Francesca Grassetti

Academic CV

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Current Position

Dec 2019 – Ongoing | **Assistant Professor (non-tenure track) – RTDa**
Department of Mathematics, Politecnico di Milano, IT

Education

Sep 2014 – Apr 2018 | **PhD in *Quantitative Methods for Economic Policy***
Topic: Nonlinear Dynamics, Supervisor: Prof. Cristiana Mammana
Grade: Excellent
Department of Economics and Law, University of Macerata, IT

Feb 2013 – Jul 2014 | **MSc in Economia e Management** [Economics and Management]
Grade: 110/110 cum laude
Marche Polytechnic University, IT

Sep 2009 – Feb 2013 | **BSc in Economia e Commercio** [Economics and Business]
Marche Polytechnic University, IT

Nov 2007 – Jul 2009 | **MSc in Comunicazione Multimediale** [Multimedia Communication]
Grade: 110/110 cum laude
University of Perugia, IT

Sep 2004 – Nov 2007 | **BSc in Comunicazione di Massa** [Mass Communication]
University of Perugia, IT

Past Academic Employments

2017-2021 | **Adjunct Professor**
Topic: Mathematical Methods for Economics, Finance and Actuarial Sciences
Department of Economics and Law, University of Macerata, IT

2015-2020 | **Founder**
Topic: European Projects Design and Management
AdvisEU Studio Project - Support and Training Unit Developing Input- Output
Spin off, University of Macerata, IT

2019-2019 | **External Consultant**
Topic: Development of a Mathematical Model for Estimating the Hourly Rate of International Cost Centers
Hyperlean, spin off, Marche Polytechnic University, IT

Visiting positions

AY 2017/2018: Visiting Researcher, Department of Economics, University of Kaiserslautern, DE
Ref: Prof. Jan Wenzelburger

AY 2016/2017: Visiting Phd Student, Bielefeld Graduate School of Economics and Management, DE
Ref: Prof. Volker Böhm

Service

From 2021: Delegate for the admission of international students at the Master of Science in Mathematical Engineering
Politecnico di Milano, IT

External Evaluator for Research Quality Assessment
Italian National Agency for the Evaluation of the University and Research Systems (ANVUR)

Member of the editorial project "Fintech" at Huff Post Italia
QFinLab in collaboration with Huffington Post Italia, `www.huffingtonpost.it/news/fintech/`

Pro-bono project: Financial literacy for adults
QFinLab and MIP Politecnico di Milano Graduate School of Business

AY 2020/2021: Personal Finance Course for the Technical and Administrative Staff of Politecnico di Milano
Financed by Politecnico di Milano, IT

Storyboard realizations for the video-clips "Informarsi conviene"
National Supervisory Committee and Register of Financial Advisors (OCF), IT

Affiliations

From 2021: Member of RES, Royal Economic Society
From 2019: Member of QFinLab, Quantitative Finance Laboratory at Politecnico di Milano
From 2018: Member of ISDE, International Society of Difference Equations
From 2015: Member of MDEF [Dynamic models in Economics and Finance] research group
From 2015: Member of AMASES, Italian Association for Mathematics Applied to Economic and Social Sciences

Research projects

2020: Dynamic optimization for strategic investments
INdAM-GNAMPA project (National Group for Mathematical Analysis, Probability and Applications)

Impact Edufin, Effectiveness of innovative teaching techniques in the field of Financial Literacy
Politecnico di Milano and Banca d’Italia

2019: Edufin@Polimi, Financial Literacy for High Schools
Politecnico di Milano and Fondazione Cariplo

Funding

2021: Post-Covid teaching, funds for projects on innovative ways of teaching
Department of Mathematics, Politecnico di Milano, IT (funds: 1.600 €)

2020: INdAM-GNAMPA project 2020
National Institute of High Mathematics, National Group for Mathematical Analysis, Probability and Applications
Project title: Dynamic optimization for strategic investments (funds: 2.250 €)

Impact Edufin, Banca d’Italia
Effectiveness of innovative teaching techniques in the field of Financial Literacy (funds: 32.500 €)

2019: Edufin@Polimi, Fondazione Cariplo
Project: Financial Literacy for High Schools (funds: 85.000 €)

