

Francesco Amato

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🌟 francesco-amato

PhD in Applied Mathematics specialized in statistics and machine learning, with expertise in modelling, clustering and longitudinal data analysis. Researcher with an international background, peer-reviewed publications, and teaching experience.

Research interests: Mixture Models, Statistical Learning, Temporal Data, Tensor-variate Distributions, Computational Statistics, Applied Statistics.

EDUCATION

PhD in Applied Mathematics Nov. 2021 – May 2025

ERIC Lab, Université Lumière Lyon 2, France

- Thesis: *Clustering Temporal Mixed Data for Longitudinal Survey Modelling*
- Contributions: Matrix-variate mixture model for mixed-type longitudinal data; R package **MMClust** (CRAN, forthcoming)
- Supervisors: Julien Jacques & Isabelle Prim-Allaz

Master's in Statistics – Data Science Track 2019 – 2021

University of Bologna, Italy

- Language: English
- Courses: Statistical Learning, Advanced Statistical Modelling, Advanced Time Series, Latent Variable Models, Advanced Survival Analysis, Big Data Analytics, Stochastic Processes, Bayesian Inference
- Thesis: *A Text Mining Application to Study the Evolution of American Presidential Discourse*
- **Erasmus Exchange** at University of Lisbon, Portugal (Feb.–Aug. 2021)

Bachelor's in Statistics – Stats & Maths Track 2016 – 2019

University of Bologna, Italy

- Language: English
- Courses: Statistical Modelling, Multivariate Analysis, Survival Analysis, Biostatistics, Time Series, Econometrics, Economic Statistics, Databases, Survey Sampling, Spatial Statistics
- Thesis: *Financial Time Series Analysis Through GARCH, IGARCH and EGARCH Models*
- **Erasmus Exchange** at University College Dublin, Ireland (Sep.–Dec. 2017)

PROFESSIONAL EXPERIENCE

Temporary Teaching and Research Fellow (ATER) Sep. 2024 – Aug. 2025

ICOM, Université Lumière Lyon 2

- Teaching applied mathematics and computer science
- Continuing doctoral research on longitudinal mixed data clustering

Tutor for CLAMSS – Master's in Statistics Dec. 2019 – Oct. 2021

University of Bologna

- Coordination of teaching and orientation activities; support to the administration
- Liaison between students and administrative offices

Data Scientist Intern Feb. 2019 – Jun. 2019

Research Foundation – Cattaneo Institute

- Collection and cleaning of Italian electoral data
- Analysis of electoral flows; reporting to stakeholders

PUBLICATIONS

S.L. Alaimo, **F. Amato**, E. Seri (2022). *A longitudinal cross country comparison of migrant integration policies via Mixture of Matrix-Normals*. SIS 2022 - 51st Meeting of the Italian Statistical Society, Caserta, Italy. ISBN: 9788891932310

S.L. Alaimo, **F. Amato**, F. Maggino, A. Piscitelli, E. Seri (2023). *A Comparison of Migrant Integration Policies via Mixture of Matrix-Normals*. Social Indicators Research, 165, 473–494. doi:10.1007/s11205-022-03024-2

F. Amato, J. Jacques, I. Prim-Allaz (2024). *Clustering longitudinal ordinal data via finite mixture of matrix-variate distributions*. Statistics and Computing, 34, 81. doi:10.1007/s11222-024-10390-z

F. Amato, J. Jacques (2025). *MMM: Clustering Multivariate Longitudinal Mixed-type Data*. **Under review** - Computational Statistics and Data Analysis. arXiv:2509.12166

TALKS & POSTERS

<i>MMMClust</i>	WG on Model-Based Clustering, Nice, France, Jul. 2025
<i>Clustering Longitudinal Mixed-type Data</i>	CFE-CMStatistics, London, UK, Dec. 2024
<i>Clustering de données longitudinales mixtes</i>	RSL, Lyon, France, Jul. 2024
<i>Clustering Longitudinal Mixed Data</i>	JdS, Bordeaux, France, May 2024
<i>Clustering Longitudinal Ordinal Data</i>	NORDSTAT, Gothenburg, Sweden, Jun. 2023
<i>Clustering Longitudinal Ordinal Data</i>	COMPSTAT, Bologna, Italy, Aug. 2022
<i>Clustering via Finite Mixture of Matrix-Variate Latent Gaussians</i>	JdS, Lyon, France, Jun. 2022

Posters

<i>Clustering Longitudinal Mixed Data.</i>	WG on Model-Based Clustering, Bertinoro, Italy, Jul. 2024
<i>Clustering Longitudinal Ordinal Data.</i>	WG on Model-Based Clustering, Pittsburgh, US, Jul. 2023
<i>Clustering Longitudinal Ordinal Data.</i>	StatLearn, Cargèse, France, Apr. 2022

TEACHING

Level	Course	Type	Year	Hours
M1 Computer Science	Supervised Learning	Tutorial	2024–2025	28h
	Advanced Python Programming	Tutorial	2024	40h
L3 MIASHS ¹	Inferential Statistics	Tutorial	2022–2024	61h
	Linear Models	Tutorial	2023–2025	74h
L3 Computer Science	Exploratory Data Analysis	Tutorial	2025	12h
	Linear Modelling	Tutorial	2025	12h
L2 MIASHS	Linear Algebra and Data Analysis	Tutorial	2025	20h
L2 Computer Science	Calculus 2	Lecture	2025	10h
	Calculus 2	Tutorial	2025	10h
	C Programming	Tutorial	2025	40h
L1 Computer Science	Calculus 1	Tutorial	2025	10h

1: Applied Mathematics & Informatics for Social Sciences

TECHNICAL SKILLS

Programming Languages

R, Python, SQL, C, C++, Stan, SAS.

Tools & MLOps

Linux, LaTeX, Git, GitHub, Docker, AI Agents.

Languages

Italian (native), English (C1), French (C1), Portuguese (B2).

AWARDS

First Place - Sales Forecasting Challenge

June 2020

FATER Company

- Teamwork to build a model for estimating weekly sales volume by product
- Analysis of seasonality, media and promotional impact on sales (Italian market, April-September 2019)

INTERESTS

Science, history, geopolitics, economics, anthropology, languages.

Civic engagement: JEF (2017-2021); Extrema Ratio (2019-2020); AGESCI scouting (2006-2017).