

Epidemiology Literature Review & Critique  
PHC 7901 – 1 credit  
Fall 2022  
Fridays 9:35–10:25am  
CTRB 4230C

**Instructor Information**

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Office Hours: Email me to set up a meeting time (virtual office hours can also be arranged if preferred)

**Course Overview**

The principal goals of this Epidemiology Literature Review and Critiques are:

- 1) To evaluate published research in order to recognize current methods and concepts used in the field of epidemiology
- 2) To prepare students to perform peer-review and to think critically about research publications. In weekly class discussion sessions, students will review peer-reviewed, published research studies that demonstrate innovative or faulty epidemiologic content or methods. Feedback will be given by student peers and faculty.
- 3) To compose, submit and publish a critical review of a recent article in the student's area of focus

**Course Objectives and/or Goals**

As a result of this course, students will:

- 1) Learn “best practices” for reviewing and critiquing scientific articles in public health and medical research journals
- 2) Critically review scientific literature, analyze and summarize strengths and weaknesses, and make recommendations for improvement
- 3) Critique articles recently published in medical and public health journals
- 4) Discuss broad issues in Epidemiologic methods and content
- 5) Become familiar with journals in our field, impact factors, how to choose a journal, and how reviewers are selected
- 6) Understand ethical issues in field methods and in the review process
- 7) Prepare for professional peer-review assignments
- 8) Compose and submit a letter to the editor

**Course Materials**

Course information and grades will be available in Canvas.

## Textbook

There is no required textbook for this course. Students will select articles for review and prepare for in-class discussion.

Additionally, several journal articles and web sites are assigned as supplements:

- 1) Bauer, L. (2015). 5 Tips for Journal Club First-Timers. NIH I am Intramural Blog. <https://irp.nih.gov/blog/post/2015/03/5-tips-for-journal-club-first-timers>
- 2) Roediger III, H. L. (2007). Twelve tips for reviewers. APS Observer, 20(4). <http://www.psychologicalscience.org/index.php/publications/observer/2007/june-july-07/twelve-tips-for-authors.html>
- 3) Golub, R. M. (2008). Correspondence course: tips for getting a letter published in JAMA. JAMA, 300(1), 98-99. <http://jama.jamanetwork.com/article.aspx?articleid=182156>
- 4) Peh, W. C., & Ng, K. H. (2010). Writing a letter to the Editor. Singapore Med J, 51(7), 532-5. <http://smj.sma.org.sg/5107/5107emw1.pdf>
- 5) New England Journal of Medicine Letters to the Editor: <http://www.nejm.org/page/author-center/letter-submission>

## Course Requirements

Each student will be required to complete three main assignments:

1. **Letter to the editor (20%)**: Select an article, with instructor's approval, for the letter to the editor and discussion leader (see #2 below). The students will choose an article to demonstrate a specific study design (Cross-sectional design, Quasi- or Randomized designs, Reliability and Validity, Randomized Controlled Trial, Longitudinal designs, Case-Control designs) within a specific topic area/discipline of interest to the student. The article needs to be from a top tier journal (e.g., JAMA, New England Journal of Medicine, AJPH, Archives of XYZ or other high impact journal in the field) and a journal that accepts and publishes letters to the editor. Articles must be recent enough to be eligible for a letter to the editor. Please pay attention to the timeline for publishing letter to the editor, which differs from journal to journal. Letters to the editor will be submitted to the journal before the end of the UF final exam period; proof of submission will be needed for assignment credit.
2. **Journal Article Discussion Leader (30%)**: One week prior to leading the discussion, the student will send the article to be discussed to students and the instructor. The student who is leading will create and submit a written guide for leading the discussion and submit that guide, along with a draft of their letter to the editor, 24 hours before class. The guide should include at least one article-specific question or discussion point that addresses each section of the paper, including 1) the article title, authors, affiliations of the authors, 2) funding source for the work conducted, 3) abstract, 4) background, 5) methodology, 6) results discussion of the research regarding strengths and weaknesses noted by the authors. The student will begin the discussion with a brief overview of why they chose the paper, and then will lead the discussion using the discussion guide. All students will

contribute to the discussion, and the discussion leader may call on students for their input. Based upon feedback from other students and/or the instructor, the letter to the editor will be revised after the class discussion.

