

Two-year post-doc at the Department of Statistics,  
Computer Science, Applications (DiSIA) and Florence  
Center for Data Science - University of Florence  
(starting February 2021)

**Analysis of causal effects in experimental and observational studies**

**About us:**

The research activities will be supervised by Prof. Fabrizia Mealli, faculty at the Department of Statistics, Computer Science, Applications (DiSIA, <https://www.disia.unifi.it/>) and director of the Florence Center for Data Science (<https://datascience.unifi.it/>). Fabrizia Mealli is a leading expert in Causal Inference. At the University of Florence she is collaborating with various colleagues including Michela Baccini, Alessandra Mattei, Leonardo Grilli, Anna Gottard and Carla Rampichini, as well as colleagues in other departments with expertise in several applied domains. Research around causal inference in her group focuses on: (1) advancing designs and statistical - particularly Bayesian - methods for causal inference with intercurrent events, for understanding causal mechanisms; (2) bridging causal inference and new frontiers where causal inference is desired but has been under-investigated, such as in high-dimensional data; and (3) develop tools for defining, designing, estimating and interpreting causal effects in experimental and observational studies in the social sciences, especially with data with complex structures, such as networks, in the presence of interference and correlated outcomes.

The Florence Center for Data Science is a joint effort of four Departments of the University of Florence, representing a rare, if not unique, balancing of statistical, mathematical, computer sciences, computer engineering and application-specific expertise.

**About the project:**

The research activities will focus on causal inference for experimental and observational data. Research will be conducted in areas such as irregular designs with complex data structures and interference, treatment

effect heterogeneity, principal stratum strategies, under the potential outcome approach and using different modes of inference, including Bayesian model-based methods. Methods development will be mostly motivated by problems in the social sciences, public health, clinical trials and field experiments. R software will be developed and disseminated to implement the proposed methods.

## About you:

You will contribute at developing and evaluating novel statistical methods for causal inference; programming in R to produce scalable, reusable code and releasing publicly available software packages; writing manuscripts, papers, and progress reports about your research, working with a small core team of researchers. You will find this project to be a good fit if you are excited to work with challenging causal inference studies.

**Requirements:** A PhD in one of the following areas is preferred: Statistics; Applied Statistics; Economics; Finance; Computer Science; Engineering; Physics; Mathematics.

**Desired qualifications:** Computational expertise and some knowledge of causal inference and Bayesian methodology are preferred

## Interested?

Please, see details on the call at the following link:

<https://www.unifi.it/index.php?module=MDAssRic&func=list&selezione=DIP058523&target=a>

or contact Fabrizia Mealli at [fabrizia.mealli@unifi.it](mailto:fabrizia.mealli@unifi.it)