MASTER DEGREE IN
DATA SCIENCE & ECONOMICS

Welcome Day
October 12, 2021

Video of the Course
Course nature

- Data Science
- Computer Science

Data Science & Economics

- Computer Science
- Mathematics
- Statistics
- Economics
Course structure (i)

First year mandatory courses (60 ECTS)

Second year mandatory courses (18 ECTS)

Curriculum Business Innovation (18 ECTS)

Curriculum Economics (18 ECTS)

Curriculum Social Science (18 ECTS)

Elective Course(s) (12 ECTS)

Stage (3 ECTS)

Master Thesis (9 ECTS)

60 ECTS

78 ECTS

96 ECTS

108 ECTS

111 ECTS

120 ECTS
<table>
<thead>
<tr>
<th>Course</th>
<th>ECTS</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graph Theory, Discrete Mathematics and Optimization</td>
<td>12</td>
<td>I</td>
</tr>
<tr>
<td>Micro-econometrics, Causal Inference and Time Series Econometrics</td>
<td>12</td>
<td>I</td>
</tr>
<tr>
<td>Advanced Microeconomics and Macroeconomics</td>
<td>12</td>
<td>II-III</td>
</tr>
<tr>
<td>Machine Learning, Statistical Learning, Deep Learning and Artificial Intelligence</td>
<td>12</td>
<td>II-III</td>
</tr>
<tr>
<td>Coding for Data Science and Data Management</td>
<td>12</td>
<td>II-III</td>
</tr>
</tbody>
</table>
## Course structure (iii)

### SECOND YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>ECTS</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algorithms for Massive Data, Cloud and Distributed Computing</td>
<td>12</td>
<td>II</td>
</tr>
<tr>
<td>Cybersecurity and privacy, Preservation Techniques and Digital Security and Privacy</td>
<td>6</td>
<td>I</td>
</tr>
</tbody>
</table>

### CURRICULA

<table>
<thead>
<tr>
<th>Subject</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics</td>
<td>18</td>
</tr>
<tr>
<td>Business Innovation</td>
<td>18</td>
</tr>
<tr>
<td>Social Science</td>
<td>18</td>
</tr>
</tbody>
</table>

We have Crash courses in Computer Science, Mathematics, Statistics and sometimes Microeconomics at the end of August and first weeks of September.
### Course structure (iv)

<table>
<thead>
<tr>
<th>POSSIBLE COURSE (Non Exaustive list)</th>
<th>ECTS</th>
<th>Term</th>
<th>PATH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing Analytics</td>
<td>6</td>
<td>I</td>
<td>BI</td>
</tr>
<tr>
<td>Labour Economics and Policy Evaluation</td>
<td>6</td>
<td>I</td>
<td>E/SS</td>
</tr>
<tr>
<td>Social Network Analysis</td>
<td>6</td>
<td>I</td>
<td>SS</td>
</tr>
<tr>
<td>Advance Multivariate Statistics</td>
<td>6</td>
<td>I</td>
<td>BI/E/SS</td>
</tr>
<tr>
<td>Knowledge Extraction and Information Retrieval</td>
<td>6</td>
<td>I/II</td>
<td>BI/E/SS</td>
</tr>
<tr>
<td>Intellectual Property for Business: Strategy and Analysis</td>
<td>6</td>
<td>II</td>
<td>BI</td>
</tr>
<tr>
<td>Fintech industry</td>
<td>6</td>
<td>I</td>
<td>BI/E</td>
</tr>
<tr>
<td>Patients’ Needs and Healthcare Markets</td>
<td>6</td>
<td>II</td>
<td>E</td>
</tr>
<tr>
<td>Text Mining and Sentiment analysis</td>
<td>6</td>
<td>II</td>
<td>SS</td>
</tr>
<tr>
<td>Digital Society</td>
<td>6</td>
<td>II</td>
<td>SS</td>
</tr>
<tr>
<td>Probabilistic Models</td>
<td>6</td>
<td>II</td>
<td>BI/E/SS</td>
</tr>
<tr>
<td>Project Managements and Innovation in the Era of Big Data</td>
<td>6</td>
<td>III</td>
<td>BI</td>
</tr>
</tbody>
</table>
Course structure (v)

- Students must select 3 courses (18 ECTS)
- To complete the study program students must choose additional elective course(s) or Laboratories for a total amount of 12 ECTS (laboratories or exams in other master degrees of faculties).

STUDY PLAN
- Second year students MUST present if for the deadline.
- First year students CAN change the year after.

Check here: https://www.unimi.it/en/study/bachelor-and-master-study/following-your-programme-study/plan-study
Course Location
How to Enroll

Go here:
http://studente.unimi.it/immatricolazioni/magistrale/checkLogin.asp

UNIMI undergraduates Vs non-UNIMI undergraduates

• Non-UNIMI undergraduates must pre-enroll immediately at the link indicated and subsequently confirm their degree data through a specific service.