3. **Assignments (20%)**: For each journal article discussion, students will write a one to two page critique (1.5 spaced, 11 point Arial font) with a brief background and discussions of the appropriateness of the methods and interpretation of results. A critique is an analysis and assessment of the article, and thus may focus on both positive aspects of the article as well as those aspects that could be strengthened. Students will also complete a mock manuscript review to compare with a real manuscript review.
4. **Letter to the editor review (20%)**: Students will provide substantive and actionable feedback on each other's draft letter to the editor. This will occur each week that there is a journal article discussion. Feedback is due the day before the journal article discussion.
5. **Participation in discussions and activities (10%)**: Students are expected to attend all classes in person and participate in class activities. Please refer to the grading rubric below for detailed tasks.

## Study Analysis and Critique – Supplement: Important Considerations for Each Study Part

<p><b>Authors/Introduction</b></p> <ul style="list-style-type: none"> <li>▪ If potential conflicts of interest exist, did they appear to influence the study's objective, methods, or conclusions?</li> <li>▪ Was an appropriate scientific background and rationale provided?</li> <li>▪ Is the stated objective or hypothesis consistent with the research question that needed to be addressed?</li> </ul>	<p><b>Methods (Continued)</b></p> <p><b>Data Handling</b></p> <ul style="list-style-type: none"> <li>▪ Was it clear how many patients were in each analysis? Did the data handling method used significantly affect interpretation of study findings?</li> <li>▪ Was the number of patients accounted for at each step of the study? Could the reasons for dropout affect the clinical usefulness of therapy?</li> </ul> <p><b>Statistics</b></p> <ul style="list-style-type: none"> <li>▪ Were appropriate statistical tests used for all primary outcomes? Were secondary outcomes analyzed appropriately?</li> <li>▪ Was power appropriate for all primary and secondary outcome analyses, considering dropouts? If subgroup analyses performed, was power sufficient?</li> </ul>
<p><b>Methods</b></p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>▪ Is study design appropriate and optimal to fulfill objective/hypothesis?</li> <li>▪ Was method used to assign patients to treatment groups appropriate and clearly described?</li> <li>▪ Were all involved with study appropriately blinded? Was success of blinding determined? Was unblinding likely?</li> </ul> <p><b>Patients/Subjects</b></p> <ul style="list-style-type: none"> <li>▪ Were there any problems with how or from where patients were enrolled?</li> <li>▪ Were the inclusion and exclusion criteria appropriate and representative of the population of interest? What additional criteria, if any, would have strengthened the study?</li> <li>▪ How was sample size determined? Was the initial sample size adequate for each primary outcome measure?</li> </ul> <p><b>Treatment Regimens</b></p> <ul style="list-style-type: none"> <li>▪ If an active control used, was it an appropriate selection?</li> <li>▪ Were the study drug(s) and any active control(s) dosed and administered appropriately and in a comparable manner?</li> <li>▪ Were the drug(s) administered for a sufficient duration?</li> <li>▪ Were the different groups handled similarly except for treatments studied?</li> </ul> <p><b>Outcome Measures</b></p> <ul style="list-style-type: none"> <li>▪ Were primary and secondary outcome measures clearly defined? Were any methods needed to enhance their quality (e.g., training of investigators or patients, standardization among multicenter sites, etc.) and were these performed?</li> <li>▪ Were outcome measures appropriate and optimal given the study objective?</li> <li>▪ Was timing of outcome measurements appropriate and of adequate frequency and duration?</li> </ul>	<p><b>Results</b></p> <ul style="list-style-type: none"> <li>▪ Were any significant differences apparent among groups at baseline that could influence study results?</li> <li>▪ Were results reported for each measure described in Methods section?</li> <li>▪ Were the measure(s) of variability used appropriate and sufficient?</li> <li>▪ Were findings statistically and clinically significant?</li> <li>▪ Was Type II error likely for non-statistically significant findings?</li> <li>▪ Was compliance addressed and could this have influenced study results?</li> <li>▪ Were there factors (e.g., study setting, diet, other confounding variables) besides the treatments used that could have affected the results observed? If so, were they accounted for or controlled for in the study?</li> <li>▪ Were differences in adverse effects among groups statistically analyzed?</li> </ul> <p><b>Discussion/Conclusion</b></p> <ul style="list-style-type: none"> <li>▪ Were results interpreted appropriately by authors?</li> <li>▪ Did authors adequately explain key study limitations and any discrepancies from other similar studies?</li> <li>▪ Were authors' conclusions consistent with the results and study limitations and extrapolated appropriately?</li> </ul>

