

Online live course using Zoom

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

Provided by: Highland Statistics Ltd

Course format

- Live online teaching is from 14.00-19.00 UK time (09.00-14.00 EST).
- There are six 5-hour sessions over a 3-week period, representing a total of 30 hours of work.
- The course includes a few theory presentations along with a large number of exercises using real data sets. Detailed, annotated R code will be provided, and a brief period will be set aside for practice before each exercise is discussed in depth.
- Please note that this is not a self-study course.

Brief outline

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.

During the course, we will discuss Gaussian, Poisson, negative binomial, and Bernoulli GLMs and GAMs. The course website contains a bonus module with on-demand video files discussing Tweedie, Gamma, binomial, and beta GLMs (with exercises).

2 hours face-to-face consultancy

Provided that you attend at least 80% of the Zoom sessions, you will get two hours face-to-face video consultancy with the instructors. You can use this to discuss your own data analysis.

A discussion board (access for 12 months) allows for interaction on course content between instructors and participants.

Online live course

Dates (6 sessions):

- 8, 9, 10, 15, 16, 17 January 2024.

Price: £450.

50% reduction for participants based in developing countries. Use the following coupon at check out: course50

Included: 2 hours face-to-face video chat about your data. Conditions apply.

Instructors:

- Dr. Alain Zuur.
 - Dr. Elena Ieno.
- Authors of 12 books and providers of over 250 courses.

Maximum participants: 20



COURSE CONTENT

Preparation material (containing on-demand video):

- Installing R and RStudio.

Module 1 (Zoom sessions 1 and 2)

- General introduction.
- Introduction to R.
- Theory presentation on data exploration (outliers, collinearity, transformations, relationships, interactions).
- Based on Zuur et al. (2010) and Ieno and Zuur (2015).
- Two exercises.

Module 2 (Zoom sessions 2 and 3)

- Theory presentation on linear regression.
- Different strategies for model selection.
- Interactions.
- Dealing with categorical covariates.
- Sketching model fit.
- Two exercises.

Module 3 (Zoom sessions 4 and 5)

- Theory presentation on Poisson, negative binomial, Bernoulli and binomial distributions.
- Based on Chapter 1 in Zuur et al. (2013).
- Theory presentation on GLM.
- Poisson GLM.
- Negative binomial GLM.
- Bernoulli GLM.
- Based on Chapter 1 in Zuur et al. (2013).
- How to deal with overdispersion.
- Three exercises.

Module 4 (Zoom sessions 5 and 6)

- Theory presentation on GAM.
 - Two exercises using Gaussian GAM and Poisson and negative binomial GAMs.
 - Based on various chapters in Zuur (2012).
 - What to present in a paper

Bonus material (time allowing):

- Short theory presentation on binomial, beta, Gamma and Tweedie GLMs.
- Exercises for binomial, beta, Gamma and Tweedie GLMs.
- On-demand video files for the binomial, beta, gamma and Tweedie modules are available.

The course material consists of relevant pdf files of presentations, data sets and clearly documented R code.

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

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.

GENERAL INFORMATION

COURSE FEE: £450

- Credit card payments are charged in GBP currency.
- VAT charge:
 - Non-EU participants (including Norway) are not subject to UK VAT.
 - UK participants are charged 20% 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 TIMES:

- All sessions:
 - 14.00-19.00 UK time (09.00-14.00 EST)
 - Including a 30-minutes lunch break and two short 15 minutes tea/coffee breaks.
- You can use this link for a time zone converter: <https://www.timeanddate.com/>

	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
14.00-19.00 (UK time)	8 January	9 January	10 January	15 January	16 January	17 January

FREE 2-HOUR FACE-TO-FACE MEETING

Provided that you attend 80% of the Zoom sessions, the course fee includes a 2-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 2-hours consultancy needs to be consumed in two 1-hour 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. If attendance is between 50-80%, we will offer you 1 hour face-to-face consultancy. If attendance is less than 50%, we will not offer face-to-face consultancy.

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.

GENERAL

- Please ensure that you have system administration rights to install R and R packages on your computer.
- Instructions what to install are on the course website.
- Zoom sessions will not be recorded.
- In order to receive a certificate, you need to attend at least 80% of the zoom live sessions.
- The minimum number of participants is 6. If fewer people register, we will cancel and provide a full refund.

REGISTRATION

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Payment via credit card or bank transfer

