

Department of Epidemiology and Population Health
Faculty of Health Sciences
American University of Beirut

EPHD 328 (special Topics in Epidemiology)

Systematic Review and meta-analysis
Spring semester AY 2019 - 2020

Course Instructor:

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Co-Instructor:

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Number of credits: 3

Class time and location:

Time: Every Thursday 12:00 PM – 2:30 PM
Location: ACC Saba Intellectual Property Boardroom

Course description:

The course is structured around the steps of developing a protocol for a systematic review of trials of interventions: specifying the PICO question, searching for potentially relevant articles; selecting eligible studies; abstracting data; assessing risk of bias, conducting a meta-analysis; grading the quality of evidence; and interpreting results. PICO is an acronym referring to the components of the question forming the basis for a research study, a systematic review in this case: Population, Intervention, Comparison, and Outcomes.

Students contribute to weekly presentations of methods papers relevant to session. Weekly assignments are designed to guide students in the production of a protocol of a systematic review. The final paper consists of a report of the systematic review protocol suitable for publication. Students who choose to complete the full systematic review within the course timeframe can expect support from the instructors.

Prerequisites

- The student should have successfully completed the following courses: EPHD 310/ EPHD 325 (basic Statistics); (EPHD 300/EPHD 326) or their equivalents , or upon the consent of the instructor.

- Prior to acceptance into the course, the student should submit a one-page form to clearly identify a research question in the PICO format (see attached form) for approval by the course instructor. While the student can choose his/her own PICO question, he/she is encouraged to choose one that has been submitted by a faculty member (from FM or FHS). That faculty member will provide expert supervision and support.
- The students who choose to complete the full systematic review within the course timeframe needs to identify a partner inside or outside the course willing to contribute to the systematic review work (duplicate study selection, data abstraction and risk of bias assessment).

Course learning objectives

By the end of the course, students will:

1. Understand the key characteristics, purposes, strengths and weaknesses of systematic approaches to reviewing research literature;
2. Describe the principles and challenges of developing review questions, and identifying, describing, appraising and synthesizing research evidence for systematic reviews;
3. Critically reflect on the interpretation, communication and application of systematic review findings for policy and practice;
4. Develop a protocol for a systematic review and meta-analysis addressing a public health, health policy, or clinical question.

Required readings

PRISMA Statement: “an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses”: <http://www.prisma-statement.org>

Additional readings will consist of journal articles specified for each session and suggested as needed.

The reference for this class is the Cochrane Handbook for Systematic Reviews of Interventions is: <http://handbook.cochrane.org>

Student evaluations:

Students will be evaluated on the following:

- 45% Weekly assignments (learning objectives 1, 2, 3, 4)
- 25% Final paper (learning objective 4)
- 10% Written review of a fellow student’s final paper (learning objective 1,2)
- 10% PowerPoint presentation (learning objectives 1, 2, 3, 4)
- 5% Class attendance (learning objectives 1, 2, 3, 4)
- 5% Discussion participation (learning objectives 1, 2, 3, 4)

Correspondence with letter grade

Highest	Lowest	Letter
100.00 %	90.00 %	A
89.99 %	85.00 %	B+

84.99 %	80.00 %	B
79.99 %	75.00 %	C+
74.99 %	70.00 %	C
69.99 %	60.00 %	D
59.99 %	0.00 %	F

Notes:

- Attendance will be taken. Students are expected to attend 100% of the sessions unless they present a valid excuse to the instructors.
- As per AUB policy: “A student who is absent without excuse for more than one third of the number of sessions may be dropped by the instructor of the course”.
- “If you have documented special needs and anticipate difficulties with the content or format of the course due to a physical or learning disability, please contact me and/or your academic advisor, as well as the Counseling Center in the Office of Student Affairs (Ext. 3196), as soon as possible to discuss options for accommodations. Those seeking accommodations must submit the Special Needs Support Request Form along with the required documentation.”

Academic Integrity

Education is demanding and time management is essential. Do not hesitate to use the resources around you but do not cut corners. Cheating and plagiarism will not be tolerated. Please review the Student Code of Conduct in your handbook and familiarize yourself with definitions and penalties. If you’re in doubt about what constitutes plagiarism, ask your instructor because it is your responsibility to know. The American University of Beirut has a strict anti-cheating and anti-plagiarism policy. Penalties include failing marks on the assignment in question, suspension or expulsion from University and a permanent mention of the disciplinary action in the student’s records.

Detailed course outline

Session #	Date	Topic
1	Jan 23	Introduction
2	Jan 30	Defining the PICO question
3	Feb 6	Review of reviews
4	Feb 13	Searching for studies
5	Feb 20	Selecting studies Measuring Agreement
6	Feb 27	Data collection
7	March 5	Assessing risk of bias Measures of effect estimates
8	March 12	Meta-analysis
9	March 19	Assessing heterogeneity

10	March 26	Pre-final discussion of protocols
11	April 2	Assessing quality of evidence
12	April 9	Summarizing and interpreting results
13	April 16	Final presentation

We will also discuss students' progress in every session.

Assignments:

- All assignments are due by 5pm on Tuesday
- The instructors will aim to provide feedback on assignment prior the next session
- April 16: Final PowerPoint presentation
- April 19: Near final protocol should be sent to the peer reviewer (instructor and co-instructor cc'd)
- April 23: Peer review should be sent back to author (instructor and co-instructor cc'd);
- April 26: Final paper is due