

**Department of Economics, Management and Statistics  
(DEMS)**

**PhD in Economics, Statistics  
and Data Science  
(ECOSTATDATA)**

**What you should know**

## Background

- *Affiliation:* DEMS
- *Funds:* grant «Dipartimento di Eccellenza (DE)» 2018-22 & 2023-27
- *Origin:* re-design of the PhD in Economics and the PhD in Statistics of the University of Milano-Bicocca (UNIMIB)
- *Length:* 4 years (first cycle XXXIV, a.y. 2018-19)
- *Curricula:* Economics, Statistics and Big Data & Analytics for Business

# Programme overview

- *Curriculum in Economics*
  - emphasis on quantitative and computational economics
- *Curriculum in Statistics*
  - accent on statistical methods, e.g. statistical learning, Bayesian statistics
- *Curriculum in Big Data & Analytics for Business*
  - stress on methods to transform large volumes of heterogenous and complex data into information useful to support the firms' decision processes

# Programme - 1 year (selected courses)

- *Curriculum in Economics*

Mathematics, Computational Statistics I, Microeconomics, Econometrics, Macroeconomics, Research Methods, Finance (optional)

Note: in collaboration with UNICATT

- *Curriculum in Statistics*

Mathematical Analysis, Numerical Optimization, Probability, Stochastic Processes, Statistical Inference, Bayesian Statistics, Computational Statistics II,, Statistical Modelling, Statistical Learning, R for Data Science, Data Management

- *Curriculum in Big Data & Analytics for Business*

Databases for structured/unstructured data; Programming in Python; Architecture for Big data processing; Innovation and technology management; Social media analytics; Explainable AI for business value; Deep learning and computer vision for business; Data mining; Natural language processing; Human-centered AI

## Programme - 1 year (some data)

- *Curricula in Economics and Statistics*
  - Number of hours (lectures/tutorials) ~ 250-300 (each)
  - Number of instructors ~ 15-20 (each)
- *Curriculum in Big Data & Analytics for Business*
  - Number of hours (lectures/tutorials) ~ 150-200
  - Number of instructors ~ 10-15

# Programme - II year (activities)

- *Presentation of research groups*
- *Reading groups (RG)*
  - Research-oriented
  - Specific/advanced topics
  - Direct involvement of students
  - Each RG is formed by ~ 9-15 hours (teaching/students' presentations)
- *RG - Curriculum in Economics*
  - Menu of ~ 14 RG, students have to select ~ 6-8
- *RG - Curriculum in Statistics*
  - Menu of ~ 7 RG, students have to select ~ 4-5
- *RG - Curriculum in Big Data & Analytics for Business*
  - Menu of ~ 5 RG, students have to select ~ 3-4

## Programme - after (the first part of) the II year

- *Research projects presentations*
  - II year, around November/December
  - addressed to the faculty, in presence of supervisors
- *Thesis-in-progress presentations*
  - III year and IV year
  - addressed to the faculty, in presence of supervisors

## Programme - after (the first part of) the II year

- *Summer/winter schools*
  - Financed by the DE budget
- *Interdisciplinary courses*
  - Organized by the UNIMIB PhD School
- *DEMS seminar series*
  - ReLunch, Series in Economics, Series in Statistics
- *PhD students' seminars*
- *Job market training*
  - Aimed at encouraging the participation of final-year PhD students to the international job market



## Selection procedure (XXXIX cycle, a.y. 2023-24)

- *Main steps*

- 1) Call for Applications – Session I (regulated by the UNIMIB PhD School, **March 21, 2023 – April 19, 2023**)
- 2) Selection Committee (9 members, interviews for Session I in **May 2023**)
- 3) Publication of results/ranking (early **June 2023**)
- 4) Call for Applications – Session II (regulated by the UNIMIB PhD School, **June 30, 2023 – July 24, 2023**)
- 5) Selection Committee (same 9 members as in Session I, interviews for Session II in **September 2023**)
- 6) Publication of results/ranking (late **September 2023**)

## Scholarships & positions (XXXIX cycle, a.y. 2023-24)

- **10** scholarships funded by UNIMIB
- **2** scholarships funded by DEMS-DE
- **1** scholarship funded by UNICATT
- **2** scholarships funded/co-funded by Leonardo SpA and ECU SpA
- **3** «executive» positions with Intesa SanPaolo – Data Science & AI Lab

# Internationalization

- *International Programme Committee*
  - 58 members, 22% with permanent positions in prestigious foreign universities
- *Informal collaborations with foreign universities (joint supervision)*
- *Formal collaborations with foreign universities (co-tutelles)*
- *Joint degrees with foreign universities*

# Collaborations

- *Collaborations (established) with other departments*  
DEMS-Data Science Lab; DISMEQ-UNIMIB; DIECO-UNICATT;  
DISTAT-UNICATT
- *Collaborations (under study) with other departments*  
DISEADE-UNIMIB; DISCO-UNIMIB; DIGIUR-UNIMIB; DIECO-  
UNIBG
- *Collaborations (established) with companies*
  - Intesa SanPaolo - Data Science & AI Lab
  - Sas Italy - Analytics Software & Solutions
  - Siemens Italy

# Website

For details visit the ECOSTATDATA website:

<https://www.dems.unimib.it/en/research/phd-economics-statistics-and-data-science>