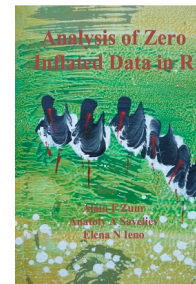
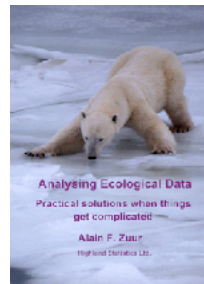
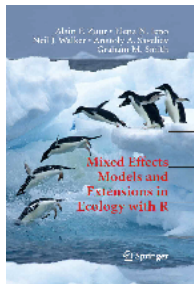


Data Exploration, Regression, GLM & GAM course - With Introduction to R - Banff, Canada

Organised by Highland Statistics Ltd in cooperation with Jane Park, Banff Field Unit, Parks Canada
Dates: Monday 11th to Friday 15th June 2012

Now in its 9th year with over 7000 participants. Highland Statistics Ltd. has provided more than 125 courses at various places around the world. These courses are especially designed for biological and environmental scientists.

Books by the instructors Dr. Alain F. Zuur & Dr. Elena Ieno



Course content:

- Day 1: Introduction to R. Data exploration (outliers, collinearity, transformations, relationships, interactions).
- Days 2 & 3: Linear regression (theory, model selection; stepwise versus information theory approach, interactions, sketching model fits).
- Day 4: GLM for count data, binary data and proportional data (Poisson, negative binomial, binomial distributions) and how to deal with overdispersion.
- Day 5: GAM for count data, binary data and proportional data. What to present in a paper or thesis.

Course times:

09.00 am -17.00 pm including 1 hour lunch break and a 20 minutes tea/coffee break both morning and afternoon.

Pre-required knowledge:

- Basic statistics
- No R knowledge is required. You will learn R 'on the fly'.

Course fee:

- 800 CAD
- The course fee does not contain lunch.

Course material:

- Chapters 4 and 5 of Zuur et al. (2007). *Analysing Ecological Data*. Springer.
- Chapters 3, 8 – 10 in Zuur et al. (2009). *Mixed effects models and extensions in ecology with R*. Springer.
- Pdfs of these chapters will be supplied.

Registration:

Please contact Dr. Alain Zuur by email: highstat@highstat.com. We will need your name and address for the invoice.

Detailed course outline

- Monday:
 - Introduction to R.
 - Data exploration in R. This is Chapter 4 in Zuur et al. (2007).
 - Exercise 1: Application of data exploration in R using a bird data set.
- Tuesday & Wednesday:
 - Explanation of linear regression techniques. We will discuss model formulation, theory, interactions, model selection (stepwise versus Information Theory approach), model validation and sketching fitted values (for a publication). This is based on Chapter 5 in Zuur et al. (2007).
 - Exercise 2: Application of linear regression on a bird data set.
 - Exercise 3: Application of linear regression with interactions on an Irish soil data set.
- Wednesday & Thursday:
 - Explanation of GLM for density, counts, presence/absence and proportional data. We will introduce the Poisson, negative binomial, binomial and Gamma distribution and discuss overdispersion problems and solutions.
 - Exercise 4: Analysis of count data using road kills
 - Exercise 5: Analysis of a fisheries density data (using the offset)
 - Exercise 6: Analysis of a deer disease data using binomial GLM.
- Friday:
 - Introducing GAM to model non-linear relationships. We will also show how to include interactions in GAM.
 - Exercise 7: Application of GAM on the fisheries data and bird data sets.

Note that this is an applied course aimed at biologists and ecologists. Approximately 50% of the time is used for exercises. We will hand out various pdfs of papers that we co-authored, R solution code and data sets of all exercises and presentations.

For terms and conditions, see: www.highstat.com/statscourse.htm