



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DIPARTIMENTO
DI PSICOLOGIA
"RENZO CANESTRARI"

PhD Program in Psychology

Seminar "From the Bayes factor to Bayesian informative hypothesis"

Prof. Sara Garofalo

Department of Psychology, University of Bologna

11/04/2025, 09:00-13:00

Laboratorio Informatica 2 - Piazza Aldo Moro, Cesena

Abstract

In this seminar, students will explore the Bayes Factor and Bayesian Informative Hypothesis as powerful tools for hypothesis testing and decision-making in data analysis. Emphasizing a practical, hands-on approach, the seminar will guide participants from understanding foundational Bayesian concepts to applying the Bayes Factor for assessing the strength of experimental hypotheses. Further, students will learn to formulate and test informative hypotheses within the Bayesian framework, enabling them to specify and evaluate hypotheses with greater precision than traditional null hypothesis significance testing allows. Through interactive examples and real-world applications, attendees will discover how to interpret Bayes Factors, and use Bayesian methods to make evidence-based conclusions. This seminar is ideal for students looking to strengthen their analytical toolkit and apply Bayesian techniques confidently in their research.

Reading (suggested):

- Wagenmakers, E. J., Marsman, M., Jamil, T., Ly, A., Verhagen, J., Love, J., Selker, R., Gronau, Q. F., Šmíra, M., Epskamp, S., Matzke, D., Rouder, J. N., & Morey, R. D. (2018). Bayesian inference for psychology. Part I: Theoretical advantages and practical ramifications. *Psychonomic Bulletin and Review*, 25(1), 35–57. <https://doi.org/10.3758/s13423-017-1343-3>
- Garofalo S., Finotti G., Orsoni M., Giovagnoli S., Benassi M. (2024). Testing Bayesian Informative Hypotheses in 5 steps with R and JASP. *Advances in Methods and Practices in Psychological Science*. <https://doi.org/10.1177/25152459241260259>



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- Garofalo S., Giovagnoli S., Orsoni M., Starita F. & Benassi M. (2022) Interaction effect: Are you doing the right thing? PLoS ONE 17(7): e0271668.
<https://doi.org/10.1371/journal.pone.0271668>