

Statistical Science Workshop.

University of Waikato - Tauranga

6-7 March 2025

University of Auckland – Leigh Marine Lab 10-11 March

Introduction to the Workshop. - Joanne Ellis

Opening Remarks: What is Statistical Science and What it is Not. – David Schneider

Thursday

Session 1&2 : 9-11am TCBD.2.13

Session 1 GLM - The General Linear Model. Writing the statistical model

Session 2 GLM - Model execution, checking, and results

Regression. Demo: Phosphorus in corn. Ch9.1

Appl: Fly Heterozygosity in *D. persimilis* Ch5.2

Single Categorical variable.

Demo: Pea Section Data Ch10.3

Appl: Oat Yield with and without treatment Ch5.7

ANCOVA. Demo: Fly Heterozygosity in two species Ch14.1

Lunch

Session 3&4 : 12-2:30pm TCBD.3.03

Session 3 – GzLM - The Generalized Linear Model

- Writing the model – Notation

- Normal error example Ch16.1

- Model execution and checking (deviance residuals).

- ANODEV table and results

- Poisson error Demo: Death by Horsekick Ch17.1

Appl: Ch17.5

Demo: Hairy leaves Ch17.4

Appl: Woodland trees Ch17.4

- Binomial error Ch18.1, 18.2

Session 4 – GzLM - Gamma error example

Friday

Session 5&6: 9-11am TBCD.2.13

Session 5 – GLMM General Linear Mixed Model (Experimental Design)

Writing the model

Nested Likelihood and F-ratios

Session 6 – GLMM. Execution, model checking, and results.

Lunch

Session 7&8: 12:30-3:00pm TBCD2.12

Session 7 - General Linear Latent Variable Model – GLLVM

- Single latent variable (correlation). Ch20.1

Writing the model. Model execution and interpretation.

Session 8 - Multiple latent variables. /GradProj/MollyMorrissey2020_PCA_Code.pdf

Content <https://davidcschneider.github.io/StatisticalScience/>

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