



SAPIENZA
UNIVERSITÀ DI ROMA



HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL

*Sapienza University in conjunction with Brigham and Women's Hospital
(a flagship Harvard Medical School teaching affiliate)
is initiating
a certificate teaching degree program entitled:*

"Network Medicine: From Data Science to Precision Medicine"

NETWORK MEDICINE: DEFINITION

Network Medicine combines principles and approaches from network sciences, systems biology, and human dynamics to understand the causes of human diseases and develop new treatments.

Network Medicine evolved from network science research during the early days of the internet and advances in systems biology since the human genome project. Now it's an established way to study, reclassify, and develop treatments for complex diseases.



NETWORK MEDICINE CERTIFICATE PROGRAM: "NETWORK MEDICINE: FROM DATA SCIENCE TO PRECISION MEDICINE"

- This Network Medicine Certificate Program is organized by, and degree granted by:
 - Sapienza University of Rome
 - Brigham and Women's Hospital, (a flagship Harvard Medical School teaching affiliate)
- The main objective of this course is to teach students about the opportunities and challenges offered by applying network science to human disease, as a multidisciplinary approach. Network Medicine represents a common language among physicians, biologists, statisticians, computer scientists, physicists, and engineers. Knowledge and data integration are essential to interpreting complex biological and clinical data.
- The steering committee and course directors are academic leaders from the two institutions
- Lecturers will include leading investigators in Network Medicine from multiple EU and US institutions



"NETWORK MEDICINE: FROM DATA SCIENCE TO PRECISION MEDICINE" A BRIEF COURSE DESCRIPTION

- The course curriculum will be structured in six Modules, with hybrid recorded-live lectures:
 - Basic Principles and Omics in Network Medicine
 - Big Data, Data Science, and Machine Learning
 - Network Methods
 - Disease Phenotyping and Imaging Biomarkers
 - Systems Pharmacology
 - Network Applications to Disease
- Course time commitment for students will involve a total of approximately 160 course hours, with 40 of those hours in a research project, over four months. There will be six course modules, with a typical weekly schedule including: three one-hour lectures, one two-hour workshop (such as a group activity responding to a case study with questions and/or an oral presentation), one one-hour journal club, and additional time working on a research project.



THE NETWORK MEDICINE ALLIANCE

The Network Medicine Alliance (NMA) represents 32 leading universities and institutions around the world committed to improving global health and advancing the field of Network Medicine.

MISSION

To facilitate interdisciplinary research combining principles and approaches from network sciences, systems biology, and human dynamics to understand the causes of human diseases and repurpose existing medications.

ALLIANCE MEMBERS

ITALY

Sapienza Università di Roma
Consiglio Nazionale delle Ricerche (CNR)
Fondazione Istituto for Network Medicine
Istituto BioGem
Università degli Studi della Campania, “Luigi Vanvitelli”
Università degli Studi di Milano
Università degli Studi di Napoli Federico II
Università degli Studi di Padua
Università di Bologna

UNITED STATES

Brigham and Women's Hospital
Cleveland Clinic-Lerner Institute
Emory University
Georgetown University
Lawrence Livermore National Laboratory
Mount Sinai Hospital System
Northeastern University
Stanford University
University of California Los Angeles
University of California San Diego
University of California San Francisco
University of Pittsburgh
Yale University

Europe

Karolinska Institutet, Sweden
Semmelweis Egyetem, Hungary
Technische Universität München, Germany
Universitat Autònoma de Barcelona, Spain
Université Catholique de Louvain, Belgium
Université de Genève, Switzerland
Universiteit Maastricht, Netherlands
Université Paris-Saclay, France
Medizinische Universität Wien, Austria
Max Perutz Labs, Austria
Complexity Science Hub Vienna, Austria