2018: Sharper Night 2018 - European Research Night (European Commission - Marie Skłodowska-Curie Actions)
with Department of Economics and Law, University of Macerata, IT

Grants, Awards and Honours

2021: Article "Portfolio Insurer and Constant Weight trades: who will survive?" selected as Feature Article by Prof. Michael Dempster, editor of *Quantitative Finance* journal.
2020: NECSI Financial Aid Award. New England Complex Systems Institute. Cambridge, USA.
2016: CMSIM International Participation Grants for CHAOS 2016 Conference. Paris, FR.
2015: Research Scholarship (three years). Full funding for PhD. University of Macerata. Macerata, IT.

Organization (conferences, workshops, schools)

Esperienze a confronto in tema di educazione finanziaria [Comparing experiences in the field of financial literacy]
Conference, 27th October, 2021. Politecnico di Milano.

EduFin Summer School, 5th-14th June, 2021.
QFinLab@Polimi, summer school for High School's students, online.

From Networks to Neural Networks in Finance, Summer School, 10th-11th June, 2021.
Lake Como School of Advanced Studies and Politecnico di Milano, online.

Big Data and Machine Learning in Finance Conference,
10th-11th June, 2021. Politecnico di Milano, Milano, IT

Financial Literacy for Adults, Course, 15th march - 07th June, 2021.
Caritas and Will project, online.

Finanza Matematica [Mathematical Finance] @ PoliCollege, 2 editions for year, since 2020.
Politecnico di Milano, IT

A.M.A.S.E.S. [Italian Association for Mathematics Applied to Economic and Social Sciences] session at
59th Annual Meeting of S.I.E., Italian Society of Economists, 25th - 27th October, 2018. Bologna, IT

10th NED, Nonlinear Economic Dynamics Conference, 7th - 9th September, 2017. Pisa, IT
(role: webmaster and communication)

Invited seminars and conferences

Portfolio Insurers and Constant Weight traders: who will survive? (with E. Barucci and P. Dindo)
Afternoon Math Seminars at DISEI - Piemonte Orientale University
24th November, 2021. Novara, IT

Connettere la matematica al mondo della finanza [Connecting mathematics to the world of finance]
Motivare Coinvolgere Divertire con la Matematica [Motivate Involve Have fun with math] Webinar
De Agostini Formazione, 2020, online.

Learning to Select Between Multiple Rational Expectations Equilibria with unobservable shocks (with J. Wenzelburger)
SAET 2019, Annual Conference of the Society for the Advancement of Economic Theory

30th June - 6th July, 2019. Ischia, IT

Dynamics of economic growth. Poverty traps and fluctuations at different development levels (with C. Mammana, E. Michetti)
Nonlinear Dynamics in Economics and Finance, Accademia dei Lincei and Marche Polytechnic University
8th June, 2018. Ancona, IT

Poverty trap, boom and bust periods and growth (with C. Mammana, E. Michetti)
Department of Economics, University of Kaiserslautern
4th May, 2018. Kaiserslautern, DE

Referee activity

The B.E. Journal of Theoretical Economics
Decisions in Economics and Finance
Journal of Economic Growth

Publications

Books

Barucci E., Grassetti F., Marazzina D. (2020). *Finanza Matematica. Esercizi*. Egea Editore. ISBN:9788875342012

Book chapters

Grassetti F., Mammana C., Michetti E. (2018). *Capital, labour and economic growth. The influence on fluctuations*. In Febbrajo T., Ricci M. (eds) Crescita Economica, Tutela Dei Diritti E Ruolo Delle Istituzioni, pp.65-80, EUM. ISBN:978-88-605-6606-5

Bischi G. I., Grassetti F. (2017). *Il logos delle forme: generare immagini dal caos*. In Manganaro P., Marcacci F. (eds) Logos & pathos. Epistemologie contemporanee a confronto, pp.61-79, Studium Editore. ISBN:978-88-382-4486-5.

