Department of Epidemiology and Population Health

Faculty of Health Sciences

**Epidemiology Beyond the Basic-II**

**EPDH 320 A (1 credit)**

Course Syllabus

Fall AY 2022/23

# Course Instructor:

Dr Christelle Akl, PhD

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Office hours: Thursday 10:00 -11:00 am or by appointment

Course schedule: Tuesday 10:30 am -12:30 pm

# Course Description

The course complements and expands on materials and activities covered in EPHD 320 (Epidemiology beyond the Basic), which provides advanced knowledge of epidemiologic studies and covers in details methodological issues concerning the design and the analysis of observational studies (cross sectional, case control and cohort studies) as well as key validity issues. EPHD 320A aims at reinforcing students’ skills in designing and evaluating observational epidemiological studies. Topics discussed include causality, potential outcomes and counterfactuals, Confounding and DAGS, interaction and effect modifications, biases, and key features of setting up a cohort study and challenges in follow up.

Prerequisites: EPHD 300 and EPHD 310 and EPHD 320

# Specific learning objectives

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

LO1. Define causal effects using counterfactuals and potential outcomes

LO2. Assess the presence of confounding

LO3. Assess the presence of interaction /effect modification

LO4. Appraise internal validity of published epidemiological studies

LO5. Design a cohort study using epidemiological principles and methods

# Concentration Competencies

[EBC8]: Appraise the quality of epidemiological evidence by evaluating studies for bias and other sources of systematic errors

[EBC3]: Design epidemiological studies to investigate public health research questions

# Program learning outcomes

PLO3: Apply appropriate study designs and develop protocols for observational and experimental epidemiological studies

PLO 6: Demonstrate ability to critically assess the results of their own or others’ epidemiological studies

# Structure of the Course

The course relies on short lecture and class discussion of selected articles.

# Policies and other General Notes:

## Inclusive education

* ‘AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a disability (including mental health, chronic or temporary medical conditions), please inform me immediately so that we can privately discuss options. In order to help establish reasonable accommodations and facilitate a smooth accommodations process, you are encouraged to contact the Accessible Education Office: [accessibility@aub.edu.lb](mailto:accessibility@aub.edu.lb); [+961-1-350000, x3246](tel:+961-1-350000;3246); West Hall, 314’.

## academic integrity

* On proper citing sources in assignments and plagiarism: “Education is demanding and time management is essential. Do not hesitate to use the resources around you and 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 (p. 34-35). If you are 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.”

Students are to honor AUB’s Code of Conduct and Academic Integrity. In that, students are expected to be mindful of issues of copyright infringement and plagiarism.

Check this link: <https://m.youtube.com/watch?time_continue=11&v=IMhMuVvXCVw&feature=emb_logo>

## 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. To report an incident, contact the University's Title IX Coordinator Trudi Hodges at 01-350000 ext. 2514, or titleix@aub.edu.lb. An anonymous report may be submitted online via EthicsPoint at www.aub.ethicspoint.com.

## netiquette

* Netiquette refers to the proper way to communicate electronically with others. Check the following link for Netiquette guidelines: <http://www.albion.com/netiquette/> . You are highly encouraged to take a Netiquette Quiz to test your Netiquette. You can find such a quiz at the following site: <http://www.albion.com/netiquette/netiquiz.html>

