

## Master's degree in Data Science

### MASTER'S DEGREE IN DATA SCIENCE

(LM Data - Data Science class)

Planned courses A.Y. 2025-2026

#### 1. Educational offer

In the Academic Year 2025-2026 of the Master's Degree in Data Science, LM Data – Data Science class, the following course years are activated:

- first year for students enrolled in the A.Y. 2025-2026, cohort 2025, relevant didactic regulation FDS02Q-25: <https://elearning.unimib.it/course/view.php?id=46143&lang=en>
- second year for students enrolled in the A.Y. 2024-2025, cohort 2024, relevant didactic regulation FDS01Q-24: <https://elearning.unimib.it/course/view.php?id=46143&lang=en>

#### Active courses in the A.Y. 2025-2026

(LM Data - Data Science class)

**FIRST YEAR (for students enrolled in the A.Y 2025-2026, FDS02Q code):**

Course name and code	Course CFU	Didactic activity typology	SSD (Scientific-Disciplinary Sector)	Module name	Module CFU	Semester
DATA MANAGEMENT AND VISUALIZATION – FDS02Q001	12	Compulsory - Characterizing	INF/01	DATA MANAGEMENT	6	First semester
			INF/01	DATA VISUALIZATION	6	
DATA SCIENCE LAB – FDS02Q003	6	Compulsory - Characterizing	SECS-S/01	DATA SCIENCE LAB	6	Second semester
DATA SEMANTICS – FDS02Q010	6	Compulsory to be chosen - Characterizing	INF/01	DATA SEMANTICS	6	Second semester
FINANCIAL MARKETS ANALYTICS - FDS02Q007	6	Compulsory to be chosen - Affine/integrative	SECS-S/01	FINANCIAL MARKETS ANALYTICS	6	Second semester
FOUNDATIONS OF COMPUTER SCIENCE – FDS02Q009	6	Compulsory to be chosen - Characterizing	INF/01	FOUNDATIONS OF COMPUTER SCIENCE	6	First semester
FOUNDATIONS OF DEEP LEARNING – FDS02Q012	6	Compulsory to be chosen - Characterizing	INF/01	FOUNDATIONS OF DEEP LEARNING	6	Second semester

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FOUNDATIONS OF PROBABILITY AND STATISTICS – FDS02Q006	6	Compulsory to be chosen - Affine/integrative	SECS-S/01	FOUNDATIONS OF PROBABILITY AND STATISTICS	6	First semester
GREEN COMPUTING FDS02Q041	6	Compulsory to be chosen - Characterizing	INF/01	GREEN COMPUTING	6	Second semester
JURIDICAL AND SOCIAL ISSUES IN INFORMATION SOCIETY – FDS02Q005	6	Compulsory - Characterizing	IUS/09	JURIDICAL AND SOCIAL ISSUES IN INFORMATION SOCIETY	6	First semester
MACHINE LEARNING AND DECISION MODELS FDS02Q002	12	Compulsory - Characterizing	INF/01	MACHINE LEARNING	6	First semester
			MAT/09	DECISION MODELS	6	Second semester
MARKETING ANALYTICS – FDS02Q008	6	Compulsory to be chosen - Affine/integrative	SECS-P/08	MARKETING ANALYTICS	6	Second semester
STATISTICAL MODELLING – FDS02Q040	6	Compulsory - Characterizing	SECS-S/01	STATISTICAL MODELLING	6	Second semester

### SECOND YEAR (for students enrolling in the A.Y 2024-2025, FDS01Q code):

Course name and code	Course CFU	Didactic activity typology	SSD (Scientific-Disciplinary Sector)	Module name	Module CFU	Semester
BUSINESS INTELLIGENCE AND BIG DATA ANALYTICS – FDS01Q037	6	Compulsory to be chosen - Characterizing	INF/01	BUSINESS INTELLIGENCE AND BIG DATA ANALYTICS	6	First semester
CYBERSECURITY FOR DATA SCIENCE – FDS01Q015	6	Compulsory to be chosen - Characterizing	INF/01	CYBERSECURITY FOR DATA SCIENCE	6	First semester
DATA SCIENCE LAB IN BIOSCIENCES – FDS01Q025	6	Compulsory to be chosen - Affine/integrative	INF/01	BIG DATA IN BIOTECHNOLOGY & BIOSCIENCES	3	Second semester
			BIO/05	MAKING SENSE OF BIOLOGICAL DATA	3	
DATA SCIENCE LAB IN BUSINESS AND MARKETING - FDS01Q039	6	Compulsory to be chosen - Affine/integrative	SECS-S/06	BIG DATA IN BUSINESS, ECONOMICS AND SOCIETY	3	Second semester
			M-PSI/03	BIG DATA IN BEHAVIOURAL PSYCHOLOGY	3	

