UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

# Digital Innovation for Healthcare

**2526-3-H4101D390**

## Aims

Understanding big data and fundamentals of digital health resources. Better knowledge and awareness of the role of digital health innovations to deal with real-world use cases and translational medicine applications that complement the broad spectrum of more traditional healthcare processes: opportunities and challenges
Promoting observational, analytical, and interpretative skills within a digital innovation framework for healthcare.
In particular, these objectives encompass specific learning outcomes expected at the end of the course. An improvement in the knowledge and understanding of concepts related to digital innovation and artificial intelligence is anticipated, with a focus on their application in the medical field (knowledge and understanding; applying knowledge and understanding). The course also aims to foster the development of soft skills in students, enabling a critical and informed use of digital technologies, in line with the principles of precision and personalized medicine (making judgements). Similarly, another key objective is to promote effective communication, both among peers and within the relevant scientific community (communication skills). Consistently, the course seeks to equip students with the tools necessary to stay independently and continuously updated on digital innovation topics (learning skills).

## Contents

State-of-the-art, emerging trends, and future perspective of digital health resources that fuel healthcare innovations to deal with challenges of real-world use cases. The rationale for digital health innovations. The importance of digital health literacy, technology transfer and in-depth overview of big data definitions and commonly used methods, techniques, and technology driving the transformation of healthcare. Tailored interventions, telemedicine, early detection, remote and real-time monitoring, and predictive analytics (e.g., digital phenotyping and patient profiling). Ethical concerns.

## Detailed program

- Setting the scene for digital innovation: artitificial intelligence, case studies and design requirements
- Clinimetric properties and big data: basic principles and definitions for digital health literacy
- Ecological momentary assessment, Technology transfer, and translational data science
- Trends and state-of-the-art of digital innovation in healthcare
- Emerging technologies and Internet of Things: utility of point-of-care technologies and wearables
- From data collection to data interpretation: digital phenotyping and novel approaches for predictive analytics and data visualization
- Expectations and pitfalls: from digitalization requirements to ethical and data protection concerns
- Scientific literature and available evidence

## Prerequisites

students can attend the course from the third year (Medicine and Surgery)

## Teaching form

In-person.
Interactive, based on digital tools (Wooclap, Mentimeter); collaborative learning based on class discussion on real-world cases fostering critical thinking and active participation; journal club format

## Textbook and teaching resource

Provided material

## Semester

2nd semester, April-June

## Assessment method

Student engagement during lectures and participation in the final discussion on the methodologies and related implications covered in the course, also based on data from the scientific literature.

## Office hours

contact by email to cristina.crocamo@unimib.it

## Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | INDUSTRY, INNOVATION AND INFRASTRUCTURE | PARTNERSHIPS FOR THE GOALS