UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Biostatistics

2223-4-H4102D027-H4102D099M

Aims

The student will learn:

- the basic tools to understand scientific results in observational and experimental studies with continuous outcome, binary outcome, survival time outcome.
- how to interpret results from regression models relating aforementioned outcome to explanatory/exposure variables.

The student will work on the intepretation of results from scientific papers in cardiologic research in adults and children.

Contents

- Linear regression
- Logistic regression
- Survival analysis

Detailed program

Recap on study designs, sampling methods, confidence intervals.

- Linear regression

Methodological definition of correlation and linear regression: model formulation, results interpretation, prediction.

Comment on the results of a scientific paper including linear regression analysis.

- Logistic regression

Methodological definition of logistic regression: model formulation, results interpretation, prediction.

Comment on the results of a scientific paper including logistic regression analysis.

- Survival analysis

Basic theory in survival analysis: complexities of life time data, survival/incidence functions, rate, hazard function, Kaplan Meier estimator, epidemiological rate (exponential) estimator. Comment on the results of a scientific paper including Kaplan Meier curves and Cox model.

- Additional content (not mandatory)

Stata commands to run Linear regression, logistic regression, Kaplan Meier analysis.

Time Table

- Lecture 1
- Quiz on Lecture 1
- Lecture 2
- Quiz on Lecture 2
- Lecture 3
- Quiz on Lecture 3 (optional)
- Lecture 4
- Quiz on Lecture 4
- Lecture 5
- Quiz on Lecture 5
- Lecture 6
- Quiz on Lecture 6

Prerequisites

- Basic descriptive and inferential statistics.
- Basic use of Stata software.

Teaching form

Standard synchronous classes and and video-clips.

Textbook and teaching resource

- Book "Biostatistics for Biological and Health Sciences" - chapter 1 (section 3), chapter 10 (from section 2 to 5) and chapter 14.

- You can borrow the e-book here in the section "curiosone"
- You can buy the paper back book here

- Quiz (mandatory for self assessement).

Slides (related to the book).

- Scientific papers.

Semester

First semester.

From 10 to 12, LAB1811 U18 Monza, Dates: 11-18-25 Oct, 29 Nov, 10 Dec

Assessment method

On esamionline.elearning platform.

Type of test: multiple choice/open questions (11 questions, 3 points for each correct answer, no penalties for wrong answers).

If the total score is >=18 you pass.

Office hours

Under request by the elearning email, in the Webex room of the teacher.

Sustainable Development Goals