

# Francesco Mariani

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## Current position

Oct 2024– **Postdoc**, *Alma Mater Studiorum University of Bologna*, Bologna  
Current Dept. of Statistical Sciences

## Education

2021–25 **PhD in Methodological Statistics**, (*37 cycle*), *Sapienza University of Rome*,  
Supervisors: Fulvio De Santis & Stefania Gubbiotti  
Mention of "Doctor Europaeus" cum laude

2019–21 **Master's degree in Statistical Sciences**, *Sapienza University of Rome*  
110 cum laude/110

2016–19 **Bachelor's degree in Statistics, Finance and Insurances**, *Sapienza University of Rome*  
110 cum laude/110

## Student Visits and Internships

Sep 2023– **Biostatistics intern**, *Novartis*

Nov 2023 Supervisors: Sebastian Weber & Lukas Andreas Widmer  
Basel, Switzerland

Oct 2022– **Sponsored Research Fellow**, *Dana Farber Cancer Institute of Harvard University*

Feb 2023 Supervisors: Massimiliano Russo & Lorenzo Trippa  
Boston, Massachusetts, USA

Jan 2020– **Erasmus+ programme**, *Université Paris Dauphine*

Jun 2020 Paris, France

## Teaching activities

**Teaching contract appointments**, (*appointment under freelance teaching contract, Art. 7, D.Lgs. 165/2001*)

○ Sapienza University, Department of Economics (MEMOTEF):

× one semester (around 40h) - Subject: Foundations for statistical inference (master) - Referent: Brunero Liseo - Winter 2025

**Teaching assistant**, (*appointment under a coordinated collaboration contract (Co.Co.Co), Art. 409 c.p.c.; D.Lgs. 81/2015*)

- Luiss University, Department of Economics:
  - × one semester (around 40h) - Subject: Data Analysis and Business (bachelor) - Referent: Matteo Iacopini - Winter 2025
  - × one semester (around 40h) - Subject: Applied Statistics and Econometrics (bachelor) - Referent: Matteo Iacopini - Winter 2025
- Luiss University, Department of Political Sciences:
  - × one semester (around 40h) - Subject: Microsoft Excel for Statistics (bachelor) - Referent: Matteo Iacopini - Spring 2025
  - × one semester (around 40h) - Subject: Statistics (bachelor) - Referent: Matteo Iacopini - Spring 2025

**Teaching assistant**, (*appointment under the University Tutoring Program, D.Lgs. 68/2012*)

- University of Bologna, Department of Economics:
  - × 20h - Subject: Statistics and Programming (bachelor) - Referent: Marco Novelli - Spring 2026
- Sapienza University of Rome, Department of Statistical Sciences:
  - × 40h - Subject: Statistical Inference (bachelor) - Referent: Fulvio De Santis - Spring 2024
  - × 40h - Subject: Statistical Inference (bachelor) - Referent: Fulvio De Santis - Spring 2023
  - × 40h - Subject: Statistical decision theory (master) - Referent: Fulvio De Santis - Winter 2022
  - × 40h - Subject: Statistical Inference (bachelor) - Referent: Fulvio De Santis - Spring 2022

**Collaboration scholarships**

- 6 months - Tutoring and Teaching Support for “PLS” activities at Sapienza University of Rome, Spring 2022
- 150h - Computer Lab Assistant and Social Media Manager at Sapienza University of Rome, Spring 2019

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## Awards and Grants

## Grants

- University projects at Sapienza University of Rome:
  - **Academic Research Grant** (role: team member): *Power analysis and sample size calculation in clinical trials under a hybrid frequentist-Bayesian approach* (PI: Stefania Gubbiotti), a.y. 2024/25 (9780 euros)
  - **Young Investigator Research Grant** (role: PI): *Bayesian methodologies and computational tools for Phase I trials*, a.y. 2024/25 (2000 euros)
  - **Academic Research Grant** (role: team member): *Advances in Bayesian methods for sample size determination* (PI: Valeria Sambucini), a.y. 2023/24 (9900 euros)
  - **Young Investigator Research Grant** (role: team member): *Innovative Bayesian methodologies for early stage clinical trials* (PI: Susanna Gentile), a.y. 2023/24 (1000 euros)
  - **Young Investigator Research Grant** (role: PI): *Bayesian dynamic approaches for historical control in Phase 1 and Phase 3 clinical trials*, a.y. 2022/23 (1332 euros)
- e-COST Action travel grant for participation to the Advanced Bayesian Training School in Madrid, Spain, 2023

## Awards

- Distinguished reviewer of the *Chinese Clinical Oncology Journal* in 2024.

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## Editorial activities

### Referee

for *Biometrical Journal*, *Pharmaceutical Statistics*, *BMC Medical Research Methodology*, *Statistical Methods & Applications*, *Chinese Clinical Oncology*.

