UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2026/27
IN
DATA SCIENCE FOR ECONOMICS AND HEALTH (Classe LM-data)
Immatricolati nell'a.a. 2025/26

HEADING

Degree classification - Denomination and code:	LM Data
Degree title:	Dottore Magistrale
Length of course:	2 years
Credits required for admission:	180
Total number of credits required to complete programme:	120
Course years currently available:	2nd
Access procedures:	open, subject to entry requirements
Course code:	BBL

PERSONS/ROLES

Head of Interdepartmental Study Programme

Prof. Stefano Montanelli (Vice-Head of Interdepartimental Study Programme: Prof. Silvia Salini)

Tutors - Faculty

Prof. Alfio Ferrara (Academic guidance tutor) Prof. Luca Rossini (Academic guidance tutor)
Prof. Dario Malchiodi (Erasmus and international mobility tutor)
Prof. Domenico Massaro (Erasmus and international mobility tutor)
Prof. Matteo Zignani (Internship tutor)
Prof.ssa Silvia Salini (Laboratory tutor)

Degree Course website

https://dseh.cdl.unimi.it/en

Didactic Secretariat

Via Celoria, 18 – 20133 Milan https://informastudenti.unimi.it/saw/ess?AUTH=SAML

Disability Referee: Prof.ssa Silvia Salini

Student Registrar

Via Santa Sofia 9 Tel. +39 02 5032 5032 https://www.unimi.it/en/study/student-services/welcome-desk-informastudenti

CHARACTERISTICS OF DEGREE PROGRAMME

General and specific learning objectives

The master's degree course in Data Science for Economics and Health (DSEH), entirely delivered in English, aims to provide advanced education on methodological methods and tools in computer science, statistics, and mathematics designed to interpret and analyze complex phenomena in the fields of economics and health. The course of study offers advanced skills through the study of emerging information technologies about data management and scalability of analysis systems in cloud environments, advanced statistical and mathematical techniques, as well as machine learning techniques for information extraction and classification. Furthermore, the course addresses topics about economic theory, decision theory under conditions of uncertainty, econometrics, and time-series analysis, biostatistics and epidemiology. Graduates of the DSEH MSc program will receive advanced education on methodologies and tools in computer science, quantitative and methodological notions to interpret and analyze economic phenomena using approaches that integrate business, market and social media data. Among these, the MSc program focuses on the analysis of the effects of economic policies as well as the evaluation of actions and any other activity related to the sectors of economy, environment, marketing and business. Moreover, the MSc program aim to provide the foundations of epidemiology and biostatistics on which to graft the acquired knowledge of data analysis. The DSEH course bolsters the construction of solid methodological bases by addressing topics of the economic theory, decision theory under uncertainty conditions, micro-econometric techniques and time-series analysis. It also fosters the study of emerging data management technologies and scalability of analysis systems in cloud environments, as well as machine learning techniques for the extraction and classification of information.

In addition to these compulsory activities, the DSEH course allows students to autonomously customize/specialize the study plan according to their own inclinations, by choosing elective courses up to 18 ECTS in total between three different educational paths, namely "Data Science" path, "Economic Data Analysis" path, and "Health" path. A first kind of specialization focus is about the aspects of methodological and technological innovation, advanced statistical methods, techniques of social media analysis and textual analysis as well as their impact on the data-driven business. A further kind of specialization offers useful tools for economic applications in policy or investment assessment, the study of production processes, and the evolution of social phenomena, with a focus on environmental issues. Finally, the third specialization is devoted to the analysis of medical data and the study of the relationship between exposure and health in the population and to provide the tools to critically evaluate the epidemiological literature.
These specialization activities are geared, together with the external training activities, to the preparation of the dissertation and to the final exam. Therefore, the dissertation is considered as the fulfilment of the course of study and the learning process began with the choice of the educational path.
The courses of DSEH, both compulsory and elective, include lectures and laboratory classes as well as autonomous project activities and individual activities to guarantee an adequate preparation also from a practical point of view, in close contact with case studies and real data.
The in-depth studies in mathematics, statistics, computer science and economics highly qualify the educational project of Data Science for Economics and Health, and they also pave the way to students interested in PhD and research programs in the areas of Data Science, Computer Science, Economics, and Epidemiology and Public Health.

