07.COMPUTATIONAL BIOMEDICINE[i]	
Level II	
Department of Experimental and Clinical Medicine (DMSC)	
Course coordinator	Alberto Magi
Executive Committee	Betti Giusti Francesco Annunziato Leonardo Bocchi Simone Marinai Andrea Arnone
Contact person for information regarding teaching organization, class schedule, content of the course	Alberto Magi alberto.magi@unifi.it Phone: 055-794 8909
Practical-professional profile of the course and industry sector of reference	The Master Course in Computational Biomedicine is aimed at learning the experimental and computational methodologies underlying modern precision medicine. Students will learn the most advanced high-throughput genotyping and phenotyping techniques (omics techniques, deep sequencing, imaging, and wearable sensors) and advanced data processing methodologies such as statistical methods for complex systems, machine learning, and data mining, and Artificial Intelligence applied to Biomedical data. The Master contributes to the technical and scientific training of professional bioinformaticians, biostatisticians, and Big Data scientists in biomedicine with excellent skills in analyzing omics and clinical data with machine learning and data mining tools. Consequently, the skills that this Master aims to impart, particularly its interdisciplinary connotation, are functional for training new professionals with excellent employment prospects in the pharmaceutical, biotechnology, and health care sectors, whether in an academic, hospital or industrial setting. The Master aims to provide students (learners) with the theoretical/practical foundations of the leading experimental methods underlying precision biomedicine (microarray, deep sequencing, protein, metabolic, imaging, and wearable sensors), as well as the mathematical, statistical, and computational tools underlying the processing of raw data, their analysis, and interpretation in both a numerical and biological/clinical sense.
Access prerequisites	Master's degree obtained in accordance with the system under Ministerial Decree No. 270/2004 (or specialist degree under Ministerial Decree No. 509/1999 equated under I.D. July 9, 2009) in one of the following classes • LM-6 Biology; • LM-9 Medical, Veterinary, and Pharmaceutical Biotechnology; • LM-13 Pharmacy and Industrial Pharmacy • LM-17 Physics; • LM-18 Computer Science; • LM-21 Biomedical Engineering; • LM-25 Automation Engineering; • LM-27 Telecommunications Engineering; • LM-28 Electrical Engineering; • LM-29 Electronic Engineering; • LM-32 Computer Engineering; • LM-33 Mechanical Engineering;

	• LM-40 Mathematics; • LM-41 Medicine and Surgery • LM-54 Chemical Sciences; • LM-82 Statistical Sciences. Degree awarded according to a system prior to Ministerial Decree No. 509/1999 of closely related content, deemed suitable by the Executive Committee or a Commission specifically appointed by it.
How the admission procedure takes place	Selection by qualifications combined with a test to verify preparation on biology, genomics, and computer science principles. The test will consist of an interview.
Duration	12 months
Teaching methods	Blended
Language of instruction	Italian
Attendance requirements	75%
Location of the course	Dept. of Experimental and Clinical Medicine (DMSC) Dept. of Information Engineering (DINFO) Cassa di Risparmio di Firenze Foundation
Foreseen lecture schedule	Lessons will take place on Fridays and Saturdays. It is necessary to conduct classes on Saturdays to allow working students to manage their schedules better
Examinations procedures and schedule	In each module of the Master Course, there will be assessments
Final examination	The final examination consists of the presentation of a final paper.

Available places and enrolment fees	
Full-fee students	
Minimum number	5
Maximum Number	20
Enrolment fee	€2,000
Free-of-charge supernumerary places	
AOU Careggi Employees	1
AOU Meyer Employees	1
USL Toscana Centro Employees	1
SINGLE MODULES	
None planned	

Description of the activities and training objectives of the internship	Hands-on training will take place in DMSC and DINFO laboratories and will consist of using bioinformatics tools for omics data analysis and biological and clinical interpretation of results. Observational activity. 250 total hours of internship.

[i] This document is a translation of the form A.1 relating to the characteristics of the course attached to the Decree of the Deputy number 873 (record 158006) of 25th of July 2022, drafted in Italian and issued on the Master | Didattica | Università degli Studi di Firenze | UniFI and which therefore constitutes the only official document. This English translation cannot be used for legal purposes and has the sole purpose of supplying information in English on the content of the public notice.