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Statistics 568 Bayesian Analysis

Thurs 6:40 - 9:30pm (GMT-5) rutgers.instructure.com/courses/120689

Syllabus (Version Jan 15, 2021)

Course Description

An introduction to Bayesian statistical modeling, inference, and computation. Single- and multi-parameter models, hierarchical models, model checking, evaluation, selection, sensitivity analysis and prediction. Bayesian decision analysis. Monte Carlo and Markov chain Monte Carlo (Metropolis-Hastings, Gibbs). Select topics in advanced Bayesian computation, e.g. Hamiltonian Monte Carlo and approximate Bayesian computation.

Instructor

Ruobin Gong (ruobin.gong@rutgers.edu)

Prerequisites

Some probability and statistical inference at the graduate level, calculus and linear algebra. Prior experience with R programming is strongly recommended.

Evaluation

Homework assignments (50%), final exam (40%), and class discussion participation (10%).

Textbook

Gelman, A., Carlin, J. B., Stern, H. S., Dunson, D. B., Vehtari, A., & Rubin, D. B. (2013). *Bayesian data analysis*. CRC press. PDF of the book is available through Gelman's website for non-commercial purposes: http://www.stat.columbia.edu/~gelman/book/

Homework

Homeworks will be assigned weekly, due by 11:59pm on the Wednesday prior to the next class meeting. Late homework submissions receive 50% credit up to 18 hours, and no credit after 18 hours.

Remote Instruction

Class meetings are held via Zoom. Connection information can be found on Canvas (link at top), which will also be the class's main method of communication. *Please check Canvas regularly for announcements and updates.*