Expected learning outcomes

- Knowledge and comprehension skills

Data Science for Economics and Health master's degree course aims to train specialists capable of using mathematical statistical-computer techniques in the economic and health fields, by pursuing the following educational objectives: understanding the mathematical tools relevant to tackle data science problems; understanding the theory and the methodological-operational aspects of statistics and probability; understanding the theory, the methodological aspects, and the tools of the computer science discipline; understanding the methodological-operational aspects of the economic theory (at micro and macro- economic level) and of the statistical-econometric methods; understanding the aspects relative to business, management and company organization; understanding the essential elements of data protection legislation and privacy risks stemming from release/disclosure of public and semi-public data, understand medical data and problems related to the reproducibility of clinical trials also in relation to ethical issues of biomedical research and the different approaches of statistical inference. Knowledge and comprehension skills are provided mainly through lectures, along with seminars, practice drills/exercises and focus groups, as well as through autonomous and guided individual study. The achievement of the learning results is assessed through oral and/or written exams, as well as by evaluating written reports drafted individually or in team.

- Application of knowledge and comprehension skills

Data Science for Economics and Health master's degree aims to provide practical capabilities in order to identify, analyse, and spot issues pertaining data and their analysis; tackle and solve problems linked to data management and storage; process data by using complex software tools; be able to define autonomously algorithms and data processing programs; devise mathematic models, both deterministic and stochastic ones, as well as develop original calculus codes for data analysis; master a full awareness of economic and health data nature; be able to interpret economic and medical data analysis outcome with expertise and ability to understand its effects. Practice exercises, as supplement to all the lectures, play a crucial role in terms of achievement and validation of the ability to put in practice the knowledge and comprehension acquired. Students are expected to broaden and deepen knowledge thus acquired through participation in laboratories and workshops, many of which offered by companies and organizations; seminars chaired by external experts; internships or curricular internships; by consulting bibliographic material and carrying out their thesis work.

- Making judgments

DSEH graduates will also develop the following skills: i) ability to read and critically evaluate data analysis results, technical and scientific reports and articles containing data; ii) problem analysis (both theoretical and practical) and focus on key points to develop the solution; iii) ability to solve economic and health problems through effective data mining/acquisition, and/or data processing, and/or data modeling procedures, in light of the most advanced technologies, knowledge and methodologies; iv) work in group abilities in research groups or in interdisciplinary contexts. Data Science for Economics and Health master's degree aims to foster students' autonomy by focusing on autonomous judgment and critical thinking skills both during the evaluation of the problems considered, and during the elaboration of the results. To that end, student will have to face theoretical and practical problems, aimed to involve skills related to key points detection, solutions modelling, choice of suitable tools and techniques for the resolution of these problems, and the analysis of the results. The acquisition of all these skills is tested during classes through the presentation and discussion of applications and case studies.
Lastly, students will also participate in group works and will be involved in interdisciplinary research activities to develop proactive and collaborative mindset/attitude.

- Communication skills

DSEH graduates will be capable of i) presenting, discuss and effectively communicate in a clear form (written or oral) their work results (e.g. projects, reporting, document analysis) within the company or institutions they take part in, along with

their positions/opinions based on evidences supported by data; ii) setting up cooperative and collaborative relations within work groups, and adopting new communication tools. In particular, graduates will develop the following skills: i) ability to present a problem pertaining data and its resolution procedure by using suitable language and terms; ii) ability to effectively report data analysis/his job results to personnel and potential stakeholders unfamiliar with data; iii) ability to report data, as well as its management and the results of their analysis by use of the new communication, information, and education technologies.
Communication skills in working contexts is firstly achieved throughout the presentation and discussion of case studies. The application of quantitative methods and computer/IT techniques within economic courses enable the ability of students to employ information and empirical patency/facts in support of its estimations within working contexts. Moreover, DSEH courses include drafting reports, projects or short papers activities; these, along with the thesis draft, allow students to enhance their written communication skills.
Active participation in exercises and professional laboratories, as well as carrying out internships in companies, represent opportunities to develop relational competencies. Communication skills are put to test throughout work groups and exams, as embedded in the total/overall score, specifically within courses in which communication is considered among the educational goals. Even thesis drafting and dissertation provide further elements of evaluation.

