**Department of Epidemiology and Population Health**

**EPHD 328 (special Topics in Epidemiology)**

**SYSTEMATIC REVIEW AND META-ANALYSIS**

**[3 credits]**

**Course Syllabus**

**Spring Semester, Academic Year 2023-2024**

**Class time and Venue:**

Date: Every Thursday

Times: 11:00 AM – 1:30 PM

Venue: ACC bldg., Ground floor (either ACC board room or ACC multipurpose room #3). Please refer to the Moodle course schedule for the exact location each week.

**Course Instructors and Contact Details:**

Course Instructor:

Name: Elie Akl, MD, MPH, PhD

Email: [ea32@aub.edu.lb](mailto:ea32@aub.edu.lb)

Extension: 5490

Office Hours: upon request

Co-Instructor:

Name: Reem Hoteit, BS, TD, MS

Office: CRI, ACC bldg., 3rd floor

Email: [rah84@](mailto:rah84@)mail.aub.edu

Extension: 8468

Office hours: upon request

Name: Mayssan Kabalan, MS (PhD student)

Office: FHS, Van Dyck, 2nd floor, room 218

Email: [mak142@aub.edu.lb](mailto:mak142@aub.edu.lb)

Extension: 4653

Office hours: upon request

**Course Description:**

​The course is structured around the steps of executing 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 certainty of evidence; and interpreting results. Weekly assignments are designed to guide students in the production of a systematic review. The final paper consists of a report of the systematic review suitable for publishing in a peer-reviewed journal. Prerequisites: EPHD 310 and EPHD 300 or their equivalent courses (SHARP 310 and 300), or consent of instructor.

**Course learning Objectives**

**By the end of the course, students will be able to:**

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.

**Council on Education for Public Health (CEPH) Core/Concentration Competencies mapped to EPHD 328**

**Essential Skills**

* **Essential Skill 1:** Critical Thinking/analysis
* **Essential Skill 2:** Problem Solving
* **Essential Skill 3:** Searching for information
* **Essential Skill 4:** Presentation skills

**Course Learning Objectives mapped to CEPH competencies**

**Table 1. Mapping of course LO to CEPH competencies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **LO1** | **LO2** | **LO3** | **LO4** |
| CC3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate |  | x |  |  |
| CC4. Interpret results of data analysis for public health research, policy or practice |  |  | x |  |
| CC15. Evaluate policies for their impact on public health and health equity | x |  |  |  |
| CC18. Select communication strategies for different audiences and sector |  |  | x |  |
| CC19. Communicate audience-appropriate public health content, both in writing and through oral presentation |  |  | x |  |
| EBCC3: Design epidemiological studies to investigate public health research questions | x |  |  | x |
| EBCC5: Apply inferential statistics and advanced statistical approaches such as regression modelling to analyze complex health related data |  | x |  |  |
| EBCC6: Interpret and communicate statistical findings in oral and written format |  | x | x |  |
| EBCC7: Review, synthesize and communicate published epidemiological findings in oral and written format |  | x | x |  |
| EBCC8: Appraise the quality of epidemiological evidence by evaluating studies for bias and other sources of systematic errors |  | x | x |  |
| EBCC9: Analyze Health related data using advanced statistical techniques and software packages |  | x |  |  |

**Assigned Text Book and Readings (if applicable)**

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: <https://training.cochrane.org/handbook/current>

**Course requirements and Student evaluation:**

**Pre-requisites (if applicable):** EPHD 310 and EPHD 300 or their equivalent courses (SHARP 310 and 300), or consent of instructor.

**Student Evaluation:**

**Table-2 Summary of students' assessments mapped to course learning objectives**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Learning Objectives | | | |
|  | LO1 | LO2 | LO3 | LO4 |
| Weekly assignments | X | X | X | X |
| Final paper |  |  |  | X |
| Peer review | X | X |  |  |
| PowerPoint presentation | X | X | X | X |
| Class attendance | X | X | X | X |
| Discussion participation | X | X | X | X |

**Table -3 Description of Assessment methods, Due Dates and Corresponding Learning Objectives**

| **Assessment method** | **Date (tentative)** | **Grade percentage** |
| --- | --- | --- |
| ***Discussion participation*** | *NA* | *5%* |
| ***Class attendance*** | *[Every Thursday]* | *5%* |
| ***Weekly assignments*** | *[All assignments are due by end of Monday]* | *45%* |
| The instructors will aim to provide feedback on assignments prior the next session. | | |
| ***Final PowerPoint presentation*** | *[April 4, 2024]* | *10%* |
| ***Near final protocol*** | | *[April 18, 2024]* |  |
| Near final protocol should be sent to the peer reviewer (instructor and co-instructor cc’d) | | | |
| ***Peer review*** | | *[April 25, 2024]* | *10%* |
| Peer review should be sent back to author (instructor and co-instructor cc’d) | | | |
| ***Final paper*** | | *May 2* | *25%* |