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Rubric for Discussion Leader (20 pts)	Discussion leader preparation and evaluation elements	Weight (%)	Student Score
Knowledge and explanation of subject matter:	<ul style="list-style-type: none"> <li>• Conveys <i>big picture</i> understanding</li> <li>• Presents the essential information</li> <li>• Is able to provide an accurate description of and respond to questions about facts, procedures, hypotheses, etc.</li> </ul>	20% of the course grade	N/A
Introduction	<ul style="list-style-type: none"> <li>• Has reviewed the authors of the paper and their conflicts of interest, who funded the study</li> <li>• Leads a discussion about the central question addressed by the paper, <i>and</i> its significance</li> <li>• Can provide sufficient background needed to understand the results</li> </ul>	5	
Methods	<ul style="list-style-type: none"> <li>• Gives information necessary to understand results</li> <li>• Can discuss experimental flow/approach if appropriate</li> </ul>	5	
Summary/Conclusions/Q&A	<ul style="list-style-type: none"> <li>• Guides students to reiterate key findings</li> <li>• Can discuss key findings in terms of relevance to past literature</li> </ul>	5	
Overall organization of discussion	<ul style="list-style-type: none"> <li>• Introduces content/guides discussion in logical, easy-to-follow sequence</li> <li>• Keeps the discussion flowing by posing questions to students</li> </ul>	5	
	<b>Total</b>	20	

<b>Rubric for Letter to the Editor (30 pts)</b>	<b>Elements of a strong letter</b>	<b>Weight (%)</b>
Knowledge and explanation of subject matter:	<ul style="list-style-type: none"> <li>• conveys <i>big picture</i> understanding</li> <li>• presents the essential information</li> <li>• accurate description of facts, procedures, hypotheses, etc.</li> </ul>	30% of the whole grade
Clarity of argument (strengths or weaknesses)	<ul style="list-style-type: none"> <li>• introduces content in logical, easy-to-follow sequence</li> <li>• emphasizes main points and repeats them</li> </ul>	15
Overall effectiveness of delivery	<ul style="list-style-type: none"> <li>• uses epidemiological terms</li> <li>• proper English and grammar</li> </ul>	15
	<b>TOTAL</b>	30

<b>Rubric for Participation (20 pts)</b>	<b>Responsibilities/tasks to complete</b>	<b>Weight (%)</b>
Participation in discussions and activities	<b>Contribute to class discussions and activities as detailed below</b>	<b>10% of the whole grade</b>
	• Attends class consistently and on time	10
	• Provides substantive comments that further the class discussion of the article	10
	<b>TOTAL</b>	20

### **Evaluation/Grading**

This course will be graded satisfactory/unsatisfactory following the policies described here <http://gradcatalog.ufl.edu/content.php?catoid=2&navoid=762#grades>.

All scores will be added up and those that fall below 80% will be considered U (unsatisfactory). It is possible to receive a grade of Incomplete (I) with instructor permission and at instructor discretion for unforeseen circumstances, but it must be requested by the student. Grades of I not completed within one year are converted to F or U.

