



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Medical Physics

2324-1-H4102D088-H4102D024M

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#### Aims

Students will receive the practical, theoretical and IT skills to analyse and to correctly understand the experimental data. This knowledge will form the primary basis for a rationale approach to the knowledge of medical sciences.

#### Contents

Introduction to data analysis software

Data import procedures

Data Visualization

Mathematical models and fitting procedures

Analysis of patient data to determine physiological parameters.

#### Detailed program

Data import procedures

Importing simple text files

Recognition of different data storage formats

Generation of numerical matrices for data management

Displaying data

Introduction to the different ways of graphic representation

Graphs in linear logarithmic and bilogarithmic scale

Mathematical models and methods of fit

Analysis of patient data to determine physiological parameters

Analysis of respiratory data

Analysis of data of blood parameters

Analysis of Electrophysiological data

## **Prerequisites**

Basic knowledge of mathematics and analysis and IT

## **Teaching form**

Lessons, seminars, laboratory practice

During the Covid-19 emergency period, lessons could take place in a mixed mode: partial presence and asynchronous / synchronous videotaped lessons with some physical presence events.

## **Textbook and teaching resource**

Help online for OriginLab, Python and MatLab:

<https://www.originlab.com/index.aspx?go=Support/DocumentationAndHelpCenter>

<https://www.python.org/about/help/>

<https://it.mathworks.com/help/matlab/>

## **Semester**

Second semester

## **Assessment method**

Assessment of the suitability on the basis of the attendance/participation to the laboratory activities.

Knowledge and skills will be further assessed during the “Basic sciences” examination, with the modalities there described.

## **Office hours**

by appointment made via email "domenico.salerno@unimib.it" or telephone 0264488215

## **Sustainable Development Goals**

GOOD HEALTH AND WELL-BEING | CLIMATE ACTION

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