- Learning Skills
DSEH graduates will learn to consult scientific publications, databases and other online sources. Methodological skills enhanced throughout the master's course will facilitate the learning skills, useful both for undertaking a professional path individually, and to cover management role in research institution, as well as for pursuing the studies through 2nd level Postgraduate Specialization or in PhD programs. Specifically, graduates will develop the following skills: i) ability to conduct bibliographic researches to analyze the progress status of the research basing on data tools and models; ii) ability to detect an open problem related to data and suggest a strategy to solve it; iii) ability to constantly update skills and competencies, in order to adopt it in multiple contexts, also different from work; iv) ability to evaluate the effectiveness of the approaches learned or even different ones to new areas of interest.
The multidisciplinarity of DSEH fosters learning abilities, providing students opportunities to relate methodological approaches to different disciplines. The significant quantity of economics and computer science courses, which provide methodological skills and formal analysis techniques, facilitate the learning of a scientific approach oriented to the problem solving.
Furthermore, students will be delivered activities consisting in reading and evaluating technical-scientific reports and articles to assess learning skills in relation to the most recent scientific literature. Such skills will be assessed through open question in exams, and in some cases through the evaluation of small projects or written papers.

Professional profile and employment opportunities
The MSc program in Data Science for Economics and Health aims to train the following professional figures:

Profile: Data Scientist
Functions: its main functions are i) to analyze and elaborate forecasts on large data flows, ii) to identify and apply the most suitable software tools and statistical techniques for their processing, iii) to create complex models for predictive data- based analysis. The Data Scientist knows the different contexts in which data emerge and she/he knows how to interact with experts from various disciplines.
Skills: statistical analysis, programming, knowledge of software tools.
Outlets: large companies, small and medium-sized enterprises, startups and Public Administration. They can work in manufacturing, telco and media, services, banking-insurance, utilities sectors.

Profile: Data Analyst
Functions: its main functions are the identification and supervision of operational decision-making processes in direct coordination with the company executive management. They can work in marketing, business, management innovation, and finance.
Skills: baggage of theoretical knowledge about economics, statistics and computer science to support both organizational and development decisions of economic institutions and companies.
Outlets: large companies, small and medium-sized enterprises and consulting firms operating in various sectors such as manufacturing, telco and media, services, banking-insurance, utilities.

Profile: Data Driven Economist
Functions: its main functions are to frame problems of economic analysis in the context of data science by identifying data and technologies capable of providing new keys to interpret or to evaluate economic and social phenomena.
Skills: economic theory, statistical, econometric and computer science techniques. Outlets: large companies, Public Administration and international organizations.

Profile: Data-Driven Decision Maker
Functions: the professions included in this category perform managerial functions of high responsibility in private and public companies with an international vocation and a strong technological component, using data analysis to guide strategic and operational decisions.
Skills: wealth of theoretical knowledge about economics, statistics and computer science to support organizational and

development decisions of economic institutions and companies.
Outlets: small and medium enterprises, large companies, Public Administration.

Profile: Analyst of development projects or economic policies
Functions: the professions included in this category contribute to the formulation, monitoring and analysis of development projects or economic policies.
Skills: baggage of theoretical and operational notions in the field of economics, business management strategy, and the economic policies that govern them.
Outlets: they work in private or public companies in industry, commerce, business services, personal services, and companies of similar kind as well as international and/or governmental institutions.

Profile: Health Analyst
Functions: its main functions are to define the most appropriate study type modalities to answer questions related to the relationship between exposure and health in the population, propose the most appropriate statistical, computational and data management methods for experimental and observational studies.
Skills: theoretical knowledge of medical statistics and epidemiology, statistical, econometric and computer science techniques.
Outlets: Health care companies, hospitals, teaching hospitals.

