graded.

**Honor Code Pledge:** "By including this sentence, I acknowledge that I understand that the Honor Code applies to this assignment and that further, I attest that I have neither given nor received help in completing this project."

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## Course Schedule at a Glance

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<thead>
<tr>
<th>Date</th>
<th>Session Number</th>
<th>Topic</th>
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<tbody>
<tr>
<td>January 17</td>
<td>1</td>
<td>Class overview and expectations</td>
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<td></td>
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<td>Research paradigms and ethics for public health research</td>
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<tr>
<td>January 24</td>
<td>2</td>
<td>Frameworks and models for public health research</td>
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<td></td>
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<td>Developing a problem statement for a public health issue</td>
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<td>January 31</td>
<td>3</td>
<td>Identifying and prioritizing public health interventions</td>
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<td></td>
<td></td>
<td>Dimensions of effectiveness and equity</td>
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<td>February 7</td>
<td>4</td>
<td>Measuring public health outcomes and conditions that influence them</td>
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<tr>
<td>February 14</td>
<td>5</td>
<td>Validity, obstacles to accuracy and alternative explanations</td>
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<tr>
<td>February 21</td>
<td>6</td>
<td>Study designs with no control group or no pretests</td>
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<tr>
<td>February 28</td>
<td>7</td>
<td>Study designs with both control groups and pretests</td>
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<tr>
<td>March 7</td>
<td>8</td>
<td>Interrupted time series designs</td>
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<tr>
<td>March 14</td>
<td>NO CLASS</td>
<td>SPRING BREAK</td>
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<tr>
<td>March 21</td>
<td>9</td>
<td>Regression discontinuity designs</td>
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<td>March 28</td>
<td>10</td>
<td>Randomized experiments</td>
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<tr>
<td>April 4</td>
<td>11</td>
<td>Qualitative study designs and methods</td>
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<td>April 11</td>
<td>12</td>
<td>Using secondary data</td>
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<td>April 18</td>
<td>13</td>
<td>Collecting primary data and addressing practical research problems</td>
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<tr>
<td>April 25</td>
<td>14</td>
<td>Dimensions of efficiency</td>
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<td>Methods for assessing efficiency</td>
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<td>Final Exam</td>
<td>Noon – 3pm</td>
<td>Communicating your study plan</td>
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<tr>
<td>May 8</td>
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<td>Final exam - Student Presentations</td>
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<td>This is the University assigned exam time and cannot be changed</td>
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<td>Look for announcement regarding location of exam.</td>
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Week by week

**Week 1 -- Course overview, research paradigms and ethical concerns for public health research**

Objectives – After this session, students will:

1. understand the course content and expectations,
2. be able to compare different research paradigms and analytic approaches used in public health,
3. understand ethical principles of public health and how to conduct ethical public health research,
4. be able to distinguish public health research and public health non-research.

**Required Readings:**

Read the UNC Honor Code, available at [http://instrument.unc.edu/](http://instrument.unc.edu/)


**Week 2 – Frameworks and models for public health research and developing a problem statement**

Objectives – After this session, students will be able to:

1. compare different frameworks for assessing public health.
2. understand how to use conceptual models to in research and practice.
3. understand the steps of evidence-based public health.
4. quantify a public health issue.
5. write a problem statement for a public health issue.

**Required Readings:**


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Assignment A: Select a public health topic and role and develop a problem statement (see assignment list).

Week 3 – Identifying and selecting an intervention for study and dimensions of effectiveness and equity

Objectives – after this session, students will:

1. understand evidence-based public health,
2. be able to identify evidence based public health approaches to public health.
3. understand analytic approaches useful to evaluate effectiveness.
4. understand analytic approaches useful to evaluate equity.

Readings:


Assignment B: Selecting an EBPH intervention (see assignment list).

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Resources:

See the Annotated Evidence Based Public Health Resource Guide, located in the Resources section of Course Documents on the sakai site.

See Tables B1 and B-2 in:


Week 4 – Measuring public health outcomes and the conditions that influence them

Objectives – after this session, students will be able to:

1. understand desirable characteristics of measures,
2. identify recognized sources of measures and performance measurement systems,
3. understand the role of benchmarking and appropriate comparisons.

Readings:


Assignment C: Measurement for your topic of study (see assignment list).
Week 5 -- Validity, obstacles to accuracy, alternative explanations

Objectives – after this session, students will:

1. understand internal, construct and external validity,
2. understand threats to validity,
3. know methods to strengthen study validity.

Required Reading:


Assignment D: Understanding validity issues important to your topic of study (see assignment list)

Week 6 – Study designs without control groups or pretests

Objectives – after this session, students will:

1. understand non-experimental study designs used in public health (observational studies without pretests or control groups).
2. understand the advantages and disadvantages of these study designs.

Required Readings:

Chapter 4. Quasi-experimental designs that either lack a control group or lack a pretest observations on the outcome (pp. 103-134), in Shadish WR, Cook TD, Campbell DT. Experimental and quasi-experimental designs for causal inference, Houghton Mifflin Company, NY, 2002.

Illustrative articles:


**Week 7 – Study designs with control groups and pretests**

Objectives – after this session, students will:

1. understand observational studies with pretests and control groups,
2. understand the advantages and disadvantages of these study designs,

**Required Readings:**


Illustrative articles


**Week 8 – Interrupted time series study designs**

Objectives – after this session, students will:

1. understand interrupted time series study designs,
2. understand the advantages and disadvantages of these study designs.

**Required readings:**


Assignment E: First study design assignment (see assignment list)

NO CLASS ON 3/7/2017 - HAVE A GREAT SPRING BREAK!!!

Week 9 – Regression discontinuity designs

Objectives – after this session, students will:

1. understand regression discontinuity study designs and when use of them is appropriate;
2. understand the advantages and disadvantages of these study designs

Required readings:


Illustrative articles:


Week 10 – Randomized experimental designs

Objectives – after this session, students will:

1. recognize situations when randomized experiments are and are not appropriate;
2. understand the advantages and disadvantages of these study designs

Required reading:


Illustrative articles:


**Week 11 – Qualitative study designs and methods**

Objectives - after this session students will:

1. understand differences between qualitative and quantitative methods and the contributions of each,
2. distinguish 5 different qualitative approaches for research,
3. understand the appropriate uses of qualitative research.

**Required Readings:**


Illustrative Articles:


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Assignment F: Second study design assignment (see assignment list)

Week 12 – Using secondary data

Objectives – after this session, students will:

1. be able to identify and use public health data sources (surveillance),
2. understand potential and limitations of secondary data sources,
3. be able to identify secondary data sources for use as an alternative to or in supplement to primary data sources.

Readings:


Illustrative Articles:


Resources:

See the Annotated Evidence Based Public Health Resource Guide, located in the Resources section of Course Documents on the sakai site.

See Tables B1 and B-2 in:

**Week 13: Collecting primary data and practical problems in research**

Objectives – after this session, students will:

1. understand how to use questionnaires and interviews to gather data,
2. understand how to use observation, focus groups and interviews to gather data,
3. identify ways to solve practical problems in research.

**Required Readings:**


**Illustrative articles:**


**Assignment G**: Data gathering assignment (see assignment list)

**Week 14 – Dimensions of efficiency and approaches for evaluating efficiency**

Objectives – after this session, students will:

1. understand cost effectiveness, cost benefit, cost utility approaches to evaluating efficiency,
2. identify appropriate uses of efficiency measures.
Reading:


Illustrative articles:


Assignment H: Efficiency assignment (see assignment list).