
Kursrapport MT7003 HT19

Antal respondenter: 2
Antal svar: 1
Svarsfrekvens: 50,00 %

. Beskrivning av kursupplägget.

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The course provided an introduction to the basic concepts in Bayesian methods. It covered Bayes' formula, informative and non-informative prior distributions, posterior distributions, single- and multi-parameter distributions like binomial, multinomial and normal distributions, hierarchical models, linear models, Bayesian inference and goodness-of-fit measures and stochastic simulation with Markov Chain Monte Carlo (MCMC). The course was composed of theoretical lectures and three computer labs with R and the rjags package to provide training in both theories and practices. The learning progress of the students was assessed by a take-home exam consisting of both theoretical and computational problems for which students had 3 weeks to solve it. The teaching was conducted by two lecturers (CBL and MH) - responsible for the first and second part of the course, respectively. The second part of the course was done in two intensive weeks with 4 lectures (3 hours) per week (one week between the intensive weeks). The first two exercises were done by MH the third lab exercise was done jointly.

. Kursens fördelar, beakta studenternas uppfattning i kursutvärderingar.

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According to the course evaluation from students and our own impressions, the combination of philosophical accounts, theoretical formulations and practical applications of the Bayesian methods is one of the largest benefits of the course, especially for those students who have been taken mostly pure mathematical courses to experience how mathematical concepts can be applied to real life problems. Some students also expressed their appreciation that the topics covered in the course provided them with a comprehensive introduction to the subject. In general, students were satisfied with the classroom teaching and the lab exercises.

. Kursens nackdelar, beakta studenternas uppfattning i kursutvärderingar.

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There was no serious problem concerning the course that we can see from the students' comments. A couple of students asked for the possibility to spread the second part of the course containing 8 lectures more evenly in 4 weeks (instead of 2 weeks) to make the learning less intensive. One way to address this would be to move the last lab exercise to a third block closer to hand-in and move the second lab to the in-between week with no face-to-face interaction, but mandatory hand-in and feedback directly on the code through a code sharing platform like GitHub.

. Slutsatser samt förslag till förbättringar.

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Judging from the course evaluation and the student performance in the take-home exam, the course setup is a great and useful concept for mathematical and statistical students to learn about important concepts in Bayesian theory. By summarizing the feedback from the students, A suggestion for improvement is to search for a better-structured and more up-to-date textbook for the class. However, this seems to be a general complaint and the current course book already improves substantially on this issue compared to Gelman et al. course books used before 2013. One advantage of the Carlin and Louis book is it's mix of sufficient mathematical rigour and practical applications. It would although be worthwhile to see, if for the next course, a book using STAN as its implementational platform would be available. One candidate would be "Statistical Rethinking" by R. McElreath, however, this book is strong on STAN, but weak on mathematical details.