

University of Milano-Bicocca

Department of Economics, Management and Statistics (DEMS)

PhD in Economics, Statistics and Data Science (ECOSTATDATA)

Academic year 2022-2023

Statistical Inference I

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Outline

The main goal of this course is to expose students to some key concepts of statistical inference, with a focus on likelihood-based methods. The module will cover the following topics:

- Likelihood function
- Sufficiency and exponential families
- Likelihood principle
- Inferential approaches and problems: overview
- Maximum likelihood estimation for regular and irregular models
- MLE properties: invariance under reparameterization, consistency, asymptotic normality
- Asymptotic distribution of the log-likelihood ratio

References

Cox and Hinkley (1976) Theoretical Statistics. Chapman and Hall/CRC