

# Bayesian statistics

Bernardo Nipoti, Tommaso Rigon, Raffaele Argiento

University of Milano-Bicocca

Ph.D. in Economics, Statistics and Data Science



# Exam rules

- You will be assigned one or more **research papers**.
- You must submit to us, at most three days before the exam date, a **8 pages long review paper** about the assigned topic, written in Latex.
- You can use any template you want, but make sure the manuscript is written as if it were to be submitted to a peer-reviewed statistical journal (i.e. *Biometrika*).
- You can decide the content of your manuscript, as long as it is related to the assigned papers. We expect you to **implement** the method/model to some extent, e.g. using **R**.
- Your manuscript will be peer-reviewed and you will receive 1-2 referee reports.
- Finally, you will present your review paper in a 20 minutes **talk**.
- **Optional**. If you have some novel idea in mind, you can write (a first draft) of a research paper rather than a review.

# The keyword system

- The research paper(s) you will be assigned are determined by a list of 3–5 **keywords** you need to send us before the end of the course.
- For instance, a possible list could be something like:
  - Asymptotic statistics
  - Bayesian nonparametrics
  - Mixture models
- In this case, a likely outcome would be the paper:
- Rousseau, J. and Mengersen, K. (2011). Asymptotic behaviour of the posterior distribution in overfitted mixture models. *Journal of the Royal Statistical Society. Series B: Statistical Methodology*, **73**(5), 689–710.
- Please do not **abuse** of the keyword system: this is a course about Bayesian statistics.
- If you send us the keywords frequentist, Neyman–Pearson lemma, repeated sampling principle, you will get the paper by de Finetti (1937) as a result.