

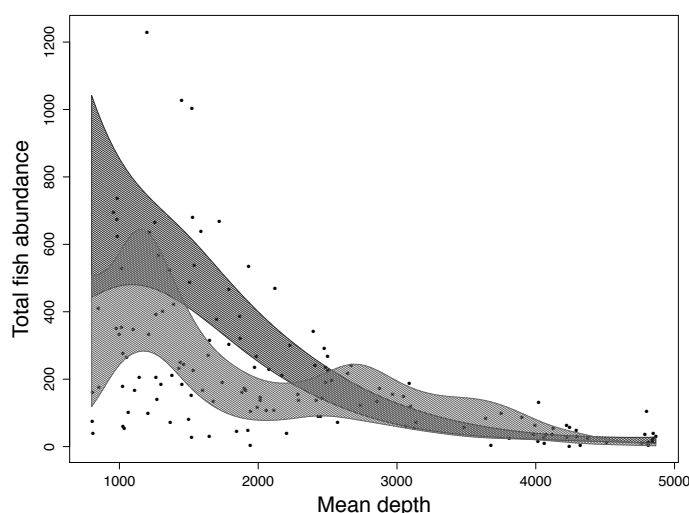
Introduction to GAM and GAMM with R

Frequentist approaches

Provided by: Highland Statistics Ltd

In cooperation with:

cE3c - CCIAM, Faculty of Sciences, University of Lisbon, Portugal



Date & Venue

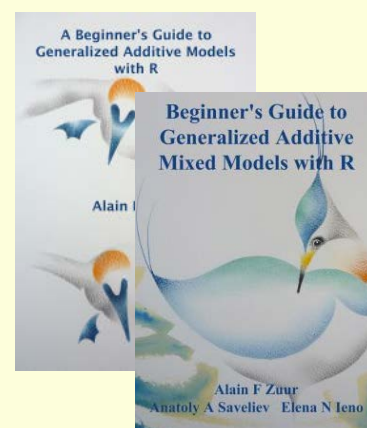
Date: 25 February - 1 March 2019

Venue: PT Meeting Centre,
R. Bojador 47, Parque das
Nações, Lisbon, Portugal

Price: 550 GBP

Instructors: Dr. Alain Zuur
Dr. Elena Ieno

Authors of 9 books and
providers of over 200
courses worldwide.



The course starts with a revision of multiple linear regression, followed by a basic introduction to generalised additive models (GAM) to analyse continuous data, count data and binary/proportional data.

In the second part of the course generalised additive mixed effects models (GAMM) are introduced to analyse nested data.

During the course several case studies are presented, in which the statistical theory is integrated with applied analyses in a clear and understandable manner.

KEYWORDS

Introduction to GAM. Revision of mixed effects models. Poisson, negative binomial, binomial GAMs and GAMMs. Overdispersion. lmer. GAM and GAMM in mgcv and gamm4.



COURSE CONTENT

Monday

- Revision linear regression and GLMs.
- Introduction to GAM using the `gam` function from `mgcv`.
- Three exercises (Gaussian, Poisson, negative binomial and Bernoulli GAM) using the `mgcv` package in R.

Tuesday

- Catching up.
- More technical explanation of GAMs.
- Creating basis functions so that GAMs can be fitted in other packages (e.g. `glmmTMB`).

Wednesday

- Catching up
- Revision mixed effects models for 1-way nested data using `lme4`
 - Random intercept models.
 - Sketching fitted values.
 - One exercises.

Thursday and Friday

- Introduction to GAMM for nested continuous data, count data, binary data and proportional data (Gaussian, Poisson, Negative binomial, Bernoulli) using `gamm` and `gamm4`.
 - Based on various chapters in Zuur et al. (2014).
 - Four exercises.
- What to write in a paper.
- Time allowing:
 - GAMs and /or GAMMs using the gamma distribution (for strictly positive data) and the beta distribution (for proportional/coverage data).
 - Two-dimensional smoothers.

GENERAL INFORMATION

COURSE FEE: 550 GBP

- 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 are not subject to VAT.
- The course fee excludes refreshments and lunch.
- You need to bring your own laptop.

COURSE TIMES:

- Monday - Thursday: 09.00am to 16.00pm including 1 hour lunch break and a 20 minutes break both morning and afternoon.
- Friday: 09.00am to 12.45pm including a 20 minutes break.

COURSE MATERIAL:

- Pdf files of all powerpoint presentations are provided
- These powerpoint files are based on various chapters from:
 - *A Beginner's Guide to GAM with R*. (2012). Zuur.
 - *A Beginner's Guide to GLM and GLMM with R*. (2013). Zuur, Hilbe, Ieno.
 - *A Beginner's Guide to GAMM with R* (2014). Zuur, Saveliev, Ieno.
- Books are not included in the course fee. The course can be followed without purchasing these books.

PRE-REQUIRED KNOWLEDGE:

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

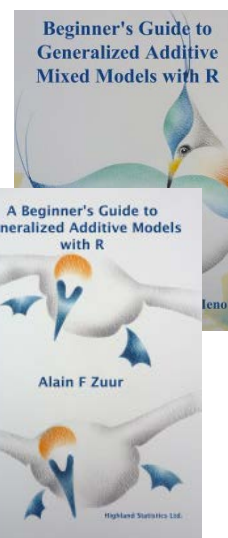
CANCELLATION POLICY:

What if you are not able to participate? Once participants are given access to course exercises with R solution codes, pdf files of 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. Access information to the course website is provided 4 weeks before the start of the course.

Terms and conditions see: <http://highstat.com/index.php/sign-up2>

RECOMMEND LITERATURE:

- *A Beginner's Guide to GAM with R*. (2012). Zuur.
- *A Beginner's Guide to GLM and GLMM with R*. (2013). Zuur, Hilbe, Ieno.
- *A Beginner's Guide to GAMM with R* (2014). Zuur, Saveliev, Ieno.
- These books are available from www.highstat.com



REGISTRATION

<http://www.highstat.com> Payment via credit card or bank transfer

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