Intro to Frequentist and Bayesian mixed models course

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Module pre-requisites can be found here. All the raw files and code can be found here. Click 'Download ZIP' near the top right if you want an offline version of the material

Monday 8th October

Time	Class
9:00-10:00	Introduction, example data sets (slides) (handout)
10:00-10:15	Coffee break
10:15-11:15	Revision: likelihood and inference (slides) (handout)
11:15-11:30	Break
11:30-12:30	Revision: linear regression and GLMs (slides) (handout)
12:30-13:30	Lunch
13:30-14:30	Loading data in R and running simple analysis (code)
14:30-15:00	Coffee break
15:00-17:00	Self-guided practical: Using R for linear regression and GLMs' (worksheet) (answer code)

Tuesday 9th October

9:00-10:00 | Introduction to mixed models (slides) (handout) 10:00-10:15 | Coffee break 10:15-11:15 | Linear Mixed Models (slides) (handout) 11:15-11:30 | Break 11:30-12:30 | Generalised Linear Mixed Models (slides) (handout) 12:30-13:30 | Lunch 13:30-14:30 | Running Mixed Models in lme4 (code) 14:30-15:00 | Coffee break 15:00-17:00 | Self-guided practical: exercises in lme4 (worksheet) (answer code)

Wednesday 10th October

9:00-10:00 | Introduction to Bayesian statistics (slides) (handout) 10:00-10:15 | Coffee break 10:15-11:15 | Bayesian hierarchical linear and generalised linear models (slides) (handout) 11:15-11:30 | Break 11:30-12:30 | Multivariate and multi-layer hierarchical models (slides) (handout) 12:30-13:30 | Lunch 13:30-14:30 | Running hierarchical models in rstanarm (code) 14:30-15:00 | Coffee break 15:00-17:00 | Self-guided practical: exercises in rstanarm (worksheet) (answer code)

Thursday 11th October

9:00-10:00 | Partial pooling, zero-inflation, and multinomial models (slides) (handout) 10:00-10:15 | Coffee break 10:15-11:15 | Variable selection and non-parametrics (slides) (handout) 11:15-11:30 | Break 11:30-12:30 | Prior and posterior predictive inference (slides) (handout) 12:30-13:30 | Lunch 13:30-14:30 | Creating your own models in stan (code) 14:30-15:00 | Coffee break 15:00-17:00 | Self-guided practical: bring your own data (worksheet) (answer code)

Friday 12th October

9:00-10:00 | Time series models and change-point analysis (slides) (handout) 10:00-10:15 | Coffee break 10:15-11:15 | Comparing models in Stan using Loo and WAIC (slides) (handout) 11:15-11:30 | Break 11:30-12:30 | Bring your own data session 1 12:30-13:30 | Lunch 13:30-16:00 | Bring your own data session 2