Linear Models with Matrices Texts

- Dalgaard (2002). “Introductory Statistics with R”. Springer.

  Very introductory book, but covers R and the basic ideas of linear regression.

- Brown, (2014). "Linear Models in Matrix Form", Springer

  Slightly less intro than Brown, but still fairly simple. This may be useful to connect theory to practice.

- Harville (2008) “Matrix Algebra from a Statistician’s Perspective”. Springer.

  A useful reference for matrix algebra, little on regression.

- Christensen (2011) “Plane Answers to Complex Questions: The Theory of Linear Models”, Springer.

  Good presentation, a bit out of order from the class.

- Renchler and Schaalje, (2008). "Linear Models in Statistics". Wiley.

  Covers many more topics than we need, and sometimes in more detail than necessary, but good presentation of the material.

- Draper and Smith (1998). “Applied Regression Analysis”, Wiley

  Similar to Renchler and Schaalje; does not cover all topics in class, but does them fairly well.

- Moser (1996) “Linear Models: A Mean Model Approach”, Academic Press.

  Fairly accessible, some of the material is out of date.

- Seber and Lee (2003). "Linear Regression Analysis", Wiley.

  Fairly technical coverage of linear regression. No random effects.

- Searle, Casella and McCulloch (1992). “Variance Components”, Wiley.

  Specific to random effects models, fairly classical but accessible treatment.

- McCullogh, Searle, Neuhaus (2008). "Generalized, Linear and Mixed Models", Wiley.

  Good summary of material and results, but quite brief treatment. Not a bad look-up reference.

- Verbeke and Molenberghs (2000). “Linear Mixed Models for Longitudinal Data”. Springer.

  Specific to mixed effects models. Presentation is not very formal (fewer theorems and proofs) but assumes a lot of matrix algebra.

Source Material for Lectures

Matrix Algebra:

Moser Ch 1 (including special matrices)
Christensen Appendix B (also Appendix A on vector spaces, but more abstractly)
Dalgaard Ch1: Matrix Algebra in R
Brown Ch1
Rechler and Schaalje Ch2
McCullagh, Searle and Neuhaus, Appendix M

*Matrix/Vector Transpose, Multiplicatio*n

Harville Chapters 1, 2, 5
Draper and Smith Ch 0.3

Inverses

Harville Ch 3, 4

Idempotency

Harville Ch 10, 12

Eigenvalues/Eigenvectors

Harville Ch 21

Linear Regression (Simple and Multiple)

Estimation and ANOVA Tables

Draper and Smith Ch 1, 4, 5
Chistensen Ch 2.1, 2.2
Moser Ch 5.
Renchler and Schaalje Ch 7 - 9
Brown Ch 3 and 4
Seber + Lee Ch 3.1-3.7, Ch 4

Hat Matrices + Diagnostics

Draper and Smith Ch 8
Renchler and Schaalje Ch 9
Seber + Lee Ch 10

Distributional Notes

Draper and Smith Ch0.1, 0.2
Moser Ch 2, 3
Christensen 1.1-1.3, Appendices A and D
Rechler and Schaalje Chapters 3 - 5

Mixed Models

Renchler and Schaalje Ch 17
Christensen Ch 12
Verkebe and Mohenberghs Ch 5, 6
Searle Casella McCullogh, Ch 4, especially 4.6, 6.1 and 6.2, 7.1-7.4