Articles in Peer Rewieved Journals

Brunzini A., Papetti A., Grassetti F., Moroncini G., Germani, M. (2022) *The effect of systemic sclerosis on use of mobile touchscreen interfaces: Design guidelines and physio-rehabilitation*. International Journal of Industrial Ergonomics, vol. 87(4), DOI:10.1016/j.ergon.2021.103256

Grassetti F., Mammana C., Michetti E. (2021) *A dynamical model for real economy and finance*. Mathematics and Financial Economics, *forthcoming*

Barucci E., Dindo P., Grassetti F. (2021). *Portfolio Insurers and Constant Weight traders: who will survive?* Quantitative Finance, vol. 21(12), DOI:10.1080/14697688.2021.1987506

Coppier R., Grassetti F., Michetti E. (2021). *Non-Compliant Behaviour in Public Procurement: an Evolutionary Model with Endogenous Monitoring*. Decisions in Economics and Finance, vol. 44, pp.459-483, DOI:10.1007/s10203-021-00317-y.

Grassetti F., Guzowska M., Michetti E. (2020). *A Dynamically Consistent Discretization Method for Goodwin Model*. Chaos, Solitons and Fractals, vol. 130, pp.1-8, DOI:10.1016/j.chaos.2019.109420.

Grassetti F. (2019). *On the Influence of Production Technologies and Savings Propensities on Economic Growth. Findings Considering a Solow's Type Growth Model*. Frontiers in Applied Mathematics and Statistics, vol. 5(1), pp.1-9, DOI:10.3389/fams.2019.00001.

Grassetti F., Hunanyan G., Mammana C., Michetti E. (2019). *A Note on the Influence of Saving Behaviors on Economic Growth*. Metroeconomica, vol. 70(3), pp.442-457, DOI:10.1111/meca.12210.

Grassetti F., Hunanyan G. (2018). *On the Economic Growth Theory with Kadiyala Production Function*. Communications in Nonlinear Science & Numerical Simulation, vol. 58, pp.220-232, DOI:10.1016/j.cnsns.2017.06.036.

Grassetti F., Mammana C., Michetti E. (2018). *Poverty Trap, Boom and Bust Periods and Growth. a Nonlinear Model for Non-Developed and Developing Countries*. Decisions in Economics and Finance, vol. 41, pp.145-162, DOI:10.1007/s10203-018-0211-6.

Grassetti F., Mammana C., Michetti E. (2018). *On the Effect of Labour Productivity on Growth: Endogenous Fluctuations and Complex Dynamics*. Discrete Dynamics in Nature and Society, vol. 2018, pp.1-9, DOI:10.1155/2018/6831508.

Grassetti F., Mammana C., Michetti E. (2018). *Substitutability Between Production Factors and Growth. An Analysis Using VES Production Functions*. Chaos, Solitons and Fractals, vol. 113, pp.53-62, DOI:10.1016/j.chaos.2018.04.012.

Grassetti F., Mammana C., Michetti E. (2015). *Variable Elasticity of Substitution in the Diamond Model: Dynamics and Comparisons*. Chaotic Modeling and Simulation, vol. 4, pp.265-27, ISSN:2241-0503.

Others

Co-author for the in-depth information boxes in the textbook for Scientific High Schools

- (2022) Matematica allo specchio, Edizione Blu, Ghisetti & Corvi, De Agostini
- (2020) Matematica allo specchio, Edizione Verde e Blu, Ghisetti & Corvi, De Agostini

Under review

Barucci E., Grassetti F. *Pandemic crisis, power and the role of the State*. International Public Management Journal.
Giombini G., Grassetti F., Sanchez Carrera E. *Growth, poverty traps and cycles: capacity utilization (know-how) versus inefficiencies*. Economic Modelling.
Grassetti F., Mammana C., Michetti E. *Nonlinear dynamics in real economy and financial markets. The role of dividend policies in fluctuations*. Chaos, Solitons & Fractals
Ceriotti C., Della Torre M., Grassetti F., Marazzina D. *Should I close or should I not? A multiplex network approach for the short-term economic effect of Covid-19 containment measures in the EU*. Decisions in Economic and Finance.
Brunzini A., Papetti A., Grassetti F., Moroncini G., Germani M. *Inclusive design guidelines for the improvement of touchscreen interaction for users affected by systemic sclerosis*. International Journal of Industrial Ergonomics.

Manuscripts already presented in conferences

Bischi G.I., Grassetti F., Sanchez Carrera, E. *Pandemics, labor force and economic growth: Multiple equilibria and traps*.
Grassetti F., Wenzelburger J. *Learning to select between multiple rational expectations equilibria with unobservable shocks*.
Böhm V., Grassetti F., *The dynamics of Cournot duopoly in a monetary economy with overlapping generations of consumers*.
Grassetti F., Wenzelburger J. *MSV solutions and exact learning*.
Grassetti F., Mammana C., Michetti E. *Asset price-GDP cross feedback. The role of dividend policies in a dynamic setting*.

Conferences participation

Asset price-GDP cross feedback. The role of dividend policies in a dynamic setting (with C. Mammana, E. Michetti)
11th NED, Nonlinear Economic Dynamics Conference, 13th - 15th September, 2021. Milano, IT

Do financial markets affect real economy? Influences of professional and non-professional beliefs
(with C. Mammana, E. Michetti)

SIMAI 2020+2021, Congress of the Italian Society of Industrial and Applied Mathematics,
30th August - 3rd September, 2021. Parma, IT

Nonlinear dynamics in real Economy and financial markets. The role of dividend policies in fluctuations
(with C. Mammana, E. Michetti)
ICDEA 2021, 26th International Conference on Difference Equations and Applications, 26th - 30th July, 2021. Sarajevo, BA

Do financial markets affect real economy? Influences of professional and non- professional beliefs
(with C. Mammana, E. Michetti)
XLIII A.M.A.S.E.S [Italian Association for Mathematics Applied to Economic and Social Sciences] Conference,
9th - 11th September, 2019. Perugia, IT

On the relation between employment, capital and financial markets when beliefs are heterogeneous
(with C. Mammana, E. Michetti)
12th PODE, Progress On Difference Equations International Conference, 27th - 30th May, 2019. Bargança, PT

Influence of heterogeneous beliefs in a market with $K+1$ financial assets (with C. Mammana, E. Michetti)
XLII A.M.A.S.E.S [Italian Association for Mathematics Applied to Economic and Social Sciences] Conference,
13th - 15th September, 2018. Napoli, IT

Market destabilization in a model with $K+1$ financial assets (with C. Mammana, E. Michetti)
MDEF 2018, 10th Workshop Dynamic Models in Economics and Finance, 6th - 8th September, 2018. Urbino, IT

Complex basins and multistability in a discontinuous growth model (with C. Mammana, E. Michetti)
XLI A.M.A.S.E.S [Italian Association for Mathematics Applied to Economic and Social Sciences] Conference,
14th - 16th September, 2017. Cagliari, IT

On the boundedness of growth (with G. Hunanyan, C. Mammana, E. Michetti)
10th NED, Nonlinear Economic Dynamics Conference, 7th - 9th September, 2017. Pisa, IT

The dynamics of Cournot duopoly in a monetary economy with overlapping generations of consumers (with V. Böhm)
10th NED, Nonlinear Economic Dynamics Conference, 7th - 9st September, 2017. Pisa, IT

Qualitative dynamics of Solow-Swan growth model (with C. Mammana, E. Michetti)
11th PODE, Progress On Difference Equations International Conference, 29th - 31st May, 2017. Urbino, IT

Local and global dynamics in a discrete time growth model with VES production function (with G. Hunanyan)
BAMC 2017, 59th British Applied Mathematics Colloquium, 10th - 12st April, 2017. Guilford, UK

Relation between variable elasticity of substitution between production factors and growth (with C. Mammana, E. Michetti)
11th BiGSEM Doctoral Workshop on Economic Theory, 5th - 6th December, 2016. Bielefeld, DE

Complex dynamics in a neoclassical growth model with differential savings and Shifted Cobb-Douglas production function
(with C. Mammana, E. Michetti)
XL A.M.A.S.E.S [Italian Association for Mathematics Applied to Economic and Social Sciences] Conference,
15th - 17th September, 2016. Catania, IT