• UNIMI undergraduates, on the other hand, will be able to enroll from the same link only after graduation. Until then, they will use the credentials already in their possession to access to the services.
Lessons and Exams

http://easystaff.divsi.unimi.it/PortaleStudenti/

• Lesson Schedule
• Exam Calendar
• App LaStatale
• Reserve the seat

• Useful Link:
https://www.unimi.it/en/study/bachelor-and-master-study/following-your-programme-study/teaching-activities-campus

Exam sessions: from UNIMIA (you must be registered)
• http://unimia.unimi.it/portal/server.pt

• SPES Accademic Calendar
Information and contacts

Keep monitored:
• the e-mail address @students.unimi.it
• the course website https://dse.cdl.unimi.it/en
• the ARIEL teaching sites.

Other useful contacts:
• Student Secretariat - INFOSTUDENTI (for administrative matters)
  • https://www.unimi.it/it/studiare/servizi-gli-studenti/segreterie-infostudenti
  • http://www.unimi.infostudente.it/

Didactic secretariat (for matters related to course teaching)
• E-mail: dse@unimi.it
• Support by e-mail and eventual reception by appointment via Teams

Welcome Desk for international students (for visa-related issues):
• https://www.unimi.it/en/international/coming-abroad/enrol-programme/international-enrolment-degree-programmes
• E-mail: international.students@unimi.it
Tutors and Student Representation

• International students DEMM tutor:
  Elaheh Esfandi demm.international@unimi.it
Working students DEMM tutor:
  Gaspare Mattarella paec.orienta@unimi.it
• DSE tutors (until December 2021):
  Paola Serra paola.serra@studenti.unimi.it
  Fabio Cairoli fabio.caironi@studenti.unimi.it
• “Commissione paritetica”: it is composed by a professor (Prof. Massimiliano Bratti) and a student and produces an annual report on critical issues and best practices (past student: Fabio Cairoli, new student Luca Donghi luca.donghi1@studenti.unimi.it)
• “Gruppo del Riesame”: it is composed by the Director (Prof. Salini), the AQ responsible (Pro. Montanelli), the DSE Secretariat (Dott. Parenti) and a student (Paola Serra) and produces an annual report on performance indicators
• First-year students can nominate a spokesperson to report any problems to current student representatives (they will receive an e-mail with their contacts and more details for the nomination)
For more information contact us or visit

www.dse.unimi.it

dse@unimi.it

@dseunimi

www.facebook.com/dseunimi

www.instagram.com/dse_unimi/

www.linkedin.com/company/data-science-and-economics/
Erasmus (i)

- **Erasmus DSE contact person**
  Prof. *Domenico Massaro*, e-mail: [Domenico.Massaro@unimi.it](mailto:Domenico.Massaro@unimi.it)

- **Erasmus contact for DEMM**
  Prof. Alessandro Barbiero, e-mail: [Alessandro.Barbiero@unimi.it](mailto:Alessandro.Barbiero@unimi.it)

- **Erasmus contact for DI**
  Prof. Fabio Scotti, e-mail: [Fabio.Scotti@unimi.it](mailto:Fabio.Scotti@unimi.it)

- **Other contact for DSE (DI courses)**
  Prof. Dario Malchiodi, e-mail: [Dario.Malchiodi@unimi.it](mailto:Dario.Malchiodi@unimi.it)
Erasmus (ii)

- **Application.** Students apply in the first year, to leave in the second year.

- **Deadline:** Last year (2021/2022) the call for the applications for the Erasmus+ exchange was published in January, with deadline 26 February.

- We expect the deadlines to be similar (but not necessarily the same) this year (but we do not know the dates yet, things may of course be very different).

- **Destinations:** The list of the universities where we can apply will be known at the same time.

- **Information:** [https://www.unimi.it/en/international/study-abroad/studying-abroad-erasmus](https://www.unimi.it/en/international/study-abroad/studying-abroad-erasmus)

- In the last call, students had the opportunity to mention up to 3 universities for the exchange, and these may be from Economics, Computer Science, or both.

- Please contact always **Prof. Massaro** before to fill the form.
# Laboratories