## Course Outlines

- 8/26 Introduction and overview
- Course overview
  - *Example of Article of the week:*  
<https://jamanetwork.com/journals/jama/fullarticle/2794565>
  - How to access journals
  - Impact Factors
  - Metrics
- 9/2 Ethical issues in scientific research and publishing
- 9/9 No in-person class – course content will be provided online
- How to write a Letter to the Editor
- 9/16 Journal article discussion #1 and #2 (assignment due)
- 9/23 Journal article discussion #3 and #4 (assignment due)
- 9/30 The review process from an editor’s perspective
- 10/7 Homecoming holiday - No class
- 10/14 Journal article discussion #5 and #6 (assignment due)
- 10/21 Journal article discussion #7 and #8 (assignment due)
- 10/28 Journal article discussion #9 and #10 (assignment due)
- 11/4 Journal article discussion #11 and #12 (assignment due)
- 11/11 Veteran’s Day Holiday – No Class
- 11/18 Journal article discussion #13 and #14 (assignment due)
- 11/20 Thanksgiving Holiday – No Class
- 12/2 Mock review of a journal article manuscript (assignment due)
- *To do: Conduct your own review of an assigned article*
  - Compare your review with actual reviewer comments of the article

## **Statement of University's Honesty Policy**

### **University of Florida Academic Honesty Statements**

"I understand that the University of Florida expects its students to be honest in all their academic work. I agree and adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University."

"All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate."

"We, the members of the University of Florida, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."

### **Citations and Plagiarism**

The two key purposes of citation are to: 1) give appropriate credit to the authors of information, research findings, and/or ideas (and avoid plagiarism), and 2) facilitate access by your readers to the sources you use in your research.

Quotations: When directly quoting an outside source, the borrowed text, regardless of the amount, must be surrounded by quotation marks or block quoted. Quoted text over two lines in length should be single-spaced and indented beyond the normal margins. Every quote must include a source—the author, title, volume, page numbers, etc.—whether an internal reference, footnote, or endnote is used in conjunction with a bibliography page.

Paraphrasing or Citing an Idea: When summarizing an outside source in your own words or citing another person's ideas, quotation marks are not necessary, but the source must be included. This includes, but is not confined to, personal communications from other students, faculty members, experts in the field, summarized ideas from published or unpublished resource, and primary methods derived from published or unpublished sources. Use the general concept of "when in doubt – cite."

Plagiarism is a serious violation of the academic honesty policy of the College. If a student plagiarizes others' material or ideas, he or she may receive an "E" in the course. The faculty member may also recommend further sanctions to the Dean, per College disciplinary action policy. Generally speaking, the three keys of acceptable citation practice are: 1) thoroughness, 2) accuracy, and 3) consistency. In other words, be sure to fully cite all sources used (thoroughness), be accurate in the citation information provided, and be consistent in the citation style you adopt. All references should include the following elements: 1) last names along with first and middle initials; 2) full title of reference; 3) name of journal or book; 4) publication city, publisher, volume, and date; and 5) page numbers referenced. When citing information from the Internet, include the WWW address at the end, with the "access date" (i.e., when you obtained the information), just as you would list the document number and date for all public documents. When citing ideas or words from an individual that are not published, you can write "personal communication" along with the person's name and date of communication.

### **Policy Related to Class Attendance**

Absences must be conveyed to the instructor in advance, or on the day of the absence for illness.

### **Policy Related to Make-up Exams or Other Work**

Students are expected to attend and be prepared to participate in all class sessions. Personal issues with respect to class attendance or fulfillment of course requirements will be handled on an individual basis.

### **Statement Related to Accommodations for Students with Disabilities**

If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office (<http://www.dso.ufl.edu/>). The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

### **Counseling and Student Health**

Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the UF Counseling & Wellness Center, 352-392-1575. Visit their web site for more information: <http://www.counseling.ufl.edu/>.

The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: [www.health.ufl.edu/shcc](http://www.health.ufl.edu/shcc).

Crisis intervention is always available 24/7 from:  
Alachua County Crisis Center: (352) 264-6789.

BUT – Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

### **Inclusive Learning Environment**

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace The University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and

expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: [www.multicultural.ufl.edu](http://www.multicultural.ufl.edu)