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DATA SCIENCE LAB IN ENVIRONMENT AND PHYSICS FDS01Q024	6	Compulsory to be chosen - Affine/integrative	GEO/04	BIG DATA IN GEOGRAPHIC INFORMATION SYSTEMS	3	Second semester
			FIS/01	BIG DATA MANAGEMENT AND ANALYSIS IN PHYSICS RESEARCH	3	
DATA SCIENCE LAB IN MEDICINE – FDS01Q026	6	Compulsory to be chosen - Affine/integrative	MED/01	BIG DATA IN HEALTH CARE	3	Second semester
			ING-INF/06	MEDICAL IMAGING & BIG DATA	3	
DATA SCIENCE LAB IN PUBLIC POLICIES AND SERVICES – FDS01Q043	6	Compulsory to be chosen - Affine/integrative	MED/01	BIG DATA IN PUBLIC HEALTH	3	Second semester
			INF/01	DATA IN PUBLIC AND SOCIAL SERVICES	3	
DATA SCIENCE LAB ON SMART CITIES – FDS01Q038	6	Compulsory to be chosen - Affine/integrative	INF/01	SMART MOBILITY	3	Second semester
			SPS/09	POLICIES FOR SMART CITIES	3	
DIGITAL SIGNAL AND IMAGE MANAGEMENT – FDS01Q017	6	Compulsory to be chosen - Characterizing	INF/01	DIGITAL SIGNAL AND IMAGE MANAGEMENT	6	First semester
ECONOMICS FOR DATA SCIENCE – FDS01Q021	6	Compulsory to be chosen - Affine/integrative	SECS-P/06	BIG DATA IN ECONOMICS	3	Second semester
			SECS-P/06	DIGITAL ECONOMY	3	
HIGH DIMENSIONAL DATA ANALYSIS – FDS01Q022	6	Compulsory to be chosen - Affine/integrative	SECS-S/03	HIGH DIMENSIONAL DATA ANALYSIS	6	First semester
NATURAL LANGUAGE PROCESSING - FDS01Q011	6	Compulsory to be chosen - Characterizing	INF/01	NATURAL LANGUAGE PROCESSING	6	Second semester
REINFORCEMENT LEARNING - FDS01Q042	6	Compulsory to be chosen - Characterizing	INF/01	REINFORCEMENT LEARNING	6	First semester
SERVICE SCIENCE – FDS01Q019	6	Compulsory to be chosen - Characterizing	ING-INF/05	SERVICE SCIENCE	6	First semester
SOCIAL MEDIA ANALYTICS – FDS01Q018	6	Compulsory to be chosen - Characterizing	INF/01	SOCIAL MEDIA ANALYTICS	6	First semester
STREAMING DATA MANAGEMENT AND TIME SERIES ANALYSIS – FDS01Q023	6	Compulsory to be chosen - Affine/integrative	SECS-S/03	STREAMING DATA MANAGEMENT AND TIME SERIES ANALYSIS	6	First semester

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TECHNOLOGICAL INFRASTRUCTURES FOR DATA SCIENCE – FDS01Q016	6	Compulsory to be chosen - Characterizing	INF/01	TECHNOLOGICAL INFRASTRUCTURES FOR DATA SCIENCE	6	First semester
TEXT MINING AND SEARCH – FDS01Q013	6	Compulsory - Characterizing	INF/01	TEXT MINING AND SEARCH	6	First semester

All courses are taught in English.

The following activities complete the path:

- Free-choice activities to be chosen by the student: 12 CFU
- Internship: 6 CFU
- Further linguistic knowledge/Further skills for job placement: 3 CFU.
- Final exam: 21 CFU.

## 2. Enrolment in the program

The Master's Degree program is addressed to students who have:

- a Bachelor's Degree (or a three-year university diploma), or a Master's Degree or a foreign academic qualification recognized as appropriate by the University, as long as they have gained at least 30 CFU in the following academic disciplines:
  - INF/01;
  - ING-INF/0;
  - from SECS-S/01 to SECS-S/06;
  - from MAT/01 to MAT/09;
  - from FIS/01 to FIS/08;
- English language proficiency at a level not lower than B2 (Common European Framework).

