

PUBH 751: Critical Appraisal of the Health Literature

Mondays 1:25-3:05 pm

McGavran-Greenberg Hall, Room 2308

Instructors:

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Required Text:

Epidemiology: An Introduction 2nd edition Kenneth J. Rothman

This is a 2-credit course; there will also be a follow-up 1-credit critical appraisal course in the spring. The course is meant to complement the introductory epidemiology, biostatistics, and prevention courses.

It is absolutely essential that each week's readings be done before class, including relevant background methodologic papers or book chapters. It is also essential to critically appraise 1 article (as assigned) for each class and to complete the structured critical appraisal template prior to class.

The class will be taught via lecture and group discussion format. The class sessions will begin with interactive lectures on relevant methodologic issues. We will then typically break up into 3 or 4 smaller groups to discuss an article, similar to a journal club. The group discussion will involve the structured critical appraisal template that includes data from the study as well as your own judgment. The idea is to develop a systematic approach to critical appraisal that you can use now and into the future. [No approach will be good forever; the science of critical appraisal will likely change and evolve over the years, just as any other science.]

Among the key goals of the course are for you to develop your eye for seeing potential biases, flaws, and positive aspects of studies, assessing their importance, and improving your judgment at determining what level of certainty to attach to the results of the study, and how it should be interpreted. These skills take time to develop – we hope you will continue to use them over time, including in your Master's Paper and beyond.

Critical appraisal is an important skill that requires (1) a thorough understanding of epidemiology and biostatistics; (2) the patience to read a study carefully, determining the degree to which its results are threatened by bias and/or random error; and (3) the judgment to determine the certainty of the information from the study - the degree to which its results are not explained by bias and/or random error and are applicable to the situation at issue. Critical appraisal is not a simple exercise in classifying studies into either “right” or “wrong”, “good” or “bad”. Each study’s results must be interpreted in the context of other information bearing on the question addressed.

More than a skill, though, critical appraisal is a way of thinking, a general approach to health, health care, and the health literature. It teaches us to start with a skeptical attitude, to analyze rigorously, yet to finally look for what we can learn from each study. It would be easy if we simply rejected every study that wasn’t perfectly done. It would be easy if we simply accepted every study at face value. What is harder is what we are trying to attain here – a balanced view that puts a rigorous skeptical analysis together with our need to make real decisions in the real world, to learn what we can from every opportunity: “rigor without rigor mortis”.

General Learning Objectives:

At the end of this course, students should be able to:

1. Discuss the idea of critical appraisal;
2. Use critical appraisal in their Master’s Papers;
3. Critically assess the magnitude and direction of systematic error (bias) and random error (precision) in individual studies in the health literature;
4. Separate higher from lower certainty information within the study;
5. Combine the information from several studies (and from other types of evidence) to gain the best current understanding of what the evidence says;
6. Wisely decide when it is appropriate to extrapolate beyond the evidence to make reasonable decisions to improve the health of individuals and populations;
7. Make appropriate use of evidence together with other considerations in making optimal decisions to improve the health of individuals and populations.

Grades: (we expect everyone to do well)

1. 60% of the grade is from in-class participation in each class (including, when appropriate, accurately completing the “critical appraisal template” for the study to be discussed).
 - a. Note: evaluation of participation is not based entirely on the volume of comments made by a student. Excellent participation also involves the quality of comments, including their thoughtfulness and the degree to

which they demonstrate that the student has not only done the expected reading but has also gone beyond this to read and think more deeply.

2. 40% of the grade is from a “Final Exam”. An article will be distributed 1-2 weeks before the end of the class. The assignment is to write a 3 page (maximum) critical appraisal of the article, due at the beginning of the last class. (We will discuss the article during the last class.)

To be considered for Honors, a student must score exceptionally well on the critical appraisal final exam, and also participate at a level beyond that expected for all students on a regular basis throughout the class.