Pre-requisites for admission

1. Curricular requirements

Candidates for admission to the master's degree course may come from various bachelor's, but must have earned at least 30 ECTS in computer science and mathematics (scientific disciplinary sectors: from MAT-01 to MAT-09, INF-01, ING-INF/05) and/or in the area of economic sciences and statistics (scientific disciplinary sectors: SECS-S/01, SECS-S/02, SECS-S/03, SECS-S/06, SECS-P/05, SECS-P/01, SECS-P/02, SECS-P/03, SECS-P/07, SECS-P/08, SECS-P/10), and/or in medical sciences (scientific sector MED/01 only).
Curricular requirements must be met by the date of effective submission of the application for admission. Students with a foreign qualification are required to provide an Italian qualification to show that they satisfy the minimum curricular requirements of DSEH.

2. Proficiency in English

Proficiency in English at a B2 level or higher per the Common European Framework of Reference for Languages (CEFR) is required for admission.
The B2-level requirement will be ascertained by the University Language Centre (SLAM) upon admission as follows:
- Language certificate of B2 or higher level issued no more than three years before the date of admission application. You will find the list of language certificates recognized by the University at: https://www.unimi.it/en/node/39322. The certificate must be uploaded when submitting the online application;
- English level achieved during a University of Milan degree programme and certified by the University Language Centre (SLAM) no more than four years before the date of admission application, including levels based on language certificates submitted by the applicant during their Bachelor's degree at the University of Milan. In this case the process is automatic, the applicant does not have to attach any certificates to the application;
- Entry test administrated by the University Language Centre (SLAM) according to the calendar published on the website: (https://www.unimi.it/en/node/39267/)
All those who fail to submit a valid certificate or do not meet the required proficiency level will be instructed during the admission procedure to take the Entry test.
Applicants who do not take or pass the Entry test will be required to obtain a language proficiency certificate recognized by the University (see https://www.unimi.it/en/node/39322) and deliver it to the SLAM via the InformaStudenti service by the deadline fixed for the master's programme (https://www.unimi.it/en/node/39267/).
Applicants who do not meet the requirement by said deadline will not be admitted to the master's degree programme and may not sit any further tests.

3. Personal competencies and skills: assessment criteria

Satisfying minimum curricular requirements is a necessary but not sufficient condition for admission. An Admission Board appointed by the Faculty Board (a.k.a. Collegio Didattico) must evaluate and manage the admission procedures of candidate students.
Assessment of personal competencies and skills of applicants is enforced through a written online admission test in English. An admission threshold is set for the test by the Admission Board, and applicants must obtain a result over the threshold for passing the test. Applicants who do not participate or obtain a result over the threshold are not admitted to the master's degree programme and are not allowed to participate in any further test. Further information about the test and the related organization are published on the degree course website when the call for admissions is opened.
For applicants who meet the curricular requirements and obtain a result over the threshold in the admission test, the

Admission Board assesses the personal competencies and skills of students based on the academic curriculum (quality of the previous degree as well as the average grade obtained in the bachelor program; grades obtained in mathematics, statistics, computer science and economics courses are part of the evaluation) and choice coherence (coherence between the academic curriculum and/or the activities previously carried out by the student and the learning objectives of the MSc in Data Science for Economics and Health).
The Admission Board has also the opportunity to ask the applicant an oral, technical interview through an online platform (e.g., Teams, Skype, Zoom, Meet). The interview aims to verify the individual knowledge and skills required by DSEH. A complete, detailed list of topics that can be asked during the interview is published on the DSEH website.
The DSEH program has also the opportunity to define a maximum number of students to be admitted, determined each year by the appropriate academic bodies on the basis of structural, instrumental, and personnel resources that can be employed to enforce the degree course.

