Prof. Caterina May PhD

Curriculum vitae

MAIN FIELDS OF INTEREST

1. Probability and Statistics and their applications
2. Experimental design, application to clinical trials
3. Stochastic Processes and Urn Models
4. Functional Data Analysis

CURRENT ISSUES OF RESEARCH

Optimum design of experiments. Estimation in nonlinear models. Properties and applications of sequential and response-adaptive designs.

BIO AND EDUCATION

January 2007: PhD in Mathematics at University of Milan. Advisor: Prof. Piercesare Secchi (Politecnico di Milano). Specialisation: Probability and Statistics

April 2002: Degree in Mathematics at University of Milan, with grade 110/110

UNIVERSITY CAREER

2018-	*Associate Professor* of Statistics, University of Eastern Piedmont, since 01/02/2018
2014	Awarded with the *National Scientific Qualification* of Associate Professor of Statistics (13/D1 Scientific Sector)
2011-2017	*Assistant Professor*, University of Eastern Piedmont, SSD SECS-S/01 Statistics
2006-2010	*Research Fellow*, University of Eastern Piedmont, under the supervision of Prof. Aldo Goia
2002-2006	PhD Scholarship, University of Milan
2002	Scholarship entitled *Borsa di Studio per la Formazione del Giovani più Promettenti*, University of Milan

SCIENTIFIC PUBLICATIONS

1. JOURNAL ARTICLES

1. Gambaro, A. M., Fusai, G., Sodhi, ManMohan~S., May, C., & Morelli, C. (2023). ICU capacity expansion under uncertainty in the early stages of a pandemic. *Production and Operations Management*. https://doi.org/10.1111/poms.13985

2. J. Fidalgo, **C. May**, J. Moler (2022). Designing experiments for estimating an appropriate outlet size for a silo type problem. ANNALS OF APPLIED STATISTICS. https://imstat.org/journals-and-publications/annals-of-applied-statistics/annals-of-applied-statistics-next-issues/

3. N. Flournoy, C. May, C. Tommasi (2021). The Effects of Adaptation on Maximum Likelihood Inference for Non-Linear Models with Normal Errors. JOURNAL OF STATISTICAL PLANNING AND INFERENCE. Vol. 214, Pages 139-150, ISSN 0378-3758, https://doi.org/10.1016/j.jspi.2021.02.002 DOI: 10.1016/j.jspi.2021.02.002.

4. Aletti G., May C., Tommasi C. (2016). Best Estimation of Functional Linear Models. JOURNAL OF MULTIVARIATE ANALYSIS, vol. 151, p. 54-68. DOI: 10.1016/j.jmva.2016.07.005

5. Aletti G., May C., Tommasi C. (2014). KL-optimum designs: theoretical properties and practical computation. STATISTICS AND COMPUTING, (2014-09-24): 1-11, Print ISSN: 0960-3174, Online ISSN: 1573-137. DOI: 10.1007/s11222-014-9515-8

6. May C. and Tommasi C. (2014). Model selection and parameter estimation in non-linear nested models: a sequential generalized DKL-optimum design. STATISTICA SINICA, vol. 24, p. 63-82, DOI:10.5705/ss.2012.258.

7. G. Aletti, C. May, P. Secchi (2012). A Functional Equation Whose Unknown is P([0,1]) Valued. JOURNAL OF THEORETICAL PROBABILITY, vol. 25(4), pages 1207-1232. DOI: 10.1007/s10959-011-0399-7

8. Flournoy N., May C. and Secchi P. (2012). Asymptotically optimal response-adaptive designs for allocating the best treatment: an overview. INTERNATIONAL STATISTICAL REVIEW, 80 (2), 293-305. DOI: 10.1111/j.1751-5823.2011.00173.x

9. Fusai, G., Goia, A. and May, C. (2010). Functional clustering and linear regression for peak load forecasting. INTERNATIONAL JOURNAL OF FORECASTING, vol. 26, p. 700-711, ISSN: 0169-2070, DOI:10.1016/j.ijforecast.2009.05.015

10. May, C. and Flournoy, N. (2009). Asymptotics in response-adaptive designs generated by a two-color, randomly reinforced urn. THE ANNALS OF STATISTICS, 37(2), 1058-1078. DOI: 10.1214/08-AOS596

11. G. Aletti, C. May, P. Secchi (2009). A central limit theorem, and related results, for a two-color randomly reinforced urn. ADVANCES IN APPLIED PROBABILITY, vol. 41(3), p. 829-844. DOI: 10.1239/aap/1253281065

