38. DATA SCIENCE AND STATISTICAL LEARNING (MD2SL)[i]	
Level II	
Florence Center for Data Science ***Department of Statistics, Computer Science, Applications "G. Parenti"***	
The course is conducted in collaboration with *IMT School for Advanced Studies Lucca* *with the issuance of joint title*	
Course coordinator	Chiara Bocci
Executive Committee	Chiara Bocci Fabrizia Mealli Andrew Bagdanov Anna Gottard Giorgio Gnecco Massimo Riccaboni Tiziano Squartini
Contact person for information regarding teaching organization, class schedule, course content	MD2SL Master Secretariat md2sl@disia.unifi.it
Practical-professional profile of the course and industry sector of reference	The master's program aims to train *Data Scientists,* well-rounded professionals who can answer emerging research questions arising from the pervasive presence of complex, unstructured, high-dimensional data (so-called big data) in various application areas. This objective is achieved through the student's acquisition of solid theoretical and practical skills in statistics, mathematics, and computer science, expendable within business processes in the public sector, and support of the decision-making processes of public and private organizations. Specifically, the study program aims to bring graduates in quantitative disciplines to a higher level due to the multidisciplinary nature of the tools inherent in Data Science. At the end of the training, students can structure, clean, and analyze complex, unstructured, high-dimensional data to identify the information gathered from them and develop innovative methodological and computational solutions for collecting and analyzing them to address emerging information needs and support decision-making processes in the health-medical and/or business-economic fields. They will also acquire solid communication skills indispensable for adequate and effective dissemination of results, even to those with no technical background in the methods proper to Data Science. The presence of prominent partners in the business and research worlds lends a practical, hands-on feel to the Master Course; this is further enhanced by the internship path to be undertaken with one of the partners or entities that bring their testimony to the program itself. The resulting job profile can find employment in various fields, including the public sector and local authorities, data analysis units of medium and large companies, insurance companies, marketing departments of production and distribution companies, research centers, and consulting firms. In addition, thanks to the solid theoretical foundation acquired, students are prepared to enter doctoral programs related to the topics covered in Italy and abroad upon successful completion of the program.
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 any class;

	Degree awarded according to a system prior to Ministerial Decree No. 509/1999
How the admission procedure takes place	Selection based on qualifications combined with a selective test aimed at verifying knowledge of statistics, mathematics, programming/informatics, and English (minimum level: B2), necessary for successful completion of the course. The test will consist of an interview in English.
Duration	12 months
Teaching methods	Teaching activities are conducted in person or remotely, or both. In the case of distance learning activities, the lectures will be synchronous on the Webex platform or similar.
Language of instruction	English
Attendance requirements	75%
Location of the course	In-person teaching activities are held at: Department of Statistics, Computer Science, Applications "G. Parenti" (DISIA), Viale Morgagni, 59, Florence; Morgagni Campus, Viale Morgagni 40, Florence; IMT School for Advanced Studies Lucca, Piazza S. Francesco, 19 - 55100 Lucca.
Foreseen lecture schedule	Classes will be held 3 or 4 days per week, including Saturday mornings, for **16 hours per week**. Face-to-face teaching will take place from February 1 to October 31, 2023 (planned summer break).
Examinations procedures and schedule	The assessment will consist of examinations with a grade expressed in thirtieths and a possible mention of honors or, in some cases, a pass/fail grade. Examinations (written tests, oral tests, assignments, reports, presentations, etc.) can occur during the term, after each subject, and after the end of face-to-face teaching. All exams are to be completed by December 2023.
Final examination	The final test consists of presenting a paper related to applying one of the methodologies introduced during the Master Course (or an extension thereof) to real case studies, hopefully resulting from the student's internship within partner companies/research organizations/public sector).

Available places and enrolment fees	
Full-fee students	
Minimum number	10
Maximum Number	20
Enrolment fee	€4,500
Free-of-charge supernumerary places	
UNIFI employees	2
AOU Careggi Employees	2
AOU Meyer Employees	2
USL Toscana Centro Employees	2
Single Modules	
Maximum places	2
Enrolment fee	€100

Access prerequisites	To be eligible to attend individual modules, one must hold one of the qualifications listed among those required for admission to the Master Course.
Admission criteria	The selection of applicants for enrollment in individual modules will take place **if the number exceeds the number of available places** and consists of an interview.

Description of the activities and training objectives of the internship	The 'internship activity aims to develop "soft" and "hard skills" essential for a fruitful inclusion in the relevant work environment. The internship aims to develop these skills by integrating the theoretical knowledge acquired and the work context of the host company or institution. To this end, students will be able to collaborate in the design, management, and implementation of activities related to the company's business, the institutional aims proper to the host company/institution/body, or the research projects in place at the departments, research units and research laboratories involved in the Master program. The internship activity may be replaced with other training activities of a practical nature agreed upon with the working student, particularly if the student demonstrates work activity in the specific field.
	Placement in the work environment will enable students to follow firsthand the design/implementation/development phases of software and implementation of complex data analysis. Internship activities aim at the student's acquisition of specific skills such as:
	ability to apply the technical skills acquired in the Master course to real cases; problem-solving orientation in the design, execution, and monitoring phases of specific projects; skills in communicating the results of activities related to projects developed in corporate or institutional settings; management skills useful in all phases of data science and big data analytics project development. 225 total hours of internship.