



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Epidemiology and Public Health

2526-4-H4101D263-H4101D083M

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#### Aims

The aim of the course is to provide students with principles, concepts and methods of epidemiology and its application in public health, along with the tools aimed to design a proper epidemiological study.

#### Contents

The course will focus on the classic activities of hygiene and public health, i.e. analysis of needs, risk and events associated with health (Epidemiology), organization and management of health facilities and definition of priorities, (Planning), design and implementation of projects of prevention, protection and health promotion (Prevention), program Evaluation.

The objectives of epidemiological studies (descriptive, etiological, diagnostic, prognostic epidemiology) and their specific application to answer public health questions will be presented and discussed.

#### Detailed program

INTRODUCTION TO HYGIENE (Definitions, Concept of health in public health, Hygiene and Public Health activities, the NHS, prevention)

Elements of Epidemiological Methodology (Introduction to epidemiology, outline of epidemiological studies, applications)

DESCRIPTIVE STUDIES AND INDICATORS (Objectives, Frequency measures, Demographic indicators, standardization, public health performance evaluation methods, LEA, PNE)

ANALYTICAL STUDIES (Cohort studies: definitions and characteristics, applications, Registries vs. cohort studies, Case control studies: definitions and characteristics, introduction to bias and confounding, impact measures)

CROSS-SECTIONAL STUDIES AND ECOLOGICAL STUDIES (Cross-sectional studies: definitions and

characteristics, sampling techniques, questionnaires and validity, the Multipurpose survey, ecological studies: definitions and characteristics)

EXPERIMENTAL STUDIES (RCT: Design, characteristics and biases; cluster trials and quasi-experimental studies; efficacy vs. efficiency, limitations of clinical trials, systematic reviews and meta-analyses)

BIAS AND CONFOUNDING (Association vs. Causality (Bradford-Hill), Systematic Errors, Errors Due to Chance, Misclassification, Confounding, Effect Modifiers, Bias Mitigation Strategies)

GUIDELINES AND DIAGNOSTIC-THERAPEUTIC PATHWAYS (Principles and application, systematic reviews and meta-analysis, guidelines diagnostic therapeutic pathways)

## **Prerequisites**

knowledge of medical statistics

## **Teaching form**

LESSONS, PRACTICE AND SELF-ASSESSMENT TEST

## **Textbook and teaching resource**

Digital learning material

Signorelli C (editor). Igiene e Sanità Pubblica. SEU, Roma, 2017

Pontello M, Auxilia F. Igiene, Medicina Preventiva e salute globale. Piccin 2022

Santos Silva I. IARC, Lyon. Cancer Epidemiology: Principles and Methods, 1999

## **Semester**

Second semester

## **Assessment method**

see the general Syllabus of the course

## **Office hours**

By appointment, write to [giampiero.mazzaglia@unimib.it](mailto:giampiero.mazzaglia@unimib.it)

## Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION

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