Programme structure

Teaching modalities and organization.
The normal duration of the master's degree course in Data Science for Economics and Health is two years. To obtain the master's degree, the acquisition of 120 university ECTS is required, including those reserved for the final exam.
The MSc program in Data Science for Economics and Health includes 75 compulsory ECTS. An additional group of 27 credits is chosen by the student according to the courses included in the educational paths identified by the Faculty Board. Of these 27 credits, 9 are a free choice of the student (elective courses).
A student of DSEH will be able to customize/specialize the study plan according to her/his own inclination by choosing courses for a total of 18 ECTS within three educational paths identified by the Faculty Board, namely i) Data Science, ii) Economics Data Analysis, and iii) Health. The Faculty Board can set up new paths in synergy with other departments of the University.
The tutors of DSEH will support the student in the choice by advising and providing information on the syllabi of the available courses. The “Data Science” path will allow the student to further enhance i) the STEM-oriented knowledge in the field of computer science and/or statistical mathematics, and ii) the business-oriented knowledge (i.e., marketing, business organization, data strategy). The “Economic Data Analysis” path will allow the student to enhance specific knowledge in the economic fields, such as behavioral economics, environmental or labor economics, which make extensive use of empirical analyses on large databases of administrative nature. The “Health” path will enable the student to learn how to extensively and appropriately use health-medical data and the theoretical foundations of the of epidemiology and biostatistics.
As elective courses for 9 ECTS, students can choose one or more activities, among those offered by the University of Milan (laboratories or courses).
Furthermore, DSEH includes 3 compulsory ECTS that are acquired as i) Italian language for the foreign students without an Italian certification, ii) transversal skills for Italian students or foreign student with an Italian certificate (at least A2). Transversal skills can be also acquired through laboratories, partly provided by companies and organizations, to further improve the aptitude of students to problem solving and to make them aware and reactive to the challenges of the world of real work. The degree course also includes a compulsory internship of 3ECTS in companies or institutions, appropriately selected by the Faculty Board of DSEH. The course of study is completed with the dissertation work of 12 ECTS.
In cooperation with the “University of Warsaw” in Poland, it will be possible for students of the “Data Science” and “Economic Data analysis” educational paths, upon selection of those who will apply, to choose an educational pathway to obtain the double degree. The selected students, in a maximum number of 5 per year, will attend the first year in Milan and the second year at the “University of Warsaw”.

Organization of courses
Some DSEH courses are organized in multiple modules. Please check the website page of each course for further information: https://dseh.cdl.unimi.it/en/courses

Plan of study
Students may choose a complete plan of study starting from the first year. The plan of study must be defined coherently with the structure of the DSEH degree course (see above).
A student of DSEH can customize/specialize the plan of study according to her/his own inclination by choosing courses for a total of 18 ECTS within three educational paths that are i) Data Science, ii) Economics Data Analysis, and iii) Health.
Students with Italian qualification must earn 3 credits as Transversal Skills (please check https://www.unimi.it/en/study/bachelor-and-master-study/following-your-programme-study/soft-skills). As an alternative, students can select a laboratory ascribed as Transversal Skill (please check https://dseh.cdl.unimi.it/en/courses/laboratories).
Instead of Transversal Skills, students with a foreign qualification must earn 3 credits as Additional Language skills: Italian (please check https://dseh.cdl.unimi.it/en/courses/italian-language-foreigners-tests-and-courses).
Finally, as elective courses in the plan of study, students select activities for 9 ECTS among those offered by the University of Milan (laboratories or courses).
After the approval of the study plan, the student can independently take further exams in addition to his/her educational path.
Further information about the plan of study is available at the following page: https://www.unimi.it/en/study/bachelor-and-master-study/following-your-programme-study/plan-study.

Schedules and course timetable

Please check: https://dseh.cdl.unimi.it/en/study/schedules-and-course-timetable

Exams
Students will be evaluated at the end of each course. Optionally, interim written and/or oral assessments can be organized by the lecturer during the course. Exams will be scheduled according to the academic calendar and published on official website at: https://dseh.cdl.unimi.it/en/study/exams

Campus
Teaching locations in the "Città Studi" area: via Celoria 18, via Celoria 20, via Golgi 19, via Venezian 15. Teaching locations in the "Political Science" area: via Conservatorio 7, via Passione 13/15

Tutoring
Each year a student tutor is selected to monitor and support students with learning difficulties.

