Mel and Enid Zuckerman College of Public Health  
University of Arizona  

SYLLABUS  
CPH609 Evaluating the Public Health Literature  
FALL 2019  

Time:  Friday 1:30-2:20 pm  

Location:  Drachman A122  

Instructors:  
Dr David Marrero, Drachman A252, 1295 Martin Ave, Tucson AZ 85724, 626-3981  
dgmarrero@email.arizona.edu  

Dr. Scott Caravajal, Drachman A254, 1295 Martin Ave, Tucson AZ 85724, 626-9026  
carvajal@email.arizona.edu  

Office Hours:  By appointment  

Catalog Description:  Concepts for the critical analysis of the scientific literature within public health and medicine are reviewed. Topics include understanding research progression and impact, study design, research methodology and philosophies of science, statistical and causal inference, and the accurate presentation of results.  

Note: This seminar requires work outside of class and active class participation for success.  

Course Overview:  The importance of being a thoughtful and critical consumer of research publications cannot be overstated. Public health researchers and practitioners need to be voracious reviewers and evaluators of the range of public health literature. This seminar emphasizes the critical review and analysis of published articles analyzing primary data. Through a series of activities and presentations by faculty and students, course participants will develop and expand the knowledge and skills necessary for critical evaluation of the public health literature.  

Course Prerequisites:  Fall semester: admission to MEZCOPH doctoral program or permission of course director.  

Course Learning Objectives:  At the end of the course students will:  
1. Know the PhD and DrPH students who entered the College with them.  
2. Identify and evaluate scientific journals in your area of study—the literature they represent, dissemination reach, and ways to gauge impact.  
3. Know how to comprehensively explore topics through the literature.
4. Know how to dissect a paper, explore unknown methods, verify the author’s interpretation of cited literature and utilize the references to expand knowledge of a topic.

5. Identify and critique the underlying research question a dissemination study seeks to address and the underlying assumptions of the study’s research approach or paradigm it represents.

6. Determine whether provided and cited data address the purpose of the paper and support the conclusions drawn.

7. Assess whether the author placed the results of the study in the context of what is known on the topic while adequately addressing the strengths and weaknesses of the work.

8. In summary, conduct a systematic review of an article reporting the results of a primary research study with an emphasis placed on evaluating the strength of evidence, the potential biases and implications for future public health science study and application.

9. If possible, seminar participants will be invited to complete a “real” review for a research study that is seeking publication.

**Doctoral Programs of the College and Competencies:** The College accrediting body (CEPH) requires each program to identify a set of skills or competencies that should be attained by students participating in the program. This course helps develop skills useful in each of the programs (see examples below).

**Doctorate in Public Health** The DrPH is an advanced, professional degree program designed for the student who has a Master of Public Health (MPH) degree or its equivalent and who intends to pursue a leadership career as a public health professional. The DrPH program is unique as it focuses on developing future leaders in public health practice, who will advance the public’s health through the integration and application of a broad range of knowledge and analytical skills in leadership, practice, policy analysis, research, program management and professional communication. Areas of the DrPH in our College and represented independently in this course are Maternal and Child Health & Public Health Policy and Management. Sample DrPH competencies addressed:

- Apply the foundations of public health to decisions regarding public health programs and policies.
- Develop appropriate approaches to addressing public health issues.
- Communicate effectively with community members.
- Identify and distribute sources of funding for public health activities.
- Integrate evidence-based strategies to enhance public health services.

**PhD Biostatistics.** This PhD has an emphasis on the foundations of statistical reasoning and requires its graduates to complete rigorous training in applied probability and statistical analyses. This program prepares students who have demonstrated excellence in mathematics and the sciences to become research biostatisticians in academia, industry, or government. Sample competencies addressed:

- Communicate understanding of the assumptions necessary for a given statistical procedure as well as the ability to determine if the assumptions are met for a given data set.
- Demonstrate the ability to communicate effectively in writing reports, giving oral presentations, and teaching basic statistical material in a formal classroom setting.

**PhD Epidemiology.** This degree trains individuals for careers in research and teaching in academic settings, research institutes, government agencies and industry. It has been designed for students whose careers will focus on conducting investigator-initiated and collaborative epidemiologic research. Competencies addressed include:

- Judges, critiques, synthesizes, and interprets research findings.
Develops a critical review of the literature.
Organizes and delivers clear oral presentations of research findings or health issues in varying professional formats.
Teaches epidemiological and/or biostatistical concepts in seminar, discussion groups, and the classroom.
Engages competently, respectfully, and professionally with others, including persons from diverse backgrounds.
Evaluates the integrity, comparability of data, and limitations of data.
Makes relevant inferences from data analyses and interprets results in a broader public health context.
Understands and applies guidelines to support the principles of causality.