**Table -3 Correspondence with letter grade**

|  |  |
| --- | --- |
| **Starting with Numeric Course Grade /100** | **Corresponding Course Letter Grade** |
| < 60 | F |
| 60 | D |
| 61–62 | D+ |
| 63–65 | C– |
| 66–68 | C |
| 69–71 | C+ |
| 72–74 | B– |
| 75–78 | B |
| 79–82 | B+ |
| 83–86 | A– |
| 87–92 | A |
| 93–100 | A+ |

**Policies and other General Notes:**

**Academic integrity:**

Education is demanding and you need to properly manage your time. Do not hesitate to use the resources around you but do not cut corners. Cheating and plagiarism will not be tolerated. Review the Student Code of Conduct and familiarize yourself with definitions and penalties. Cheating might earn you a failing mark on the assignment, at the very least. You might fail the course in which you cheated, be warned, suspended or expelled from University and a permanent mention of the disciplinary action might be made in your student records. If you’re in doubt about what constitutes plagiarism, ask your instructor because it is *your* responsibility to know. Remember that the American University of Beirut has a strict anti-cheating and anti-plagiarism policy. Do not become a lesson to others.For further information, kindly visit AUB’s Policies and Procedures or

<http://pnp.aub.edu.lb/general/conductcode.>

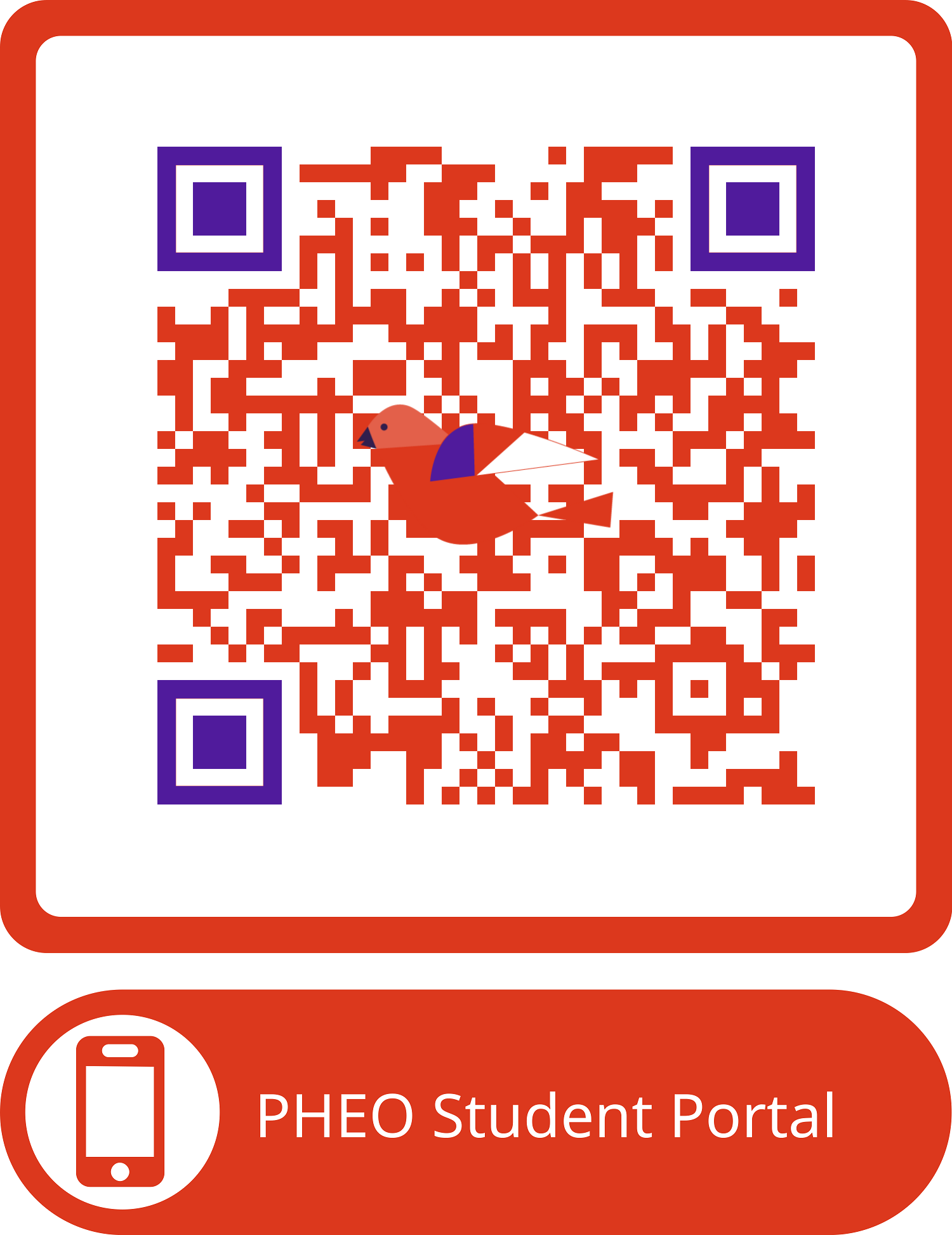
**Students with Disabilities:**

If you have a disability, for which you may request accommodation in AUB classes, consult the website for more information and make arrangements with the Coordinator (http://www.aub.edu.lb/sao/Pages/Students\_20with\_20Special\_20Needs.aspx). Also, please see the instructor of this course privately in regard to possible support services that can be provided to you.

