UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Medical Statistics and Research Methods

2526-2-I0201D139

Aims

Acquisition of basic knowledge for the identification, understanding as well as the conduct of studies in scientific research in the physiotherapy field.

The student will know the main databases for conducting bibliographic research, the main study designs, the collection of data through the evaluation scales, the statistical-methodological tools for evaluating diagnostic tests, descriptive and inferential statistics, with applications in the physiotherapy field. .

Guided by the teachers, the student will analyze, in response to a research question, a scientific article that presents statistical analyzes on data relating to evaluation scales.

At the end of the course the student will have acquired awareness and ability to answer the clinical question in the physiotherapy field through: the use of databases to carry out efficient bibliographic searches, the identification of the appropriate types of study, the choice of appropriate evaluation scales for the collection of data, the interpretation of the results deriving from the application of statistical-methodological tools of descriptive and inferential statistics.

- Knowledge and understanding - at the end of the course the student will acquire the basic knowledge for identifying, understanding and conducting studies in the presence of quantitative and quantitative data in scientific research in the physiotherapy field.
- Ability to apply knowledge and understanding - at the end of the course the student will acquire critical ability to participate in conducting studies in scientific research in the physiotherapy field.
- Autonomy of judgment - at the end of the course the student will acquire critical ability to evaluate studies in scientific research in the physiotherapy field.
- Communication skills - at the end of the course the student will have acquired adequate scientific terminology and will be able to present the topics covered in the course with proper language.
- Learning ability - at the end of the course the student will be able to understand and critically evaluate the scientific literature that involves the use of descriptive and inferential statistical methods in the physiotherapy field.

Contents

The objectives will be achieved through:

- Understanding the importance of scientific literature in the physiotherapist profession
- Knowledge of the main databases
- The development of a search string consistent with the clinical question
- Understanding the importance of evaluation in rehabilitation
- Knowledge of the criteria for choosing measurement scales
- Knowledge of the criteria for choosing diagnosis and prognosis tests
- Knowledge of the main types of study in scientific research
- Knowledge of the main descriptive and inferential statistical analyzes

Detailed program

- Introduction to Evidence Based Practice, definition, limits and advantages, steps to practice EvidenceBased.
- Bibliographic search, definition of the research question and its characteristics, formulation of a correct search question according to the PICO model and its variants, primary and secondary databases, Boolean operators, the PubMed database, the PEDro database, how to find a full- text.
- Carry out a bibliographic search: from the research question to the download of the full-text.
- Evaluation in rehabilitation: criteria for choosing measurement scales, criteria for choosing diagnosis and prognosis tests.
- Introduction to Statistics: definitions of population, sample, variable, data, information.

- Basics of probability calculation
- Confidence interval on the parameter p probability of an event (proportion)
- Frequency tables and graphs
- Order of magnitude and dispersion indicators
- Gaussian Distribution (to approximate the trend of a histogram)
- Maximum likelihood estimation
- Confidence interval on the mu parameter
- Use of the Gaussian distribution to construct confidence intervals

Prerequisites

The candidate must have a basic knowledge of the use of personal computers and the English language.

Teaching form

Please refer to the elearning pages of the individual modules.

Textbook and teaching resource

Please refer to the elearning pages of the individual modules.

Semester

First semester.

Assessment method

Written exam.

What is it about:

- 33 choice questions (4 or 5 alternatives) for each segment, where each question will give 1 point and 33 will be considered 30 cum laude.

Where will it happen:

- on the university's esamionline platform in the laboratory.

When taking the exam:

- dates are indicated on the portal

Office hours

Under request, via email contact with the instructors.

Sustainable Development Goals

QUALITY EDUCATION | GENDER EQUALITY