12. G. Aletti, C. May, P. Secchi (2007). On the distribution of the limit proportion for a two-color, randomly reinforced urn with equal reinforcement distributions. ADVANCES IN APPLIED PROBABILITY, vol. 39(3), p. 690-707. DOI: 10.1239/aap/1189518634

13. May C., Paganoni A. M. and Secchi P. (2005). On a two-color generalized Polya urn. METRON. Vol LXIII, n.1, 115-134. ISSN: 0026-1424

2. BOOK ARTICLES

14. C. May, C. Tommasi (2022). *Bias correction of the maximum likelihood estimator for Emax model at the interim analysis*. In: SIS 2022 Book of the Short Papers, Pearson, pag 1972-1977. ISBN 9788891932310.

15. C. May, C. Tommasi (2020). *On the behaviour of the maximum likelihood estimator for exponential models under a fixed and a two-stage design*. In: Book of Short Paper SIS 2020, Pearson, pag 1302-1307. ISBN 9788891910776.

16. G. Aletti, C. May, C. Tommasi (2016). *On applying optimal design of experiments when functional observations occur*. In: mODa 11 - Advances in Model-Oriented Design and Analysis. Editors: Kunert, Joachim, Müller, Christine H., Atkinson, Anthony C. Publisher: Springer, 2016, pp 1-9. eBook ISBN 978-3-319-31266-8. Softcover ISBN: 978-3-319-31264-4. DOI: 10.1007/978-3-319-31266-8.

17. Aletti G., May C., Tommasi C (2014*). Optimal designs for linear models with functional responses*. In: (a cura di): E. G. Bongiorno, E. Salinelli, A. Goia, and P. Vieu, Contributions in Infinite-Dimensional Statistics and Related Topics, p. 19-24, Società Editrice Esculapio, ISBN: 9788874887637

18. Aletti G., May C. and Tommasi C. (2013). *A Convergent Algorithm for Finding KL-Optimum Designs and Related Properties*. In: mODa 10 – Advances in Model-Oriented Design and Analysis / D. Ucinski, A.C. Atkinson, M. Patan.: Contributions to Statistics, Springer, 2013, pp 1-9. ISBN 978-3-319-00217-0. DOI: 10.1007/978-3-319-00218-7_1

19. Flourony N., May C., Moler J. A., Plo F. (2010). *On testing hypotheses in response-adaptive designs targeting the best treatment*. In: mODa 9 -Advances in Model-Oriented Design and Analysis. p. 81-88, BERLIN HEIDELBERG:Physica-Verlag (Springer Company), ISBN: 978-3-7908-2409-4, DOI: 10.1007/978-3-7908-2410-0

20. Tommasi, C., and May, C. (2010). *An adaptive sequential design for model discrimination and parameter estimation in non-linear nested models*. ICNAAM 2010: International Conference of Numerical Analysis and Applied Mathematics 2010. AIP Conference Proceedings, Vol. 1281, pp. 1917-1920. ISBN: 978-0-7354-0836-4, ISSN: 0094-243X, doi:10.1063/1.3498294

3. BOOKS

21. Atkinson, A.C., Giovagnoli, A., Torsney, B., and May, C. (EDITORS) (2010). mODa 9 – Advances in Model-Oriented Design and Analysis. Contributions to Statistics, Physica- Verlag/Springer, Heidelberg.doi: 10.1007/978-3-7908-2410-0.

4. CONFERENCE PUBLICATIONS

22. Gambaro, A. M.; Fusai, G.; May, C.; Morelli, C.; Sodhi, M. (2021). We're not winning this battle. The COVID toll for limited ICU capacity. CONFERENCE PROGRAM BOOK Capacity Expansion under Stochastic Demand: Managing ICU Capacity in a Pandemic. Production and Operations Management Society (POMS) Conference

23. Coad S., May C. and Flournoy N. (2013). A Further Study of the Randomized Play-the-Leader Design. Seventh International Workshop on Simulation, Book of Abstracts, "Quaderni di Dipartimento" of the Department of Statistical Sciences of the University of Bologna, n. 3, 2013, ISSN 1973-9346.

24. May C. and Tommasi C. (2012). A sequential generalized DKL-optimum design for model selection and parameter estimation in non-linear nested models. International Conference on Trends and Perspectives in Linear Statistical Inference and 21st International Workshop on Matrices and Statistics, Book of Abstracts. Editors: Katarzyna Filipiak and Martin Singul. ISBN: 978-83-63400-12-5.

