UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Basic Statistics B

2627-4-H4101D261-H4101D187M

Aims

This course aims to provide the basic tools of medical statistics that are at the basis of a proper methodological approach to a research project in medicine.The student will be able to evaluate the accuracy of a diagnostic test by the sensitivity, specificity and predictive value indexes. The student will be able to calculate specific probabilities from Gaussian and Binomial distribution.

By the end of the course, students should be familiar with the fundamental concepts of probability.

Contents

Uncertainty in medicine. Probability.

Detailed program

RANDOM VARIABLES AND PROBABILITY DISTRIBUTIONS: definitions of probability; conditional probability and independence; probability distributions and random variables (examples of Gaussian and Binomial distribution). DIAGNOSTIC PROCESS EVALUATION: sensitivity, specificity; clinical decision: probability as uncertainty measure; predictive value of a test.

Prerequisites

specific preliminary knowldge is not required

Teaching form

Lectures will be interspersed with practical exercise.
Critical reading of clinical papers.

- 4 2-hour lectures conducted in in-presence delivery mode in the initial part that is aimed at engaging students interactively in the later part.
- 2 lessons of 2 hours conducted delivered remotely (asynchronously) with individual exercises supervised by the instructor.

Textbook and teaching resource

Marc M. Triola, Mario F. Triola, Jason Roy. Fondamenti di statistica Per le discipline biomediche 2nd Edition, published by Pearson Education 2022.

Martin Bland. An Introduction to Medical Statistics, Oxford 2015

Stanton A.Glantz. Primer of Biostatistics, McGraw-Hill Education / Medical 2011

Martin Bland. An Introduction to Medical Statistics, Oxford 2015

Bossi Anna, Cortinovis Ivan Statistica medica : esercitazioni Milano [poi] Torino : CittaStudi edizioni, 1996. ISBN 88-251-7163-3

Semester

First semester

Assessment method

Final written test including:

-3/4 exercises to test the ability of the student in the application of statistics

-4/5 questions with closed answer to evaluate the preparation on the overall program

-1 test on an extract of a clinical paper to evaluate the interpretation of basic statistics in medical literature

Office hours

Tuesday 10-12 am on appointment.
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Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY