Generalized Linear Mixed Models with extensions using R

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Targeted towards applied researchers and doctoral students. It is expected that the participants are acquainted/familiar with linear mixed models and GLMs. The workshop is focused on logistic regression with random effects.

Day 1
- A quick recap on linear mixed models and GLMs. Show some nice applications with linear mixed models.
- Explain why it is difficult to fit GLMMs. Summarize methods to fit GLMMs; Laplace approximation, Gauss-Hermit Quadrature, and MCMC.
- Introduce the participants to the lme4 package
- Exercise with the lme4 package
- Introduce the participants to the MCMCglmm package
- Exercise with the MCMCglmm package

Day 2
- Discussion on how user-friendly the lme4 and MCMCglmm packages are.
- Introduction to the INLA package
- Exercise with INLA
- Introduction to the hglm package
- Exercise with hglm
- A summary and conclusions

Date and time: 9:00- 12:00 on the 12-13 of June

Registration is required to participate in the workshop:
https://docs.google.com/forms/d/e/1FAIpQLSdYHa7PDuPLy0g17ChdYSifSYL8rD04YsAq3I3KNzH8R__14A/viewform

Description of workshop: Generalized linear mixed models are GLMs with random effects. This is a class of models allowing non-normal outcomes and dependencies between observations with applications in analysis of repeated observations, spatial data and genetics. The audience is expected to be partly acquainted with the statistical software R, GLMs, and random effects in linear models. This lunch-to-lunch workshop is expected to be of interest especially to researchers and PhD students working with binary data applied on spatial data or genetics. It will give hands-on exercises using several packages in R starting with lme4. The advantages of using Bayesian methods such as the ones implemented in the R packages MCMCglmm and INLA will also be presented, as well as advanced extensions using the hglm package in R developed by the workshop organizer himself. The computer exercises will focus on logistic regression with random effects.