

# Zuur Ch 01 slides

Intro to the book; Ch 01

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# Intro to Zuur et al. 2001

This book covers a number of core concepts that are a modern “minimum statistical standard” for working scientists in the natural sciences.

## **-Mixed Effects Models (GLMM and GAMM)**

(your data involves non-independent measures or has other correlated dependencies, like time, spatial, plots, etc.)

## **-The Generalised Linear Model (GLM)**

(your data may or may not have Gaussian residual distribution, including count data, skewed data, binary data, and other filthy. real-world data that you are all very likely to encounter)

## **-The Generalised Additive Model (GAM)**

(your data exhibit a non-linear “response”)

# Files

Up on Slack

[https://join.slack.com/t/harper-adams-rug/shared\\_invite/zt-azcm9z6s-WsY9JXvAs8DW1DLQuU3USg](https://join.slack.com/t/harper-adams-rug/shared_invite/zt-azcm9z6s-WsY9JXvAs8DW1DLQuU3USg)

files for Zuur et al.zip  
(code, data, errata)

Mixed Effects Models and Extens - Alain F. Zuur.epub (has appendix,  
requires ebook reader like Calibre, FBR Reader, etc)

The AED package referred to is discontinued; I assume everyone is comfy  
getting the data into R OR will seek help in Slack

# A note about the code and reading the book

Code the book **YOURSELF**

If necessary, refer to the Chapter code files as a reference (but better yet, let's use our meetings to discuss challenges, problems, etc.)

**Use Slack**

You will simply get a lot more out of it if you stick to this

# How will the sessions and reading work?

- HARUG will meet every week
- Every OTHER weekly meeting will be to go through Zuur et al. 2011 (for now)
- Read chapters consecutively (so, 1 chapter per 2 weeks)
- Ed will prepare Intro slides and/or R markdown of code as necessary
- We can do shared desktop via Teams meeting
- Code on HARUG! [website](http://operorgenetic.com/wp/?page_id=519)  
[http://operorgenetic.com/wp/?page\\_id=519](http://operorgenetic.com/wp/?page_id=519)

# Ch 01 outline

## The aim of the book

- Cover Mixed models in GLM and GAM
- Audience of applied ecology, biology (agriculture too)
- Basic familiarity with regression required
- Authors have a short course

# Ch 01 Some further points

- Poisson distribution (e.g. count data, assumes mean == variance)
- Zero inflated Poisson
- Negative binomial distribution (e.g. count data where mean > variance i.e. data is “overdispersed”, can also be zero-inflated)

# Ch 01 Outline of topics