**Check:** [https://dse.cdl.unimi.it/en/courses/laboratories](https://dse.cdl.unimi.it/en/courses/laboratories)

<table>
<thead>
<tr>
<th>Name</th>
<th>Term</th>
<th>ECTS</th>
<th>ECTS Type</th>
<th>Partner company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Valorization for Fintech</td>
<td>1</td>
<td>3</td>
<td>Elective or Internship</td>
<td>AcomeA</td>
</tr>
<tr>
<td><strong>Advanced Analytics in the Omnichannel Marketing</strong></td>
<td>2</td>
<td>3</td>
<td>Elective or Internship</td>
<td>Intarget Group</td>
</tr>
<tr>
<td>Modelling, Clustering and Forecasting Post Trade data</td>
<td>2</td>
<td>3</td>
<td>Internship</td>
<td>Borsa Italiana</td>
</tr>
<tr>
<td>Social Media Observatory</td>
<td>2</td>
<td>3</td>
<td>Elective or Internship</td>
<td>Sky Italia</td>
</tr>
<tr>
<td>Nutritional Epidemiology: methods and practice</td>
<td>2</td>
<td>3</td>
<td>Elective</td>
<td><strong>within the University</strong></td>
</tr>
<tr>
<td>Time Series Forecasting: Machine Learning and Deep Learning with R and Python</td>
<td>2</td>
<td>3</td>
<td>Elective or Internship</td>
<td>Blogmeter</td>
</tr>
<tr>
<td><strong>Official Statistics: organisation and data of the Italian National Institute of Statistics (Language: Italian)</strong></td>
<td>2</td>
<td>3</td>
<td>Elective</td>
<td>ISTAT</td>
</tr>
<tr>
<td>Cloud and Distributed Environments for Analytics in a Luxury Brand</td>
<td>2</td>
<td>3</td>
<td>Elective or Internship</td>
<td>PRADA</td>
</tr>
<tr>
<td>Analytics for revenue growth</td>
<td>2</td>
<td>3</td>
<td>Elective or Internship</td>
<td>Accenture Applied Intelligence</td>
</tr>
<tr>
<td>Hackathon: Data Acquisition, Management and Visualization</td>
<td>3</td>
<td>3</td>
<td>Elective</td>
<td><strong>within the University</strong></td>
</tr>
<tr>
<td>Text data for Trading: NLP techniques for financial news</td>
<td>3</td>
<td>3</td>
<td>Elective or Internship</td>
<td>Ammagamma</td>
</tr>
<tr>
<td>Personalized Health Care</td>
<td>3</td>
<td>3</td>
<td>Elective</td>
<td><strong>within the University</strong></td>
</tr>
<tr>
<td>Drive Digital Transformation with Data Analytics</td>
<td>3</td>
<td>3</td>
<td>Elective or Internship</td>
<td>Deloitte</td>
</tr>
<tr>
<td>Computational Methods in Macroeconomics</td>
<td>3</td>
<td>3</td>
<td>Elective</td>
<td><strong>within the University</strong></td>
</tr>
</tbody>
</table>
Other possibilities

4EU+ Alliance

LAB: SOSTENIBILITA' E SVILUPPO SOSTENIBILE
Stage and Internship

DSE Internships

Students can attend an internship of 3 ECTS, which requires more or less 1 month or 100 hours to be accomplished.

Students can either:

- select one of the available internship positions (option 1) or
- find an internship by themselves (options 2a and 2b).

DSE Academic Tutor
(Internship Representative)

Prof. Giancarlo Manzi
Office 37, 3rd floor (@DEMM, Via Conservatorio 7)
Office Hour: please check Chi e Dove website
Stage and Internship (ii)

SERVICES FOR STUDENTS AND GRADUATES

The University of Milan - through COSP, the Advisory and Career Guidance Center - provides several services aimed at supporting students and graduates in the transition from the University to the world of work.

INTERNSHIP/TRAINEESHIP SERVICE

Online University Placement Service

Online curriculum vitae
Online job board
Internship/Traineeship Office

It’s an integrated service that allows you to manage your online curriculum vitae as well as to apply to job or stage advertisements on the University bulletin.

The Internship/Traineeship office will offer you guidance and administrative support in order to successfully implement the internship procedure.
Graduating

DSE graduation guidelines

The DSE Faculty made available these guidelines where students can find general information about the thesis project. All students are warmly invited to carefully read them before they start working on their thesis.

To be awarded a bachelor's or master's degree students may sit the final exam on set dates distributed in three sessions and four rounds minimum each year:

- first session: from May to July
- second session: from September to December
- third session: from February to April

Students who graduate by the third session of academic year need not pay the first instalment for next academic year.

See also

- Seals for the Thesis
- Graduand questionnaire
- Plagiarism check
- Graduation day
- Degrees and certificates

Completing your studies
ASSIGNMENT:
- the thesis is formally assigned by the advisor;
- the topic is usually proposed by the student. It can also be suggested by the Advisor (if and only if the Advisor have proposed a call for thesis).

DATA COLLECTION & WRITING:
- students work on literature review, data collection, analysis and writing;
- advisors comment on the progress of the work, by giving feedbacks.

SUBMISSION:
- students submit the thesis following the formal procedures and in accordance with the graduation calendar
- check: https://dse.cdl.unimi.it/en/study/graduating
- students are in charge of monitoring of and compliance with deadlines and formal procedures.

DEFENSE:
- students must defend their thesis in front of the assigned panel;
- students have to be prepared to discuss their thesis, answering questions and comment on the issues raised by the panel.
Political Science Library

Enrica Collotti Pischel

Information and services

October 2021