

FEDERICO M. G. VEGNI

Curriculum Vitae • Mathematics Lecturer at Bocconi University, PhD

Contact Details

Full name: Federico Mario Giovanni Vegni
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Education

- **1996** – MSc in Electronic Engineering (summa cum laude), Politecnico di Milano.
- **1996** – Professional qualification as Engineer (Italy).
- **1999** – Postgraduate Specialisation in *Management of Technology*, University of Milan.
- **2000** – PhD in Mathematics (Mathematical Analysis), University of Milan, awarded with distinction.

Academic Positions

- **2024–present** – Assistant Director, BSc in Mathematical and Computing Sciences for Artificial Intelligence, Bocconi University (Director: Prof. Carlo Baldassi).
- **2020–present** – Lecturer, Bocconi University.
- **2019–2022** – Adjunct Professor (PhD programme), University of Milan.
- **2006–2020** – Adjunct Professor, Bocconi University.
- **2003–2023** – Adjunct Professor, Politecnico di Milano.
- **2003–2004** – Postdoctoral Fellow, University of Brescia.
- **2001–2002** – Research Fellow, University of Brescia.

Teaching Experience

Extensive teaching experience (100+ courses) at undergraduate, graduate and PhD level at Bocconi University, Politecnico di Milano and the University of Milan (MAT/05 – Mathematical Analysis).

Teaching areas include Calculus, Mathematical Analysis, Geometry, Ordinary Differential Equations, Applied Mathematics (Finance), and Advanced Mathematics for Economics and Social Sciences.

Substantial experience in online teaching, as well as in problem-solving sessions (40+) and MATLAB laboratories (25+).

A detailed list of courses taught is available upon request.

Teaching Innovation Projects – Bocconi University

- **2023** – **MathFlex – Asynchronous Graduate Learning.** Independently conceived, designed and fully implemented an asynchronous graduate-level mathematics preparatory course (79

videos, 13+ hours), including content development, instructional design, video production and editing.

Widely adopted across five MSc programmes at Bocconi University and extensively used by students, with consolidated learning outcomes.

- **2022 – Digital Proximity – Mathematics (General).** Teaching innovation initiative conceived and led, focused on the design and empirical evaluation of a blended learning model for theoretical mathematics, centred on in-class interaction.

Demonstrated quantitative improvements in student performance. Awarded the *Innovation Award*, Bocconi University.

- **2020 – Media Gallery – Mathematics (General).** Initiative developed during the COVID-19 emergency to ensure continuity and quality of teaching: large-scale production of multimedia content covering the entire course. Subsequently evolved into a permanent digital learning resource widely used by students.
- **2009 –** Online preparatory course for *Advanced Mathematics for Economics and Social Sciences*, in use until the 2015–2016 academic year.

MATITA – Mathematics in Teaching Assistance

Fully independent educational iOS application for university-level mathematics, conceived and designed end-to-end and developed under my direction.

Provides a structured learning environment including video lectures, worked example videos, guided exercises, tutorials, and a dedicated glossary.

Freely distributed on the App Store (Italian/English), with international reach and widespread student adoption.

Maintained in continuous operation for a decade (2015–2025) with high reliability.

Founder and owner of the project, with full responsibility for concept development, content design, and team coordination.

Books

- *A Primer on PDEs*, Springer, 2012. ISBN: 9788847028616.
- *Invito alle equazioni a derivate parziali*, Springer, 2009. ISBN: 9788847011793.
- Further scientific publications available upon request.

Editorial and Translation Work

- Scientific reviewer for the Italian edition of E. Strang, *Linear Algebra*, Apogeo.
- Responsible for the design, content development and technical implementation of the online course *Preparatory Course for Advanced Mathematics*, Bocconi University (available on the university platform since 2010).
- Translator (English to Italian) of J. Stewart, *Calculus*, Italian edition, Apogeo.
- Translator (Italian to English) of *Modelli matematici e controllo ottimo. Un'introduzione elementare*, S. Salsa and A. Squellati, EGEA.

Honours and Awards

- Don Bartolomeo Grazioli Foundation Prize, Istituto Lombardo Accademia di Scienze e Lettere, awarded for the best Master's thesis.
- Bocconi Teaching Award, 2020.
- Bocconi Innovation Award, 2023.

Languages

French: very good command. English: full professional proficiency, with extensive teaching experience.

Outreach Activities in Theatre and Mathematics

- Delivered seminars on *Acting in front of the camera* for associate and full professors at Bocconi University, within the Teaching Excellence Program (TEP), SDA Bocconi (in English).
- Delivered professional development workshops on mathematics teaching for secondary school teachers, on behalf of the University of Milan.
- Delivered seminars for undergraduate students in Systems Engineering at Politecnico di Milano on *How to write your thesis*.

Teaching Activity at Opera Prison

From 2016 to 2019, contributed to a Bocconi University educational initiative at the Opera Correctional Facility (Milan), teaching and tutoring courses in General and Financial Mathematics.

Yoga

Certified Yoga Instructor (Level 1, 250h), since 2020.

