Live online Zoom course with on-demand video

Introduction to GLM with spatial, and spatial-temporal correlation using R-INLA

Provided by: Highland Statistics Ltd
www.highstat.com
highstat@highstat.com

This is a Live online course

Teaching times: 14.00-20.00 BST; 9.00-15.00 EDT.

This course offers an introduction to the analysis of spatial, and spatial-temporal data using generalised linear models (GLMs) in R-INLA.

The course begins with an introduction how to add spatial dependency to regression models using frequentist tools. After discussing the limitations of this approach, we switch to Bayesian techniques. R-INLA is used to implement regression models and generalised linear models (GLM) with spatial, and spatial-temporal dependency.

We will apply GLMs to count data, binary data, proportional data and continuous data with spatial, and spatio-temporal dependency. We will utilise the Gaussian, Poisson, negative binomial, Bernoulli, beta, Tweedie and Gamma distributions.

Interaction between participants and instructors after the course:

- The course includes a 1-hour face-to-face video chat with the instructors. You can ask questions related to your own data or to the course.
- A Discussion Board allows for interaction between instructors and participants. You can ask detailed questions related to the course material.

Dates & times:
- **5 - 9 May 2025**
- **14.00-20.00 BST (09.00-15.00 EDT)**

Venue: Online live via Zoom

Instructors: Dr. Alain Zuur
Dr. Elena Ieno

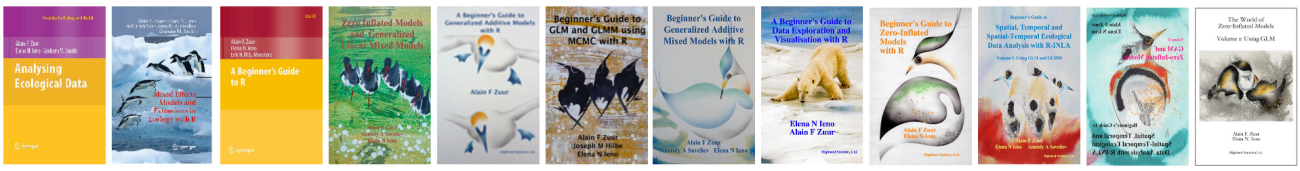
Included: 1 hour face-to-face video chat about your data

Price: 500 GBP

Instructors:
- Dr. Alain Zuur
- Dr. Elena Ieno

Authors of 12 books and providers of over 250 courses

PRE-REQUIRED KNOWLEDGE:
Working knowledge of R, data exploration, linear regression and GLM (Poisson, negative binomial). This is a non-technical course.



COURSE CONTENT

Module 1
- General introduction.
- Theory presentation on adding temporal dependency, and spatial dependency to a regression model using frequentist techniques.
- One exercise showing how to add spatial dependency to a regression model using frequentist tools.
- Brief introduction to Bayesian analysis.
- Conjugate priors. Diffuse versus informative priors.

Module 2
- Theory presentation on INLA.
- Exercise showing how to execute a linear regression model in R-INLA.
- Theory presentation on adding spatial correlation to a regression model using in R-INLA.

Module 3
- Exercise showing how to add spatial correlation to a linear regression model.
- Exercise showing how to execute a Poisson GLM in R-INLA.
- Exercise showing how to add spatial correlation to a Poisson GLM.

Module 4
- Exercise showing how to add spatial correlation to a negative binomial GLM.
- Exercise showing how to add spatial correlation to a Bernoulli GLM.
- Exercise showing how to add spatial correlation to a gamma GLM.
- Time allowing: Exercise showing how to add spatial correlation to a beta GLM.

Module 5
- Exercise showing how to add spatial-temporal correlation to a Poisson or negative binomial GLM.
- Exercise showing how to add spatial-temporal correlation to a Tweedie GLM.
- Exercise showing how to add spatial-temporal correlation to a Bernoulli GLM..

The course website provides preparatory materials, including on-demand videos and R scripts covering multiple linear regression, basic matrix notation, generalised linear models, model validation using DHARMa, and the explanation of variograms. If you are not familiar with these methods, please review them before the course begins.

We reserve the right to change the exercises. Pdf files of all theory material will be provided. All exercises consists of data sets and annotated R scripts. All exercises are also available as on-demand video. Access to the course website is for 12 months.

COURSE FEE: £500

- Credit card payments are charged in GBP currency.
- VAT charge:
  - UK participants are charged 20% VAT.
  - Non-EU participants (including Norway) are not subject to VAT.
  - We do not have to charge VAT to EU participants who provide their institutional VAT number.
  - EU participants who do not provide a VAT number will be charged VAT at their national rate.
  - Canadian participants are subject to GST/HST tax.

Course participants will be given access to the course website with all the videos, data sets, R solution code and course material 2 weeks before the start of the course.

COURSE TIMES (British summer time):

- 14.00-20.00, including a 60-minutes lunch break and two short 20 minutes tea/coffee breaks.
- 14.00 UK time (BST) is 09.00 New York / Montreal.

GENERAL

- Please ensure that you have system administration rights to install R, and R packages on your computer. Instructions what to install is on the course website.
- Access to the course website is 12 months.
- The course includes a 1-hour face-to-face meeting with one or both instructors. You can discuss your own data, but we strongly advice that the statistical topics are within the content of the course. The 1-hour consultancy needs to be consumed in one sessions, and will take place at a mutual convenient time. It is not transferable. The meetings needs to take place within 12 months after the last live zoom module.

CANCELLATION POLICY:

What if you are not able to participate? Once participants are given access to course exercises with R solution codes, pdf files of certain book chapters, pdf files of powerpoint files and video solution files, all course fees are non-refundable. However, we will offer you the option to attend a future course or you can authorise a colleague to attend this course. Terms and conditions see:
http://highstat.com/index.php/sign-up2

REGISTRATION

www.highstat.com

Dr Alain F Zuur
highstat@highstat.com
www.highstat.com
Payment via credit card or bank transfer