**PhD Environmental Health Sciences.** This degree provides field, classroom and laboratory experiences to incoming students with highly varied backgrounds. This health focused program builds on an extensive array of basic sciences, from climate change to toxicology. The program develops leaders for industry, government and academia, committed to research, education and the practice of environmental health sciences. Sample of addressed competencies include:

- To comprehensively review and evaluate the scientific data, and gather and/or analyze preliminary data to develop testable hypotheses, study design(s) and research assessment protocol(s).
- To develop effective external written and oral communication skills for use with the public, government, and other professionals.
- To develop critical thinking and evaluation skills.

**PhD Health Behavior Health Promotion.** This degree has an emphasis on the biological, behavioral, and socio-cultural determinants of health and health behavior, and the interventions and policies aimed at improving community and population health. The PhD program includes instruction in behavioral sciences, public health practice and policy, human services, and research methods. The doctoral program will offer a diverse and challenging curriculum that addresses health behavior health promotion theory, knowledge/skills in working on health issues within the diverse communities of the Southwest US, mixed qualitative/quantitative research methods, statistics, and grant development skills. Competencies addressed include:

- Identifying theories, concepts and models from a range of social and behavioral disciplines that guide health behavior health promotion research.
- Identifying social, behavioral, biological, cultural and environmental influences, and posit their intersections, that affect healthy lifestyle and wellness of individuals and populations.
- Describing evidence gaps in the research literature on individual and societal benefits of health behavior health promotion interventions and policies.
- Conceptualizing and applying evidence-based approaches to develop, implement or evaluate theory-based health behavior health promotion interventions.
- Conceptualizing novel mixed method (qualitative and quantitative) studies to better clarify, model or address a current health behavioral research challenge.
- Executing (from planning, implementation, data collection, analysis, presentation of results, interpretation within the field) peer-review publication quality health behavioral studies.

**Recommended Texts/Readings:** Readings will be posted on D2L.

**Course Requirements**

**Class format:** In-class activities will include structured discussions of articles selected for review. A thorough engagement with the pre-assigned reading (available through D2L) is an essential
component of successful in-class participation. Therefore, students are expected to be prepared to provide thoughtful commentary regarding the assigned reading.

In the initial sessions of this seminar, faculty from the various sections (or disciplinary areas) of public health will assign an article for course participant review. The faculty member will lead a structured review and critique of the article during class. Students must be prepared to contribute to the discussion. Additional materials relevant to the topic or the discipline may also be required and discussed in these sessions.

**Assignments:** Assignments will include individual and group-led reviews of selected public health articles.

- **Individual assignments:** For each session, at least one public health article will be assigned. Students should come to class 1) prepared to discuss the article and 2) submit (via Dropbox on D2L) three critical statements relevant to the article and discussion. These should include 1) an evaluative comment about a strength of the study; 2) a limitation or weakness about the study; and 3) a theme/question for discussion. The statements can be as brief as one complete sentence for each. These are required for each article presentation day except on the day of your group presentation.

- **Group assignments:** students will be in groups of 3~4 and asked to conduct a structured review of a public health article. Each participant will present their critique of the article’s introduction, methods, results, conclusions and providing an overall summary. The class will act as editors and decide if the article should be published, suggest modifications to improve it or reject it. Grades will determined by the course director based on the overall quality and depth of the presentation.

- **Final self-assessment:** at the end of the semester you will submit a 2 page self-assessment. This will reflect: differences in your orientation to critiquing the literature from the start to end of class; skills gained and further research skills or expertise you seek to acquire in the course of your professional development; and, aspirational journals for your own work or those you will most closely follow as you progress in your career as a public health scientist.

**Evaluation Grading:** The seminar is graded A, B, C, D, and E. Attendance and oral participation is the basis for 25% of the grade; pre-class submission of evaluative statements of individual articles is the basis for 25% of the grade; the group assignment is the basis for 25% of the grade; the final self-assessment is the basis for 25% of the grade. The grading scale is:

