Onsite course - Wageningen, The Netherlands

Advanced Multivariate Analysis - Integrating Classical Techniques (PCA, RDA, CA, CCA) with multivariate GLMM

Provided by: Highland Statistics Ltd

This course offers a journey through classical multivariate analysis techniques and advances into recently developed tools for multivariate GLM and GLMM.

We start with classical multivariate techniques like principal component analysis, redundancy analysis, correspondence analysis and canonical correspondence analysis. We then continue with generalised linear latent variable models (GLLVM). A GLLVM is a GLM (or GLMM) in which multiple response variables are analysed simultaneously, while allowing for dependency between the response variables and also between the observations. We will discuss extensions of GLLVM that allow for constrained latent variables (concurrent ordination) and spatial and temporal dependency structures.

This is an applied and non-technical course that focuses on the practical implementation in R.

Pre-required knowledge
Participants should be familiar with data exploration, linear regression and basic GLM and GLMM (i.e. Poisson and negative binomial GLM) in R. The course website contain revision/preparation material with on-demand videos covering these topics.

1 hour face-to-face
The course includes a 1-hour face-to-face video chat with the instructors (to be used after the course). You are invited to apply the statistical techniques discussed during the course on your own data and if you encounter any problems, you can ask questions during the 1-hour face-to-face chat.

A discussion board, accessible for 12 months, facilitates interaction on course content between instructors and participants after the course.

Onsite course in Wageningen, The Netherlands.

Venue: Hotel de Nieuwe Wereld. Marijkeweg 5. 6709 PE Wageningen. The Netherlands.

Dates:
- 13-16 May 2024.

Price: £500.

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

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

COURSE CONTENT

Preparation material (with on-demand video):
- Exercise on linear regression.
- Exercise on Poisson / negative binomial GLM.
- Exercise on Poisson / negative binomial GLMM.
- Matrix notation.
- DHARMa for model validation.

Monday:
- General introduction.
- Theory presentation on principal component analysis (PCA), redundancy analysis (RDA), correspondence analysis (CA) and canonical correspondence analysis (CCA).
- Exercise on PCA and RDA.
- Exercise on CA and CCA.
- Theory presentation on generalised linear latent variable models (GLLVM).

Tuesday:
- Catching up.
- Four exercises on GLLVM using Poisson and negative binomial models for count data.

Wednesday:
- Theory presentation on constrained GLLVM (reduced rank regression and concurrent ordination).
- Four exercises on constrained GLLVM.

Thursday:
- Catching up.
- Exercises using GLLVM with Tweedie, Gamma, Gaussian and beta distributions.
- Time allowing: Adding spatial and temporal dependency structures.

We reserve the right to change the exercises. Pdf files of all theory material will be provided. All exercises consist of data sets and annotated R scripts. Access to the course website is for 12 months. The material covered from Monday to Thursday does not contain on-demand video.

For terms and conditions, see:
https://www.highstat.com/index.php/component/hikashop/checkout/termsandconditions/step-3/pos-6/tmpl-component

GENERAL INFORMATION

COURSE FEE: £500
Credit card payments are charged in GBP currency.
VAT Charge:

- UK participants are charged a 20% VAT.
- Non-EU participants (including Norway and Switzerland) are not subject to VAT.
- We do not 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.
- The course fee does not contain coffee, tea, lunch or accommodation.
- Access to the course website is 12 months.

COURSE TIMES:

- Monday - Thursday: 09.00am to 16.00pm including a 1 hour lunch break and a 20 minutes break both morning and afternoon.

FREE 1-HOUR FACE-TO-FACE MEETING

The course fee includes a 1-hour face-to-face meeting with one or both instructors. The meeting needs to take place within 12 months after the course. You can discuss your own data, but we strongly advice that the statistical topics are within the content of the course. The 1-hour needs to be consumed in one session, and will take place at a mutual convenient time.

CANCELLATION POLICY:

Once participants are given access to course exercises with R solution codes, pdf files of certain book chapters, and pdf files of presentations, all course fees are non-refundable.

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.

REGISTRATION

http://highstat.com/index.php/courses
highstat@highstat.com

Dr. Alain F. Zuur
Highland Statistics Ltd.
9 St Clair Wynd,
AB41 6DZ Newburgh,
UK