Language test / computer literacy test
To obtain the degree, those who do not hold an Italian high school diploma or degree must demonstrate proficiency in Italian at the A2 or higher level per the Common European Framework of Reference for Languages (CEFR). This level must be demonstrated prior to completing the course programme in one of the following ways:
- by submitting a certificate of A2 or higher level issued no more than three years prior to the date of submission. You will find the list of language certificates recognized by the University at: https://www.unimi.it/en/node/349/). The language certificate must be uploaded through the dedicated Platform (http://studente.unimi.it/uploadCertificazioniLingue);
- via an entry-level test administrated by SLAM that can be taken only once and is compulsory for all students who do not have a valid language certificate. Those who fail to reach A2 level will have to attend one or more than one 60-hour Italian course(s) geared to their level. Those who do not take the entry-level test or fail to pass the end-of-course test after six attempts will have to obtain language certification privately in order to earn the 3 credits of Additional language skills: Italian.

Compulsory attendance
No obligation, but strongly recommended.

Internship criteria
There are 3 compulsory ECTS addressed for a training internship or external internship.

Degree programme final exam
Having earned at least 105 credits for the learning activities expected by her/his study plan and a minimum of 3 credits for internship, a student can be admitted to undertake the final exam leading to the award of the master's degree. The final exam consists in a public discussion in front of a committee of a master's dissertation. The master's dissertation is an original piece of work, written by the candidate under the guidance of a supervisor. A total of 12 credits is reserved to the design, preparation and writing up of the master's dissertation. The formal assignment of these credits is possible only when the dissertation is completed, and the final exam is passed.

EXPERIENCE OF STUDY ABROAD AS PART OF THE DEGREE PROGRAM

The University of Milan supports international mobility by providing its students with the opportunity to spend study and internship periods abroad. It is a unique chance to enrich your educational path in a new exciting environment.

The agreements entered into by the University with over 300 universities from the 27 EU member countries under the European Erasmus+ programme allow regularly enrolled students to carry out part of their studies at one of the partner universities or to undertake internships at companies, training and research centres and other organisations.

Similar international mobility opportunities are provided outside Europe, through agreements with a number of prestigious institutions.

The University of Milan is a member of the 4EU+ European University Alliance that brings together eight public multidisciplinary universities: University of Milan, Charles University of Prague, Heidelberg University, Paris-Panthéon-Assas University, Sorbonne University of Paris, University of Copenhagen, University of Geneva, and University of Warsaw. The 4EU+ Alliance offers integrated educational pathways and programmes to promote the international mobility of students (physical, blended and virtual).

Study and internships abroad
The education program can be enriched by educational activities abroad both to deepen some topics and as socialization experience in international environments. Within the Erasmus+ program study periods can be taken in over 50 universities in Belgium, Czech Republic, Finland, France, Germany, Greece, Hungary, Lithuania, Norway, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Switzerland, Turkey. Courses will be recognized in the personalized study plan. These periods abroad are typically 5-month long and include courses for about 30 CFU, in the area of information and communication technology and related applications. Recognition of these educational activities will be based on the Learning Agreement, to be defined in advance by the student and the Erasmus coordinator at the Computer Science Department before starting the

period abroad: course in the learning agreement with passed exams will replace the educational activities of the study plan ("manifesto"), either by covering the same topics or complementing the acquired basic competences. The Erasmus Committee at the Computer Science Department will perform the recognition of CFU obtained abroad and the definition of the personalized study plan. Similarly, stages to prepare the final dissertation are allowed in the same foreign universities. Recognition will be performed by the Department Erasmus Committee.
Erasmus: the coordinator for the Department of Informatics is Prof. Fabio Scotti.
International Programs: the coordinator for the Department of Informatics is Prof. Davide Rocchesso.
More information are available at the following link: https://di.unimi.it/it/rapporti-internazionali/mobilita-internazionale/opportunita-internazionali

How to participate in Erasmus mobility programs

The students of the University of Milan can participate in mobility programmes, through a public selection procedure.
Ad hoc commissions will evaluate:
• Academic career
• the candidate's proposed study programme abroad
• his/her foreign language proficiency
• the reasons behind his/her application

Call for applications and informative meetings
The public selection for Erasmus+ mobility for study generally begins around February each year with the publication of a call for applications specifying destinations and requirements. Regarding the Erasmus+ Mobility for Traineeship, the University of Milan usually publishes two calls a year enabling students to choose a destination defined by an inter-institutional agreement or to find a traineeship position on their own.