25. May, C., Paganoni A. M. and Secchi P. (2007). Response-adaptive designs targeting the best treatment for clinical trials with continuous responses. S.Co.2007 Fifth Conference - Complex Models and Computational intensive methods for estimation and prediction - Book of short papers, 326-331, Cluep. ISBN: 9788861291140

26. Goia A, May C. (2008). A Functional Approach to Peak Load Forecasting. In: SIS - atti XLIV Riunione Scientifica.

27. May C., Paganoni A.M., Secchi P (2008). Asymptotic Test for Comparing Mean Responses to Treatment After Allocation With a RRU-Design. In: SIS - atti XLIV Riunione Scientifica.

5. PREPRINTS

N. Flournoy, C. May, C. Tommasi (2022). Bias and Design with the Emax Model.

TEACHING

1. MASTER'S DEGREE AT THE UNIVERSITY OF EASTERN PIEDMONT

A.Y. 2017-18, 2018-19, 2019-20, 2020-21, 2021-22: Lecturer in *HR Analytics*, Master's degree in Management and Finance, Human Resources curriculum.

A.Y. 2018-19, 2017-18, 2016-2017, 2015-2016, 2014-2015, 2013-2014, 2012-2013, 2011-2012: Lecturer in *Statistical Methods for Business*, Master's degree in Administration, Control and Profession.
A.Y. 2015-2016: Lecturer in *Quantitative Methods II*, Master's degree in Management and Finance.

2. BACHELOR'S DEGREE AT THE UNIVERSITY OF EASTERN PIEDMONT

A.Y. 2017-18, 2019-20, 2020-21, 2021-22: Lecturer in *Statistics for Tourism*.
A.Y. 2016-2017: Lecturer in *Statistics,* degree in Business and Economics.
A.Y. 2015-2016, 2014-2015, 2013-2014: Lecturer in *Statistics,* degree in Business and Economics.
A.Y. 2012-2013, 2011-2012: Lecturer in *Applied Statistics,* degree in Business and Economics.
A.Y. 2010-2011: Lecturer in *Financial and Economic Data Analysis,* degree in Business and Economics.

3. PHD PROGRAMS AND POSTGRADUATE TEACHING

A.Y. 2016-2017, 2015-2016, 2014-2015: Lecturer in *Statistical Inference - Module II* (in English) for PhD course in Statistics and Mathematics for Finance, University of Milan Bicocca.
A.Y. 2012-2013: Lecturer in *Data Collection and Analysis Techniques* for Master of Planning and Management of Cultural Systems, University of Eastern Piedmont.
A.Y. 2010-2011: Lecturer in *Probability* (in English) for *Ph.D.* in *Economics and Finance*, University Luigi Bocconi.
A.Y. 2009-2010, 2008-2009: Lecturer in *Statistics* (in English) for *Ph.D.* in *Economics, Finance and Management*, University Luigi Bocconi.

4. TEACHING AT OTHER UNIVERSITIES

A.Y. 2006-2007: Lecturer in Mathematical Statistics with R, Mechanical and Aerospace Engineering, Politecnico of Milan.
A.Y. 2002-2003, 2003-2004, 2004-2005: Lecturer in Probability and Mathematical Statistics, Engineering, Politecnico of Milan. Lecturer at Pre-courses of Mathematics and Physics, University of Milan and Politecnico of Milan.

ADMINISTRATIVE DUTIES

2011-	Member of the International Relations Committee (CoRI) at the Department DiSEI, University of Eastern Piedmont
2020-	Erasmus Coordinator at the Department DiSEI, University of Eastern Piedmont
2017-2021	Member of Quality Assurance commission for a Master degree

SCIENTIFIC POSITIONS

- Member of the Italian Statistical Society (SIS).
- Reviewer for *Statistics in Medicine*, *Statistical Methods and Applications, Biometrics* and other journals.

INTERNATIONAL SCIENTIFIC COLLABORATIONS

2007-	Invited fellow at the international congresses *Model-Oriented Data Analysis and Optimum Design* (*MoDA Conference*), every three years

2019	Invited visiting scholar at *Universidad Publica de Navarra* (Pamplona, Spagna).
2011	Invited participant to the program *Design and Analysis of Experiments* at Isaac Newton Institute for Mathematical Sciences (Cambridge, U.K.)
2009	Invited visiting scholar at *Universidad Publica de Navarra* (Pamplona, Spagna)
2006	Visiting Scholar at *University of Missouri* (USA)

LANGUAGES

English: excellent.