An Introduction to the Bayesian Paradigm

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Material from my existing courses and/or papers

- Bayesian ingredients

    - Tiago Mendonca's shiny for the physicists example
    - Bayesian update: a toy example with a bit of R code
    - The Binomial-Beta model-prior example
    - First chapter of Stone (2013) *Bayes' Rule: A tutorial Introduction to Bayesian Analysis*

- Bayesian computation

    - iid Bernoulli or logit/probit regressions?
    - Learning degrees of freedom in a Student's t model
    - Bayes factor and Bayesian model averaging

- Bayesian autoregressive model of order p: conjugate analysis vs Gibbs sampler

- Lopes and Tobias (2011) Confronting prior convictions: On issues of prior and likelihood sensitivity in Bayesian analysis, *Annual Review of Economics*

Additional material

- **Markov Chain Monte Carlo: Stochastic Simulation for Bayesian Inference** - Road map to studying Chapters 2 (Bayesian inference) and 3 (Approximate methods of inference) of Gamerman and Lopes (2006).

- **Bayesian statistics and modelling** - van de Schoot, Depaoli, King, Kramer, Märtens, Tadesse, Vannucci, Gelman, Veen, Willemsen and Yau (2021), *Nature Reviews Methods Primers.*

- **Bayesian Statistics (a very brief introduction)** - Ken Rice's slides.

- **Bayesian statistics** Spiegelhalter and Rice (2009), Scholarpedia, 4(8):5230.

Bedtime reading

- Sharon Bertsch McGrayne's (2012) book *The Theory That Would Not Die: How Bayes' Rule Cracked the Enigma Code, Hunted Down Russian Submarines, and Emerged Triumphant from Two Centuries of Controversy*.

- Nate Silver's (2015) book *The Signal and the Noise: Why So Many Predictions Fail – but Some Don't*

- Another cool bedtime reading (2018) book from my friends Nicholas Polson and James Scott - *AIQ: How People and Machines Are Smarter Together.*