- A = 90 – 100%
- B = 80 – 90%
- C = 70 – 80%
- D = 65 – 69%
- E = 0 – 64%

**Absence and Class Attendance/Participation:** You are expected to attend the seminars and contribute to discussion. *Use of a cell phone or computer for anything other than seminar material will result in a 0 for attendance points.* Late assignments will not be accepted. The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, [http://policy.arizona.edu/human-resources/religious-accommodation-policy](http://policy.arizona.edu/human-resources/religious-accommodation-policy). Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored, [http://deanofstudents.arizona.edu/](http://deanofstudents.arizona.edu/)
<table>
<thead>
<tr>
<th>Week</th>
<th>Date*</th>
<th>Title</th>
<th>Facilitator</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 30</td>
<td>Follow up from orientation and introduction to the seminar’s objectives</td>
<td>David Marrero</td>
<td>Syllabus</td>
</tr>
<tr>
<td>2</td>
<td>September 6</td>
<td>Quantitative research considerations in health promotion research</td>
<td>Scott Carvajal</td>
<td>MacKinnon; Steckler &amp; McLeroy. (no written critique due but be prepared to discuss)</td>
</tr>
<tr>
<td>3</td>
<td>September 13</td>
<td>Qualitative Research</td>
<td>David Marrero</td>
<td>Thomas J, Harden A, 2008</td>
</tr>
<tr>
<td>4</td>
<td>September 20</td>
<td>Faculty led article critique, Biostats</td>
<td>Denise Roe</td>
<td>Becofsky et al. <a href="https://academic.oup.com/aje/article/181/5/311/195235">https://academic.oup.com/aje/article/181/5/311/195235</a></td>
</tr>
<tr>
<td>5</td>
<td>September 27</td>
<td>Faculty led article critique, EPI</td>
<td>Robin Harris</td>
<td>Readings TBA</td>
</tr>
<tr>
<td>6</td>
<td>October 4</td>
<td>Faculty led article critique, environmental health sciences</td>
<td>Melissa Furlong</td>
<td>Sung et al. <a href="https://academic.oup.com/aje/article/181/5/327/194905">https://academic.oup.com/aje/article/181/5/327/194905</a></td>
</tr>
<tr>
<td>7</td>
<td>October 11</td>
<td>Faculty led article critique, systematic review</td>
<td>Purnima Madhivanan</td>
<td>Chalmers</td>
</tr>
<tr>
<td>8</td>
<td>October 18</td>
<td>Faculty led article critique, Health Behavior</td>
<td>Patricia Haynes</td>
<td>Bonuck KA, #1 Et Al &amp; Bonuck KA, #2 Et Al</td>
</tr>
<tr>
<td>9</td>
<td>October 25</td>
<td>Reviewing papers for journals</td>
<td>Scott Carvajal</td>
<td>A process for reviewing papers</td>
</tr>
<tr>
<td>11</td>
<td>November 2</td>
<td>Student led reviews</td>
<td>Group 1</td>
<td>Paper to be assigned</td>
</tr>
<tr>
<td>12</td>
<td>November 9</td>
<td>Student led reviews</td>
<td>Group 1</td>
<td>Paper to be assigned</td>
</tr>
<tr>
<td>13</td>
<td>November 16</td>
<td>Student led reviews</td>
<td>Group 3</td>
<td>Paper to be assigned</td>
</tr>
<tr>
<td>14</td>
<td>November 23</td>
<td>Thanksgiving holiday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>November 30</td>
<td>Final assignment, 2 page reflection due 3:00PM</td>
<td>Group 4</td>
<td>Paper to be assigned</td>
</tr>
</tbody>
</table>

* changes will be announced in D2L. Self-assessment due on regularly scheduled time/day of the class.
Disability Accommodations:
It is the University’s goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately, so that we can discuss options. You are also welcome to contact the Disability Resources (520-621-3268) to establish reasonable accommodations (as it is very important that you be registered with the DRC). For additional information on Disability Resources and reasonable accommodations, please visit http://drc.arizona.edu/students

Code of Academic Integrity
Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercise must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity, available through the office of the UA Dean Students: http://deanofstudents.arizona.edu/policies-and-codes/code-academic-integrity

Classroom Behavior: (Statement of expected behavior and respectful exchange of ideas: Present policies to foster a positive learning environment, including use of cell phones, mobile devices, etc.). Students are expected to be familiar with the UA Policy on Disruptive Student Behavior in an Instructional Setting found at: http://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting

Threatening Behavior Policy: The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to one’s self, http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students

Nondiscrimination and Anti-harassment Policy:
The University of Arizona is committed to creating and maintaining an environment free of discrimination, http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

UA Smoking and Tobacco Policy:
The purpose of this Policy is to establish the University of Arizona’s (University) commitment to protect the health of University faculty, staff, students, and visitors on its campuses and in its vehicles, http://policy.arizona.edu/ethics-and-conduct/smoking-and-tobacco-policy

Syllabus Changes: Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.