Once the curricular requirements have been verified, admission to the course is conditional on an assessment of background knowledge.

The assessment of the adequacy of personal preparation will be carried out through an interview, aimed at ascertaining knowledge in the fields of computer science and statistics.

Candidates will be admitted to the interviews if:

**a)** they have obtained (or are in the process of obtaining) a Bachelor's degree (or Master's degree) belonging to one of the following degree classes (or equivalent qualification) with a graduation mark of 83/110 or higher (or a recalculated weighted average mark of at least 22,5/30 for undergraduates):

- L-31 (Computer Science);
- L-8 (Information Technology Engineering);

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- L-41 (Statistics);
- L-30 (Physics);
- L-35 (Mathematics).

OR:

**b)** they hold (or are in the process of obtaining) a Bachelor's degree (or Master's degree) belonging to a class other than those mentioned above, obtained with a graduation mark equal to or higher than 83/110 (or a recalculated weighted average mark of at least 22.5/30 for undergraduates), and have acquired, within the total of 30 CFUs in the academic disciplines previously listed:

- at least 6 CFU in courses belonging to at least one of the following academic disciplines: SECS-S/01 to SECS-S/06 or MAT/06 or MAT/09; and
- at least 6 CFU in courses belonging to at least one of the following academic disciplines: INF/01 or ING-INF/05.

During the admission interview the Evaluation Committee may suggest to candidates the opportunity of attending in-depth disciplinary courses.

Those who do NOT fall into one of the above two categories will be excluded from the admission procedure.

Knowledge of the English language at a level equal to or higher than B2 can be verified with one of the following alternatives:

- a certification issued by the University or a certifying Body recognised by our University equivalent to level B2;
- the Bbetween English B2 Open Badge awarded by the University of Milano-Bicocca;
- an exam of at least 4 CFUs passed during previous University careers in one of the following academic disciplines: L-LIN/10, L-LIN/11, L-LIN/12;
- degree program if entirely or almost entirely taught in the English language.

Information about modalities, application submission deadlines and interview dates will be published at the University webpage <https://www.unimib.it/graduate/data-science>.

Extra-EU citizens requiring a student visa and other candidates with foreign qualifications, whether EU, equivalent, or extra-EU legally residing in Italy, must apply exclusively via <https://apply.unimib.it/>.

### 3. CFU transfer and recognition modalities

#### *Transfer modalities*

Students who intend to make an incoming transfer/passage must comply firstly with the indications provided by the art. 5 "Admission methods" of the 2025-2026 Teaching Regulation of the Master's degree program in Data Science available at the page: <https://elearning.unimib.it/course/view.php?id=46143>, as the application for evaluation of curricular requirements and the subsequent interview is mandatory in case of transfers and incoming passages, too.

Information regarding the modalities for submitting transfer applications is published at the webpage: <https://www.unimib.it/servizi/segreteria-studenti/passaggi-trasferimenti-e-rinunce>.

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### *Credits recognition*

Pursuant to Ministerial Decree 931/2024, universities may recognize extracurricular activities for Master's degree programs, for the purposes of awarding credits, for a maximum of 24 CFU. Educational activities already recognized as credits in the context of Bachelor's degree programs cannot be recognized again in the context of Master's degree programs.

Recognition is made exclusively on the basis of the skills demonstrated by each student. Types of recognition attributed collectively are excluded.

In case of transfer, the student can request recognition of training credits acquired in the previous course of study. Recognition is carried out by a special commission, appointed by the Teaching Coordination Council, on the basis of the conformity between the contents of the course of origin and those of the course to which one wishes to access. Partial recognition of a course is allowed.

In case of transfer of the student from another Master's degree program belonging to the LM Data - Data Science class, the number of credits relating to the same scientific-disciplinary sector, directly recognized to the student, cannot be less than 50% of the credits already gained (according to the Ministerial Decree of 16 March 2007).

### **4. Further linguistic knowledge/ Further skills for job placement**

The "Further Activities" 3 CFU are acquired according to the following modalities.

ITALIAN students can choose between:

- "further skills for job placement" 3 CFU, by participating in the University activities described in the E-learning webpage of the Program ([e-Learning - UNIMIB: All courses](#) | [e-Learning - UNIMIB](#)) or
- "further linguistic knowledge" 3 CFU, by passing the University test about level B2 proficiency of a foreign language other than English, to be chosen among French, Spanish or German, or by passing the University test of level C1 proficiency of English.

Italian students who already have a certification issued by the University or by Bodies accepted by the University, certifying linguistic knowledge of a level equal to or higher than B2 for the French, Spanish or German languages, or certifying linguistic knowledge of a level equal to or higher than C1 for the English language, will be entitled to exemption from the test and recognition of the required credits.

FOREIGN students must instead necessarily obtain 3 credits of:

- "further linguistic knowledge", by passing a University test to verify their knowledge of the Italian language at level A2. Foreign students who already have certifications issued by the University or by Bodies accepted by the University, certifying knowledge of the Italian language at level A2 or higher, will be entitled to exemption from the test and recognition of the required credits.

Information regarding the methods for carrying out the tests or the acquisition of credits is defined at University level and will be available at the University webpage <https://www.unimib.it/didattica/opportunita/lingue-unimib>

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### 5. Contemporary enrolment

According to current legislation, the student can enroll simultaneously in two higher education programs, in order to achieve two different degrees (please refer to Art. 20 of the [University Teaching Regulation](#)).

Information about application procedures and payments can be found at the following University webpage:

<https://www.unimib.it/servizi/studenti-e-laureati/segreterie/contemporanea-iscrizione-due-corsi-studio>

### 6. Enrolment in years subsequent to the first one

For information on enrolment in years subsequent to the first one, please refer to the webpage:

<https://www.unimib.it/servizi/segreterie-studenti/rinnova-liscrizione>

### 7. Organization of educational activities

The teaching activities are organized in course lessons. A course normally includes lectures, exercises and laboratory activities for which the following correspondences apply:

1 CFU of frontal lectures: 7-8 hours;

1 CFU of exercises: 10 - 12 hours;

1 CFU of laboratory activities: 9 - 12 hours.

The CFU represents the student's learning work, including the training activities implemented by the Master's degree program and the commitment reserved for personal study or other individual training activities. 1 CFU corresponds to 25 hours of total work, distributed between hours of lessons, laboratories and individual study.

### 8. Frequency

Attendance is mandatory for at least 75% of the laboratory hours, with the possibility of individual exemption for justified justification.

Attendance at lectures and exercises is not mandatory, but is highly recommended.

### 9. Class schedule, lecturers' office hours and contact details

Teaching activities are scheduled over two semesters:

#### First semester

- start of classes: 29 September 2025
- end of classes: 09 January 2026

#### Second semester

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- start of classes: 02 March 2026
- end of classes: 05 June 2026

Classes schedule, exams calendar with details are published both at the webpage

[https://gestioneorari.didattica.unimib.it/PortaleStudentiUnimib/?view=home&include=homepage&\\_lang=en](https://gestioneorari.didattica.unimib.it/PortaleStudentiUnimib/?view=home&include=homepage&_lang=en) and onto the exams board on Segreterie Online <https://s3w.si.unimib.it/Home.do>

Lecturers' contacts are published at the webpage <https://en.unimib.it/people-search>. Please contact them by email in order to book an appointment.

### 10. Activities to be freely chosen by the student

The student will be able to acquire the 12 credits foreseen as part of the free-choice training activities by choosing courses activated in the Master's Degree program in Data Science or in other Master's degree programs of the University.

The activities to be freely chosen by the student are an integral part of the study plan as they complete the student's university education, and must therefore be submitted for approval by the competent bodies in order to verify their consistency with the educational project.

According to current legislation, the activities chosen by the student count for only one exam (for the purposes of calculating the total number of exams).

### 11. Teaching programs

The teaching programs ("syllabus") and other useful information on the organization of teaching activities are available at the following web page

<https://elearning.unimib.it/course/index.php?categoryid=9172&lang=en>.

### 12. Study plan submission

Students are automatically assigned a study plan upon enrollment in the first year, which constitutes the statutory study plan. Subsequently, the students must submit their own study plan with an indication of the compulsory, elective and freely chosen activities.

The periods for submitting study plans are specified at the webpage <https://www.unimib.it/servizi/studenti-e-laureati/segreterie/piani-degli-studi/area-scienze>.

The study plan is approved by the Teaching Coordination Council. The student can take exams only if they are included in his/her study plan. The study plan must comply with the number of credits to be acquired, the constraints and the rules established by the Course's Teaching Regulation.

It is possible to propose an individual study plan that also includes teaching activities which are different to the ones planned by the Didactic Regulation, as long as they are consistent with Degree's Program Didactic System of the Master's degree program of the academic year of enrolment, subject to verification of the coherence with the training objectives of the Course of study by the Didactic Commission and the Teaching Coordination Council.

For anything not covered, please refer to the [University Regulations for Students](#).

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According to art. 22 paragraph 4 of the University Didactic Regulations in force, students enrolled in Bachelor's Degree Program, Master's Degree Program or Single Cycle Master's Degree Program may include in their own study plan one or more additional teaching activities than the ones required for the academic title's achievement up to a maximum of 16 CFU.

CFU and marks of additional teaching activities will not be counted in the final average exam grade, but they will be reported in the student's career.

The student's right to take verification exams relating to a teaching activity is subject to the presence of the activity itself in the last approved study plan. More information on the webpage <https://www.unimib.it/servizi/segreterie-studenti/piani-degli-studi>.

### 13. Exams

The exams are usually scheduled during the periods of suspension of classes as annually defined and they are no less than the amount established by the University Teaching Regulation.

The procedures for carrying out the exams and further information on the minimum number of exams are available in the Student Regulation published on the University website.

The validity of the exam program is limited to the academic year in which the course is provided.

Each course corresponds to an exam which involves the acquisition of the credits attributed to the course. A course can include multiple modules which give rise to a single integrated exam.

The exams give rise to an evaluation out of thirty.

The exams can be oral and/or written.

Partial intermediate exams valid for passing the exam may be scheduled during the course.

Details on the modalities of verification and evaluation of each individual course included in the study plan are available in the course syllabus available on the e-learning site of the Degree program, "COURSES" section [e-Learning - UNIMIB: All courses | e-Learning - UNIMIB](#)

Registration for exams is mandatory and takes place online <https://s3w.si.unimib.it/Home.do>

The calendar of exam dates is available on the public section (you must access it WITHOUT logging in)

"Exam notice board" of the website [Teaching offer, Segreterie OnLine - Università degli Studi di Milano-Bicocca](#) and in the Web Agenda at the following webpage

<https://gestioneorari.didattica.unimib.it/PortaleStudentiUnimib/?view=home&include=homepage&lang=en>

### 14. Final exam

The final exam consists in the presentation of an original thesis in English by the student under the guidance of a supervisor.

The thesis deals with a project or research activity or case analysis. The final exam aims at verifying the overall quality of the work carried out, the candidate's ability to communicate, justifying and identifying logical connections between different scientific topics, the mastery of the topics and tools used, as well as the ability to operate independently in the field of organizations that use data science tools.

The thesis work can also be carried out as part of the internship.

#### **Final exam modalities**

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The final exam consists in the production of a paper written in English and its presentation and discussion in order to highlight the results achieved in relation to the reference context.

The discussion has also the aim of evaluating the student's ability and versatility in carrying out in-depth studies on the thesis topics or themes logically related to those addressed in the thesis.

For anything not detailed in this paragraph and for the complete calendar of Master's degree sessions, please refer to the following webpage: <https://elearning.unimib.it/enrol/index.php?id=46141&lang=en>

### 15. Contacts

Master's degree program site: Department of Computer science, Systems and Communication (Abacus U14 building), Viale Sarca, 336 – 20126 Milan

President of the Teaching Coordination Council: prof. **(da aggiornare dopo elezioni del 10 giugno)**.

Other reference teachers of the Master's degree program:

prof. Elisabetta Fersini;

prof. Gabriele Gianini (international mobility coordinator);

prof. Enrico Moretto (internship referent);

prof. Matteo Maria Pelagatti (Didactic Commission member);

prof. Marco Viviani.

Teaching Services office - Sciences:

[segreteria.didattica@disco.unimib.it](mailto:segreteria.didattica@disco.unimib.it)

[orientamento.datascience@unimib.it](mailto:orientamento.datascience@unimib.it)

Master's degree program websites:

[e-Learning - UNIMIB: All courses | e-Learning - UNIMIB](#)

<https://www.unimib.it/graduate/data-science>

For further information, please refer to the Teaching Regulation for the academic year of first enrollment, which can be consulted on the web page <https://elearning.unimib.it/course/view.php?id=46143>