

A review of *Bayesian methods* by Jeff Gill. September 2015.

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“Bayesian Methods” is a comprehensive reference book covering the whole Bayesian toolbox used in the social sciences. Its natural readership includes researchers in the social sciences, but it could also be highly useful to anyone with a mathematical background who wishes to understand the philosophical bases of Bayesian methods, or put them to practice. The author covers the mathematical roots of Bayesian analysis, and sketches the proofs of the main formal results, but mostly focuses on practical and computational aspects of the subject matter. The book includes a thorough discussion on the differences between frequentist and Bayesian views, clearly advocating the latter. A wide range of topics is covered, from Bayesian estimate and model comparison to decision.

A large part of the book is dedicated to presenting practical implementations of MCMC (Markov Chain Monte Carlo) methods using R and BUGS, to give the reader all the necessary elements to perform effective analyses. All along the text, real examples taken from a diversity of social science topics are treated in depth, from the theoretical analysis of the data through the implementation of Bayesian analysis to the interpretation of the results. The third edition mostly expands the implementation sections as compared to previous editions.

Reference:

Gill, J. (2015). *Bayesian methods. A social and behavioral sciences approach (3d edition)*. Chapman & Hall.

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