The University organises informative meetings to illustrate mobility opportunities and rules for participation.

Erasmus+ scholarship
The European Union grants the winners of the Erasmus+ programme selection a scholarship to contribute to their mobility costs, which may be supplemented by the University funding for disadvantaged students.

Language courses
Students who pass the selections for mobility programmes can benefit from intensive foreign language courses offered each year by the University Language Centre (SLAM).
https://www.unimi.it/en/node/8/

Learn more at https://www.unimi.it/en/node/274/

For assistance, please contact:
International Mobility Office
Via Santa Sofia 9 (second floor)
Tel. 02 503 13501-12589-13495-13502
Contacts: InformaStudenti;
Student Desk booking through InformaStudenti

ADMISSION CRITERIA: 1ST YEAR OPEN, SUBJECT TO ENTRY REQUIREMENTS

Application and enrolment information and procedures

Applicants from EU countries and from non-EU contries must apply for admission to the DSE programme according to the different deadlines published on: https://dseh.cdl.unimi.it/en/enrolment.

Further information about admission procedures are available on: https://dseh.cdl.unimi.it/en/enrolment.

Applicants will be selected based on admission test result, academic curricula, choice coherence and technical interview (when required), with the aim to ascertain the applicants' personal knowledge, competences and skills in the core areas of the DSE programme. When required, the interviews of applicants will be held via electronic devices (i.e., via Teams, Skype, Zoom or other platforms) according to a calendar individually agreed with each applicant.

Further detailed information concerning the DSE programme and the admission procedures are available at https://dseh.cdl.unimi.it/en/enrolment.

Links to enrolment information and procedures

https://www.unimi.it/it/node/183/

N° of places reserved to non-EU students resident abroad

50

1st COURSE YEAR (Cancelled since academic year2026/27)Core/compulsory courses/activities

Scheduling	Learning activity	Module/teaching unit	Ects	Sector
	Coding for Data Science and Data Management (Total number of ects:12)	Coding for Data Science	6	SECS-S/01
		Data Management	6	INF/01
	Statistical Theory and Mathematics (Total number of ects:12)	Statistical Theory	6	SECS-S/01
		Mathematics	6	MAT/08
	Data-Driven Economic Analysis (Total number of ects:12)	Economic Theory	6	SECS-P/01
		Econometrics	6	(3) SECS-P/02, (3) SECS-P/05
	Machine Learning and Statistical Learning (Total number of ects:12)	Machine Learning	6	INF/01
		Statistical Learning	6	SECS-S/01
		Total number of compulsory credits/ects	48	

Elective courses

1 activity among the selected path:
Dynamic Economic Modeling for “Data Science” and “Economic Data Analysis” paths
Introduction to Biostatistics and Epidemiology for “Health” path

	Dynamic Economic Modeling		9	SECS-P/01
	Introduction to Biostatistics and Epidemiology		9	MED/01

2nd COURSE YEAR Core/compulsory courses/activities

Scheduling	Learning activity	Module/teaching unit	Ects	Sector
	Privacy, Data Protection and Massive Data Analysis in Emerging Scenarios (Total number of ects:12)	Privacy and Data Protection	6	INF/01
		Cloud Computing and Algorithms for Massive Datasets	6	INF/01
1 four month period	Data Governance: Ethical and Legal Issues		6	(3) IUS/09, (3) IUS/20
		Total number of compulsory credits/ects	18	

