

Week	Date	Methods	(E)LM2	(E)LM1	Supplements
1	Sept 14	Review of Linear Regression	Ch.2-4	Ch.2-3	CD Ch.1; SM Ch.8.2.1, 8.3
2	Sept 21	Model comparison, diagnostics, collinearity, factors,	Ch.3, Ch.10, Ch.14-1,2	Ch.4, Ch.13	CD Ch.6; SM Ch.8.5-7
3	Sept 28	Factor variables; Model checking; Model Building <del>Types of Studies</del>	Ch.10	Ch. 8	CD Ch.1,2; SM 8.7.1
4	Oct 5	<del>random and mixed effects;</del> Model selection; Model building; Lasso; analysis of covariance principles of measurement	Ch.14-17	Ch.14-16	<del>CD Ch.4;</del> SM Ch.9.2.1
5	Oct 12	Design of studies and experiments; preliminary analysis; observational studies and confounders; ecological bias	Ch.14,15	Ch.13,14	CD Ch.5; SM Ch.9.1.2
6	Oct 19	Regression with binomial and binary responses <del>Review of Logistic Regression</del>	Ch.2	Ch.2-4	SM 10.4.1
7	Oct 26	Binary responses; review of Likelihood inference; Analysis of deviance; goodness of fit	Ch.2, Appendix	Ch.2-4, Appendix	SM 4.2-4.5, 10.4, 10.6
8	Nov 2	Measuring risk; prospective and retrospective sampling; case-control studies; Generalized Linear Models	Ch. 2.12, Ch.3.1,6,7	Ch. 4 & 8	SM 10.3
9	Nov 9	Break			

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10	Nov 16	Catch-up			
11	Nov 23	Nonparametric Regression	Ch. 11	Ch. 14	SM 10.7.1,2
12	Nov 30	Nonparametric Regression	Ch. 11	Ch. 14	SM 10.7.1,2
13	Dec 7	Recap			

To be selected (Nov 2): Some of – Nonparametric regression (ELM-2 Ch.14, ELM-1 Ch.11); survival data analysis (SM Ch.5.4, 10.8); analysis of categorical responses (ELM-2 Ch. 6,7, ELM-1 Ch.5); random effects and mixed models (ELM2 Ch.10, ELM-1 Ch.8); longitudinal data analysis (ELM-2 Ch.11, ELM-1 Ch.9)

## Comments

This shows the main topics I'd like to cover, but is subject to adjustment as the course evolves. Electronic copies of the books listed below are available through the U of T Library, and have been posted to Quercus.

The books by Faraway are somewhat easier to read, so if you find Davison daunting go to those first and then come back to Davison after the lecture. The book by Cox & Donnelly is quite different as it sets out very general principles that are well worth reviewing as we go along.

## Main Texts

The library has just the first editions. If you are buying the text, the second edition is worth it.

LM-1: Linear Models with R 1st edition by J.J. Faraway (Chapman & Hall)

LM-2: Linear Models with R 2nd edition by J.J. Faraway (Chapman & Hall)

ELM-1: Extending the Linear Model with R 1st edition by J.J. Faraway (Chapman & Hall)

ELM-2: Extending the Linear Model with R 2nd edition by J.J. Faraway (Chapman & Hall)

## Supplementary

These are well worth owning. The first is an encyclopedic reference; the second has unusual material you can't find anywhere else.

SM: Statistical Models by A.C. Davison (Cambridge University Press)

CD: Principles of Applied Statistics by D.R. Cox and C.A. Donnelly (Cambridge University Press)

## Background

These texts may be more accessible, they are often used for undergraduate courses.

A Modern Approach to Regression with R by S.J. Sheather. (Springer)

Data Analysis and Graphics Using R by J. Maindonald & W.J. Braun