Online course with on-demand video and live Zoom meetings

Data Exploration, Regression, GLM & GAM with introduction to R

Provided by: Highland Statistics Ltd

This online course consists of 5 modules representing a total of approximately 40 hours of work. Each module consists of video files with short theory presentations, followed by exercises using real data sets, and video files discussing the solutions. All video files are on-demand and can be watched online, as often as you want, at any time of the day, within a 6 month period.

A discussion board allows for daily interaction between instructors and participants. The course also contains 5 2-hour live web meetings in which we summarise the theory and the exercises. Attending these live web meetings is optional. We will run the web meetings multiple times per day and in different time zones.

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 on the Discussion Board. The course fee includes a 1-hour face-to-face video chat with the instructors.

Course content

We begin with an introduction to R and provide a protocol for data exploration to avoid common statistical problems. We will discuss how to detect outliers, deal with collinearity and transformations.

An important statistical tool is multiple linear regression. Various basic linear regression topics will be explained from a biological point of view. We will discuss potential problems and show how generalised linear models (GLM) can be used to analyse count data, presence-absence data and proportional data. Sometimes, parametric models (linear regression, GLM) do not quite fit the data and in such cases generalised additive models (GAM; a smoothing technique) can be used.
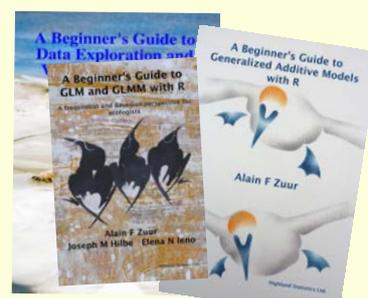
Date & Venue

Date: 1-19 June 2020
6 months access

Multiple live meetings in different time zones.

Price: £500 + **1 hour free face-to-face video chat about your data**

Instructors: Dr. Alain Zuur
Dr. Elena Ieno

Authors of 11 books and providers of over 150 courses

COURSE CONTENT

Module 1 consists of 5 on-demand videos
- General introduction.
- Introduction to R.
- Theory presentation on data exploration.
- Two exercises on data exploration.
- Live 2 hour Zoom meeting summarising module 1.

Module 2 consists of 4 on-demand videos
- Theory presentation bivariate linear regression.
- Exercise on bivariate linear regression.
- Theory presentation multiple linear regression.
- One exercise.
- Live 2 hour Zoom meeting.

Module 3 consists of 7 on-demand video files
- Theory presentation one interactions in multiple linear regression models.
- One exercise.
- Theory presentation on Poisson and negative binomial distributions.
- Theory presentation on Poisson GLM.
- Exercise Poisson GLM.
- Theory presentation on negative binomial GLM.
- Exercise negative binomial GLM.
- Live 2 hour Zoom meeting.

Module 4 consists of 3 on-demand video files
- Theory presentation Bernoulli and binomial GLMs.
- Exercise Bernoulli GLM.
- Exercise binomial GLM.
- Live 2 hour Zoom meeting.

Module 5 consisting of 6 on-demand video files
- Theory presentation on GAM.
- Exercises using Gaussian GAM.
- Exercise using Poisson GAM.
- Exercise using negative binomial GAM.
- Exercise using Bernoulli GAM.
- What to present in a paper
- Live 2 hour Zoom meeting.

Some Zoom meetings may be slightly longer than 2 hours.

Course material is based on:
- Zuur, Ieno and Smith (2007). *Analysis Ecological Data*. Springer.
- Zuur, Ieno, Elphick. (2010). A protocol for data exploration to avoiding common statistical problems*. Methods in Ecology and Evolution,* **1***:* 3-14.
- Zuur (2013) *Beginner's Guide to GAM with R*.
- Zuur, Hilbe, Ieno (2013). Beginner's Guide to GLM and GLMM with R.

GENERAL INFORMATION

COURSE FEE: £500
- Credit card payments are charged in GBP currency. UK participants are subject to 20% VAT.
- EU participants (but non-UK) are not subject to UK VAT, but need to provide their institutional VAT number. Non-EU participants (including Norway) are not subject to VAT.

LIVE 2-HOUR ZOOM MEETINGS SUMMARISING THE MODULES

	Module 1	Module 2	Module 3	Module 4	Module 5
09.00-11.00 BST	1 June	3 June	8 June	11 June	18 June
19.00-21.00 BST	1 June	3 June	8 June	11 June	18 June
04.00-6.00 BST	2 June	4 June	9 June	12 June	19 June

BST = British Summer Time.
- 09.00 London (BST) = 10.00 Amsterdam.
- 19.00 London (BST) = 14.00 New York / Toronto = 15.00 Sao Paulo = 11.00 Los Angeles / Vancouver.
- 04.00 London (BST) = 11.00 Singapore / Perth (Australia) = 13.00 Brisbane.
- Times may be adjusted to accommodate certain time zones.

Click here for recommended internet speed (see the text under 'Recommended bandwidth for Webinar Attendees'). We will record the meetings and make them available on the course website.

Course participants will be given access to the course website with all the videos, data sets, R solution code and course material on 25 May.

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 3 months after the last live zoom meeting. 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.

PRE-REQUIRED KNOWLEDGE:
Basic statistics (e.g. mean, variance, normality). No R knowledge is required. You will learn R 'on the fly'. This is a non-technical course.

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

COURSE FLYER

RECOMMEND LITERATURE:
- Zuur, Hilbe, Ieno (2013). *A Beginner's Guide to GLM and GLMM with R*.
- Ieno, Zuur (2015) A *Beginner's Guide to Data Exploration and Visualisation with R.*
- Zuur (2013). *A Beginner's Guide to GAM with R*.
- These books are available from www.highstat.com
- Books are not included in the course fee. The course can be followed without purchasing these books.

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

www.highstat.com

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Payment via credit card or bank transfer