Elective courses

3 activities among the selected path
Total 18 credits/ects

DATA SCIENCE PATH
3 courses chosen from the following

1 four month period	Marketing Analytics		6	SECS-P/08
1 four month period	Natural Language Processing		6	INF/01
1 four month period	Network Science		6	INF/01
1 four month period	Probabilistic Modeling		6	SECS-S/01
1 four month period	Scientific Data Visualization		6	(3) SECS-S/01, (3) INF/01
1 four month period	Time Series and Forecasting		6	SECS-P/05
2 four month period	Advanced Multivariate Statistics		6	SECS-S/01
2 four month period	Bayesian Analysis		6	SECS-S/01
2 four month period	Chemometrics		6	(3) SECS-S/01, (3) CHIM/01
2 four month period	Functional and Topological Data Analysis		6	MAT/06
2 four month period	Organizations, Innovations, and Intelligent Technologies		6	SECS-P/10
3 four month period	Reinforcement Learning		6	INF/01

ECONOMIC DATA ANALYSIS PATH
3 courses chosen from the following
At least 2 among "Advanced Causal Inference and Policy Evaluation", "Time Series and Forecasting", and "Environmental Data analysis and Policy".

1 four month period	Advanced Causal Inference and Policy Evaluation		6	SECS-P/01
1 four month period	Applied Climate Economics		6	AGR/01
1 four month period	Global and Climate Change Economics		6	SECS-P/01
1 four month period	Natural Language Processing		6	INF/01
1 four month period	Network Science		6	INF/01
1 four month period	Probabilistic Modeling		6	SECS-S/01
1 four month period	Scientific Data Visualization		6	(3) SECS-S/01, (3)

				INF/01
1 four month period	Time Series and Forecasting		6	SECS-P/05
2 four month period	Advanced Multivariate Statistics		6	SECS-S/01
2 four month period	Bayesian Analysis		6	SECS-S/01
2 four month period	Environmental data analysis and policy		6	SECS-P/01
3 four month period	Reinforcement Learning		6	INF/01
HEALTH PATH **3 courses chosen from the following** **At least 1 among "Advanced Biostatistics and Epidemiology" and "Fundamentals of Artificial Intelligence for Data Analysis in Molecular Epidemiology".**				
1 four month period	Advanced Causal Inference and Policy Evaluation		6	SECS-P/01
1 four month period	Natural Language Processing		6	INF/01
1 four month period	Network Science		6	INF/01
1 four month period	Probabilistic Modeling		6	SECS-S/01
1 four month period	Scientific Data Visualization		6	(3) SECS-S/01, (3) INF/01
2 four month period	Advanced Biostatistics and Epidemiology		6	MED/01
2 four month period	Advanced Multivariate Statistics		6	SECS-S/01
2 four month period	Bayesian Analysis		6	SECS-S/01
2 four month period	Chemometrics		6	(3) SECS-S/01, (3) CHIM/01
2 four month period	Fundamentals of Artificial Intelligence for Data Analysis in Molecular Epidemiology		6	MED/01
3 four month period	Reinforcement Learning		6	INF/01
Further elective courses				
Elective activities. **Students must earn 9 credits by freely choosing from all the courses activated by the University, provided that they are culturally consistent with their educational path.**				
Students with Italian qualification must earn 3 credits as Transversal Skills (please check https://www.unimi.it/en/study/bachelor-and-master-study/following-your-programme-study/soft-skills). As alternative, students can select a laboratory ascribed as Transversal Skill as well (please check https://dseh.cdl.unimi.it/en/courses/laboratories). **Students with a foreign qualification must earn 3 credits as Additional Language skills: Italian (please check https://dseh.cdl.unimi.it/en/courses/italian-language-foreigners-tests-and-courses), instead of Transversal Skills.**				
	Additional Language Skills: Italian (3 ECTS)		3	NN
	Transversal Skills		3	NN
Students must earn 3 credits by selecting one of the following alternatives: **- Internship or stage in companies, public or private bodies, professional orders;** **- Training and orientation internship.**				
	Internship or stage in companies, public or private bodies, professional orders		3	NN
	Training and orientation internship		3	NN
End of course requirements				
	Final Exam		12	NN
		Total number of compulsory credits/ects	12	