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## Conference service

### Program committee

CIBB 2026, to be held at Sapienza University of Rome in September 2026

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## Seminars, invited talks, chairing sessions

### Seminars

Nov 2023 **Novartis, Basel, Switzerland**

Talk: "Prior specifications of the between trial heterogeneity in Oncology phase 1 single agent trials: a simulation study"

### Invited talks

Oct 2026 **IBIG forum 2025, University of Naples Federico II**

Talk: "Probability of success and power-related random variables"

Sep 2026 **ICNAAM 2025, Heraklion, Crete, Greece**

Talk: "Adaptive design strategies for ethical and efficient clinical trials using simulated annealing"

Apr 2025 **PSI special interest group on quantitative decision making, Online**

Talk: "The power-related random variables and their use in clinical trials"

Jan 2025 **BayesMeCOS final workshop, University of Florence**

Talk: "A dynamic borrowing power prior approach to non-inferiority trials"

## Chairing sessions

Jun 2025 **XII PhD day, Sapienza University of Rome, Italy**

10th of June 2025

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## Publications

### International journals

- De Santis F., Gubbiotti S., Mariani F. (2026). Operating characteristics of Bayes factors. *Journal of the Royal Statistical Society Series A*. DOI: <https://doi.org/10.1093/jrsssa/qnag044>
- De Santis F., Gubbiotti S., Mariani F. (2026). The distribution of the power for tests based on pivotal quantities. *Accepted for publication on International Statistical Review*. DOI: 10.1111/insr.70031
- De Santis F., Gubbiotti S., Mariani F. (2025). Rethinking the probability of success as Bayes utility. *Biometrical Journal*. DOI: <https://doi.org/10.1002/bimj.70067>
- Mariani F., De Santis F., Gubbiotti S. (2024). The distribution of the power-related random variables (and their uses in clinical trials). *Statistical Papers*. DOI: <https://doi.org/10.1007/s00362-024-01599-1>
- Russo M., Mariani F., Cleary J.M., Shapiro G.I., Coté G.M., Trippa L. (2024). Toxicity Adaptive Lists Design (TALE): a practical design for phase-I drug combination trials in oncology. *JCO Precision Oncology*. DOI: <https://doi.org/10.1200/PO.24.00275>
- Mariani F., De Santis F., Gubbiotti S. (2024). A dynamic power prior approach to non-inferiority trials for normal means. *Pharmaceutical Statistics*. DOI: <https://doi.org/10.1002/pst.2349>

### Submitted to international journals

- Baldi Antognini A., Frieri R., Mariani F., Zagoraiou M. (2026+). Combining information from adaptive experiments. *Submitted to an International Journal*.
- Frieri R., Mariani F., Novelli M. (2026+). Adaptive Design Strategies for Ethical and Efficient Clinical Trials Using Simulated Annealing. *Submitted to an International Journal*.
- Frieri R., Mariani F., Novelli M., Cecconi S. (2026+). Theoretical and Practical Guidance for Covariate-Adaptive Randomization. *Submitted to an International Journal*.

### Book chapters

- De Santis F., Gubbiotti S., Mariani F. (2026+). On the probability of success of a reliability experiment. *To appear In: Statistical Learning Sustainability and Impact Evaluation*.
- De Santis F., Gubbiotti S., Mariani F. (2025). Recent Results on the Random Probability of Success of an Experiment. In: *Methodological and Applied Statistics and Demography II. SIS 2024. Italian Statistical Society Series on Advances in Statistics*.
- De Santis F., Gubbiotti S., Mariani F. (2025). On the distribution of the random risk under alternative loss functions. In: *Operations Research: Closing the Gap Between Research and Practice*.
- De Santis F., Gubbiotti S., Mariani F. (2023). On the Bayes risk induced by alternative design priors for sample size choice. In: *Optimization in Green Sustainability and Ecological Transition*.

### Conference proceedings

- Mariani F., Frieri R., Novelli M. (2025). Balancing covariates in comparative experiments with the Simulated Annealing. *Proceedings of SIS 2025*, Genova.
- De Santis F., Gubbiotti S., Mariani F. (2025). A global evaluation on the probability of success of an experiment. *Proceedings of SIS 2025*, Genova.
- De Santis F., Gubbiotti S., Mariani F. (2024). The distribution of the risk function for interval estimation *Proceedings SIS 2024*, Bari.
- De Santis F., Gubbiotti S., Mariani F. (2023). On Bayesian power analysis in reliability. *Proceedings SEAS-IN 2023*, Ancona.
- De Santis F., Gubbiotti S., Mariani F. (2022). A dynamic power prior approach for normal means with unknown variances. *Proceedings of SIS 2022*, Caserta.

### PhD Thesis

Mariani F. (2025). Random power and friends: hybrid Bayesian-frequentist approaches in clinical trials design. *Sapienza University of Rome*.

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### Skills

R / Rstudio	<b>Advanced</b> , including RShiny, Rcpp, Rmarkdown, Quarto
Latex	<b>Advanced</b>
MS office	<b>Advanced</b>
Others	<b>Basic</b> , Jags, SAS, Java, Python, Winbugs, Gretl, SQL, Matlab
Language skills	<b>Italian (native speaker), English (IELTS C1)</b>