Ph.D. in "Life Course Research" – Biomedical curriculum
Academic Year 2024-2025
Course: **Epidemiology**
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Objectives:

The aim of the course is to give the capacity to read, understand and interpret the results of epidemiological papers. Moreover, this course provide students with the ability to distinguish and conduct different types of epidemiological studies, recognize their characteristics, their strengths, limitations and quantitative measures to apply.

Program:

Lesson 1

- Epidemiological relationship, causality and Bradford-Hill causality criteria. This part of the lesson will be dedicated to define the epidemiological relationship and the criteria to verify the causality of this relationship
- Confounder, mediator and effect modifier. This part focuses on the identification of several variables that participate in the epidemiological relationship, their role and instruments to take them into account during the analysis
- Biases: selection bias, information bias, recall bias and batch bias. This part highlights the main errors that can be made while conducting an epidemiological study
- Measurements: occurrence measurements (prevalence and incidence; cumulative incidence and density incidence) and association measurements (prevalence ratio, rate ratio and odds ratio)

Lesson 2

- Different types of epidemiological studies and the evidence pyramid
- Ecological studies. This part explains the characteristics of the ecological studies, their strength and limitations
- Observational studies: cross-sectional, retrospective (case-control studies) and prospective (cohort studies). This part explains the characteristics of the observational studies, their strength, limitations and measurements

Lesson 3

- Experimental studies. This part explains the characteristics of Randomized Control Trials (RCT), their strength, limitations and measurements

- Hints on the drug testing process
- Meta-analysis and systematic review

Suggested lecture:

Articles related

Requirement:
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