Regularly delivers yoga sessions for students, faculty and staff at Bocconi University within Campus Life initiatives.

Theatre

- Professional theatre activity (2001–2005).
- Actor in productions including *Infinites* (dir. Luca Ronconi, Piccolo Teatro di Milano) and *M'illumino di tragico* (dir. Guido Ceronetti, Piccolo Teatro di Milano).
- Assistant director to Luca Ronconi for *Prometeo incatenato* and *Quel che sapeva Maisie* (Piccolo Teatro di Milano).
- Actor in *Conversazione* by Kyoung Ae Kim (Accademia di Belle Arti di Brera, Milan).
- Narrator in *Hansel and Gretel* (Le Formiche).
- Participation in the *European Theatre Schools Masterclass Programme*, Piccolo Teatro di Milano.

University Teaching

PhD Teaching (University of Milan)

- **2019–2022** – *The Language of Mathematics in Contemporary Social Sciences* (taught in English), PhD Programme in Political Studies (NASP – Network for the Advancement of Social and Political Studies).

Bocconi University

- **2006–present** – Undergraduate and graduate teaching in mathematics across Bocconi programmes (including BIEM and BAI).

Courses include *Mathematical Analysis I*, *Mathematics (General and Applied)*, *Advanced Mathematics for Economics and Social Sciences*, and *Advanced Analysis and Optimization*.

Extensive experience in teaching in English, including large-class formats and repeat courses.

Politecnico di Milano

- **2003–2023** – Undergraduate teaching in mathematics for engineering programmes.

Courses include *Mathematical Analysis I and II*, *Geometry*, and *Ordinary Differential Equations*, across several engineering degrees (including Aerospace, Mechanical, Energy and Information Engineering).

Additional Teaching Activities

- Extensive experience in supporting teaching activities at Politecnico di Milano, including problem-solving sessions, MATLAB laboratories, and preparatory courses.

Early involvement in online teaching (2005–2008) within the Politecnico di Milano distance learning programme.

Teaching support activities also conducted at the University of Bergamo and Università Cattolica del Sacro Cuore.

Long-standing experience in preparatory courses and tutoring in mathematics across multiple institutions.

Scientific Publications

- F. M. G. Vegni, **Absorbing set for a process generated by a nonlinear hyperbolic equation**, *Ist. Lombardo Accad. Sci. Lett. Rend. A* 131 (1997), no. 1–2, 3–12. MR 2002e:35168.
- F. M. G. Vegni, **Conserved phase-field models with memory in history spaces**, PhD thesis, University of Milan, 2000.
- F. M. G. Vegni, **Longterm dynamics of a conserved phase-field system with memory**, in *Mathematical Models and Methods for Smart Materials* (Cortona, 2001), 363–374, Ser. Adv. Math. Appl. Sci., 62, World Scientific, River Edge, NJ, 2002. MR 2004:m80006.
- F. M. G. Vegni, **Modelli di phase-field conservati con memoria nello spazio delle storie**, *Bollettino UMI*, Serie VIII, vol. IV-A, 2001, 555–558.
- M. Grasselli, V. Pata, F. M. G. Vegni, **Longterm dynamics of a conserved phase-field system with memory**, *Asymptotic Analysis* 33 (2003), no. 3–4, 261–320. MR 2005b:37187.

- vi. F. M. G. Vegni, **Dissipativity of a conserved phase-field system with memory**, *Discrete Contin. Dyn. Syst.* 9 (2003), no. 4, 949–968. MR 2004k:45017.
- vii. J. M. Rivera, M. G. Naso, F. M. G. Vegni, **Asymptotic behaviour of the energy for a class of weakly dissipative second-order systems with memory**, *J. Math. Anal. Appl.* 286 (2003), no. 2, 692–704. MR 2004j:35205.
- viii. C. Giorgi, F. M. G. Vegni, **Uniform energy estimates for a semilinear evolution equation of the Mindlin–Timoshenko beam with memory**, *Math. Comput. Modelling* 39 (2004), no. 9–10, 1005–1021. MR 2005b:35274.
- ix. M. G. Naso, F. M. G. Vegni, **Asymptotic behavior of the energy to a thermo-viscoelastic Mindlin–Timoshenko plate with memory**, *Int. J. Pure Appl. Math.* 21 (2005), no. 2, 175–198. MR 2006c:74031.
- x. C. Giorgi, F. M. G. Vegni, **The longtime behavior of a nonlinear Reissner–Mindlin plate with exponentially decreasing memory kernels**, *J. Math. Anal. Appl.* 326 (2007), no. 2, 754–771. MR 2007h:74061.
- xi. S. Salsa, F. M. G. Vegni, A. Zaretti, P. Zunino, **Invito alle equazioni a derivate parziali**, Springer, Milan, 2009. MR 2744864.
- xii. S. Salsa, F. M. G. Vegni, A. Zaretti, P. Zunino, **A Primer on PDEs**, Springer, Milan, 2012. ISBN 9788847028616.