Elasticity of substitution between factors and growth: a nonlinear relationship (with C. Mammana, E. Michetti)
MDEF 2016, 9th Workshop Dynamic Models in Economics and Finance, 23rd - 25th June, 2016. Urbino, IT

A Diamond growth model with VES production function. The role of the elasticity of substitution

(with C. Mammana, E. Michetti)
CHAOS 2016, 9th Chaotic Modelling and Simulation International Conference, 23rd - 26th May, 2016. London, UK

Variable elasticity of substitution in the Diamond model: dynamics and comparisons (with C. Mammana, E. Michetti)
CHAOS 2015, 8th Chaotic Modelling and Simulation International Conference, 26th - 28th May, 2015. Paris, FR

Teaching Experience

PhD programs

AY 2019/20
Matlab: Instruments, Programming and Economic Applications
Phd Program: Quantitative Methods for Economic Policy
Department of Economics and Law, University of Macerata, IT
9 hours - Language: EN

AY 2018/19
Programming for Nonlinear Dynamics in Economics
Phd Program: Quantitative Methods for Economic Policy
Department of Economics and Law, University of Macerata, IT
4 hours - Language: EN
Introduction to Matlab
Phd Program: Quantitative Methods for Economic Policy
Department of Economics and Law, University of Macerata, IT
10 hours - Language: EN

AY 2017/18
Matlab: Instruments, Programming and Economic Applications
Phd Program: Quantitative Methods for Economic Policy
Department of Economics and Law, University of Macerata, IT
10 hours - Language: EN

Specialized Masters Programs

AY 2021/22
Quantitative Methods and Finance + Business Analytics
International Master in Fintech, Finance and Digital Innovation
MIP Politecnico di Milano Graduate School of Business
5 hours - Languange: EN

AY 2020/21
Assicurazioni [Insurance]
Master Finance, Insurance and New Technologies
Cefiel for Allianz SE
40 hours - Languange: IT

AY 2020/21
Business Analytics and Quantitative Finance
International Master in Fintech, Finance and Digital Innovation
MIP Politecnico di Milano Graduate School of Business
6 hours - Languange: EN

AY 2019/20
Fondamenti di Economia e Finanza [Fundamentals of Economics and Finance]
Master Finance, Insurance and New Technologies
Cefiel for Allianz SE
48 hours - Languange: IT

Master's Degrees

From AY 2020/21 to *ongoing*	**Insurance and Econometrics** *Mathematical Engineering* Politecnico di Milano, IT 5 ECTS, Language: EN

Bachelor's Degrees

From AY 2017/18 to AY 2020/21	**Laboratorio di Matematica 1 e 2** [Mathematics Laboratory 1 and 2] *Economia: banche, aziende e mercati* [Economics: banks, companies and markets] University of Macerata, IT 3+3 ECTS, Language: IT

Others

From AY 2019/20 to AY 2020/21	**Finanza Matematica I - Esercitazioni** [Mathematical Finance I - Practice] *Bachelor's Degree Ingegneria Matematica* [Mathematical Engineering] Politecnico di Milano, IT 15 hours, Language: IT
From AY 2017/18 to AY 2019/20	**Corso di Sostegno di Matematica Generale** [Calculus - Practice] *Bachelor's Degree Economia: banche, aziende e mercati* [Economics: banks, companies and markets] University of Macerata, IT 20 hours, Language: IT
From AY 2017/16 to AY 2019/20	**Corso di Azzeramento di Matematica Generale** [Calculus - Preliminary course] *Bachelor's Degree Economia: banche, aziende e mercati* [Economics: banks, companies and markets] University of Macerata, IT 20 hours, Language: IT
From AY 2015/16 to AY 2019/20	**Tutor** *General Mathematics, Financial Mathematics, Statistics, Computer Science* Department of Economics and Law, University of Macerata, IT

Attended courses

2020	**Complex System winter school** *New England Complex Systems Institute* Massachusetts Institute of Technology, Boston, USA
2019	**Actuarial science course** (156 hours) *CISA [Interacademy Center for Actuarial Sciences and Risk Management]* University of Firenze, Firenze, IT
2017	**Summer school *Dynamic models in economics and finance*** *Verona University and Urbino University* Alba di Canazei, IT