# Detailed Schedule

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|  | **Course Schedule** | **LO’s covered** |
| Oct 17 | Class #1 Refresher on main design issues of observational designs | LO5 |
|  | Ioannidis, J. P. (2005). Why most published research findings are false. PLoS Med, 2(8), e124. doi:10.1371/journal.pmed.0020124  Albarqouni,L, Abu-Rmeileh,N., Elessi,K., Obeidallah, M., Bjertness,E., & Chalmer, I.The quality of reports of medical and public health research from Palestinian institutions: a systematic review . BMJ Open, 2017;7 :e016455. doi:10.1136/ bmjopen-2017-016455 |  |
| Oct 24 | Class #2 Discussion of causality, counterfactuals, and potential outcomes | LO1 |
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| Oct 31 | Class #3 Confounding Revisited | LO2 |
|  | Chaaya, M., Sibai, A. M., Tabbal, N., Chemaitelly, H., El Roueiheb, Z., & Slim, Z. N. (2009). Work and mental health: the case of older men living in underprivileged communities in Lebanon. Ageing and Society, 30(1), 25-40. doi:10.1017/s0144686x09990171  Mehio-Sibai, A., Feinleib, M., Sibai, T. A., & Armenian, H. K. (2005). A positive or a negative confounding variable? A simple teaching aid for clinicians and students. Annals of epidemiology, 15(6), 421-423. |  |
| Nov 07 | Class #4 Effect modification/Interaction | LO3 |
|  | Luo, X., Wang, Y., Wang, Z., Zhou, X.-h., Zhao, J., Suo, J., . . . Liu, M. (2014). Effect modification by gender and smoking status on the association between obesity and atopic sensitization in Chinese adults: a hospital-based case–control study. BMC public health, 14(1), 1105.  Vart, P., Nigatu, Y. T., Jaglan, A., van Zon, S. K., & Shafique, K. (2015). Joint Effect of Hypertension and Elevated Serum Phosphorus on the Risk of Mortality in National Health and Nutrition Examination Survey-III. J Am Heart Assoc, 4(5). doi:10.1161/JAHA.114.001706 |  |
| Nov 14 | Class #5 Appraisal of observational epidemiologic studies | LO4 |
|  | Appraisal tools use for Evidence Based Medicine will be provided/ Review of biases  Pizzi, C., De Stavola, B. L., Pearce, N., Lazzarato, F., Ghiotti, P., Merletti, F., & Richiardi, L. (2012). Selection bias and patterns of confounding in cohort studies: the case of the NINFEA web-based birth cohort. J Epidemiol Community Health, 66(11), 976-981.  Parker, A. S., Cerhan, J. R., Lynch, C. F., Leibovich, B. C., & Cantor, K. P. (2004). History of urinary tract infection and risk of renal cell carcinoma. Am J Epidemiol, 159(1), 42-48. doi:10.1093/aje/kwh014 |  |
| Nov 21 & 23 | Class #6-7 Presentations of critical evaluation of articles | LO2,LO3,LO4 |
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| Nov 28 | Class #8 Discussing main features of major cohort studies | LO5 |
|  | Whelan BJ, Savva GM. Design and methodology of the Irish Longitudinal Study on Ageing. J Am Geriatr Soc. 2013 May;61 Suppl 2:S265-8. doi: 10.1111/jgs.12199. PMID: 23662718.  Manca, D. P., O’Beirne, M., Lightbody, T., Johnston, D. W., Dymianiw, D. L., Nastalska, K., ... & Kaplan, B. J. (2013). The most effective strategy for recruiting a pregnancy cohort: a tale of two cities. BMC pregnancy and childbirth, 13(1), 75.  Manjer, J., Elmstahl, S., Janzon, L., & Berglund, G. (2002). Invitation to a population-based cohort study: differences between subjects recruited using various strategies. Scandinavian journal of public health, 30(2), 103-112.  Robinson, K. A., Dennison, C. R., Wayman, D. M., Pronovost, P. J., & Needham, D. M. (2007). Systematic review identifies number of strategies important for retaining study participants. Journal of clinical epidemiology, 60(8), 757-e1 |  |

# Assessment (type and weight) mapped to course learning objectives (LOs)

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| --- | --- | --- | --- | --- |
| **Assessment** | **Group/Individual work** | **Percentage** | **Course Learning Objectives** | **Date of submission** |
| **Critical evaluation of articles** | Group | 40 % | LO2,LO3,LO4 | November 21/23, 2023,  9:00 am |
| **Design a cohort study** | Individual | 40% | LO5 | December 05, 2023,  11:00 pm |
| **Participation** | Individual | 20 % | LO1,LO2,LO3 |  |