**Non-Discrimination- Title IX- AUB**

AUB is committed to facilitating a campus free of all forms of discrimination including sex/gender-based harassment prohibited by Title IX. The University’s non-discrimination policy applies to, and protects, all students, faculty, and staff. If you think you have experienced discrimination or harassment, including sexual misconduct, we encourage you to tell someone promptly. If you speak to a faculty or staff member about an issue such as harassment, sexual violence, or discrimination, the information will be kept as private as possible, however, faculty and designated staff are required to bring it to the attention of the University’s Title IX Coordinator. Faculty can refer you to fully confidential resources, and you can find information and contacts at [www.aub.edu.lb/titleix](https://www.aub.edu.lb/titleix). To report an incident, contact the University's Title IX Coordinator Trudi Hodges at 01-350000 ext. 2514, or [titleix@aub.edu.lb](mailto:titleix@aub.edu.lb). An anonymous report may be submitted online via EthicsPoint at [www.aub.ethicspoint.com](https://www.aub.ethicspoint.com/).

**Accessible Education Office (AEO):**

The Accessible Education Office (AEO) coordinates academic accommodations and services for all eligible AUB students with disabilities (such as ADHD, learning difficulties, mental health conditions, chronic or temporary medical conditions, and others). If you have a disability for which you wish to request accommodations at the department, faculty or university level, please contact AEO as soon as possible. Once you register with our office, we will assist you in receiving appropriate accommodations and will liaise with your instructors and any related entity to best support your needs. AEO is located in West Hall room 314, and can be reached by phone at 1-350000 ext. 3246 or by email: [accessibility@aub.edu.lb](mailto:accessibility@aub.edu.lb). Information about our services can be found at: <https://www.aub.edu.lb/SAO/Pages/Accessible-Education.aspx>

**Writing:**

Written communication is essential for communication, health education and behavioral science. You are expected to proofread and spell-check any written documents before submission. Points will be deducted from the grades for low quality writings. You are encouraged to contact AUB’s Writing Center, located in Ada Dodge Hall, 2nd floor or West Hall, 3rd floor. Appointments can be booked online: <https://aub.mywconline.com/>, over the phone (Ext. 4077) or by walking in.

**Public Health Education Office**

Please refer to the Public Health Education Office Student Portal

**Detailed course outline:**

|  |  |  |
| --- | --- | --- |
| **Session #** | **Date** | **Topic** |
| 1 | Jan 18 | Introduction |
| 2 | Jan 25 | Defining the PICO question |
| 3 | Feb 1 | Review of reviews |
| 4 | Feb 8 | Searching for studies |
| 5 | Feb 15 | Selecting studies; Measuring Agreement  Data collection |
| 6 | Feb 22 | Assessing risk of bias |
| 7 | Feb 29 | Measures of effect estimates |
| 8 | Mar 7 | Meta-analysis and assessing heterogeneity |
| 9 | Mar 14 | Assessing certainty of evidence |
| 10 | Mar 21 | Pre-final discussion of protocols |
| 11 | Mar 28 | Summarizing and interpreting results |
| 12 | Apr 4 | Final presentation |

**We will also discuss students’ progress in every session.**

**Course 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: <https://training.cochrane.org/handbook/current>

**Appendix I. Reinforced – Introduced CEPH competencies**

Introduced competencies: the competency is introduced at a basic level. Instruction and learning activities focus on basic knowledge, skills and entry-level complexity. The competency is **not assessed**

Reinforced competency: The competency is reinforced with feedback; students demonstrate the outcome at an increasing level of proficiency (above the introductory stage). Instruction and learning activities concentrate on enhancing and strengthening existing knowledge and skills, as well as expanding complexity. The competency is **not assessed**

| **Core Competencies** | **Introduced** | **Reinforced** |
| --- | --- | --- |
| CC3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate |  | x |
| CC4. Interpret results of data analysis for public health research, policy or practice |  | x |
| CC15. Evaluate policies for their impact on public health and health equity |  | x |
| CC18. Select communication strategies for different audiences and sector |  | x |
| CC19. Communicate audience-appropriate public health content, both in writing and through oral presentation |  | x |

|  |  |  |
| --- | --- | --- |
| **EPHD competencies** | **Introduced** | **Reinforced** |
| EBCC3: Design epidemiological studies to investigate public health research questions |  | **x** |
| EBCC5: Apply inferential statistics and advanced statistical approaches such as regression modelling to analyze complex health related data |  | **x** |
| EBCC6: Interpret and communicate statistical findings in oral and written format |  | **x** |
| EBCC7: Review, synthesize and communicate published epidemiological findings in oral and written format |  | **x** |
| EBCC8: Appraise the quality of epidemiological evidence by evaluating studies for bias and other sources of systematic errors |  | **x** |
| EBCC9: Analyze Health related data using advanced statistical techniques and software packages |  | **x** |