

## Reading list for ST 755

### Topic 1: Linear mixed models

1. Calvin, J.A. (1993) REML estimation in unbalanced multivariate variance components models using an EM algorithm. *Biometrics*, **49**, 691–701.
2. Dempster, A.P., Laird, N.M. and Rubin, D.B. (1977) Maximum likelihood from incomplete data via the EM algorithm (with discussion). *Journal of the Royal Statistical Society, Series B*, **39**, 1–38.
3. Harville, D. A. (1974) Bayesian inference for variance components using only error contrasts. *Biometrika*, **61**, 383–385.
4. Harville, D. A. (1977) Maximum likelihood approaches to variance component estimation and to related problems. *Journal of the American Statistical Association*, **72**, 320–340.
5. Laird, N.M. and Ware, J.H. (1982) Random effects models for longitudinal data. *Biometrics* **38**, 963–974.
6. Robinson, G. K. (1991) That BLUP is a good thing—the estimation of random effects. *Statistical Science*, **6**, 15–51.

### Topic 2: Generalized linear mixed models

1. Booth, J.G. and Hobert, J.P. (1999) Maximizing generalized linear mixed model likelihoods with an automated Monte Carlo EM algorithm. *Journal of the Royal Statistical Society, Series B* **61**, 265–285.
2. Breslow, N.E. and Clayton, D.G. (1993) Approximate inference in generalized linear mixed models. *Journal of the American Statistical Association* **88**, 9–25.
3. Breslow, N.E. and Lin, X. (1995) Bias correction in generalized linear mixed models with a single component of dispersion. *Biometrika* **82**, 81–91.
4. Lin, X. and Breslow, N.E. (1996) Bias correction in generalized linear mixed models with multiple components of dispersion. *Journal of the American Statistical Association* **91**, 1007–1016.
5. Pinheiro, J.C. and Bates, D.M. (1995a) Approximations to the log-likelihood function in the nonlinear mixed effects model. *Journal of Computational and Graphical Statistics* **4**, 12–35.

6. Schall, R. (1991) Estimation in generalized linear models with random effects. *Biometrika* **40**, 917–927.
7. Steele, B.M. (1996) A modified EM algorithm for estimation in generalized mixed models. *Biometrics* **52**, 1295–1310.
8. Wolfinger, R. (1993) Laplace’s approximation for nonlinear mixed models. *Biometrika* **80**, 791–795.
9. Zeger, S.L. and Karim, M.R. (1991) Generalized linear models with random effects: A Gibbs sampling approach. *Journal of the American Statistical Association* **86**, 79–86.

### **Topic 3: Variance components testing in mixed models**

1. Crainiceanu, C. M. and Ruppert, D. (2004) Likelihood ratio tests in linear mixed models with one variance component. *Journal of Royal Statistical Society - B* **66**, 165-85.
2. Lin, X. (1997) Variance component testing in generalized linear models with random effects. *Biometrika* **84**, 309–326.
3. Self, S.G. and Liang, K.-Y. (1987) Asymptotic properties of maximum likelihood estimators and likelihood ratio tests under nonstandard conditions. *Journal of the American Statistical Association* **82**, 605–610.
4. Silvapulle, M.J. and Silvapulle, P. (1995). A score test against one-sided alternatives. *Journal of the American Statistical Association* **90**, 342-349.
5. Stram, D.O. and Lee, J.W. (1994) Variance components testing in the longitudinal mixed effects model. *Biometrics*, **50**, 1171-1177.
6. Verbeke, G. and Molenberghs, G. (2003). The use of score tests for inference on variance components. *Biometrics* **59**, 254–262.
7. Tzeng, J.Y. and Zhang, D. (2007). Haplotype-based association analysis via variance component score test. *American Journal of Human Genetics* **81**, 927-938.
8. Zhang, D. and Lin, X. (2008). Variance Component Testing in Generalized Linear Mixed Models for Longitudinal/Clustered Data and Other Related Topics. In *Model Uncertainty in Random Effects and Latent Variable Model*, ed. by Dunson, D.

#### Topic 4: Mixed models and nonparametric smoothing

1. Crainiceanu, C., Ruppert, D., Claeskens, G. and Wand, M.P. (2005). Exact likelihood ratio tests for penalized splines. *Biometrika* **92**, 91-103.
2. Lin, X. and Zhang, D. (1999) Inference in generalized additive mixed models by using smoothing splines. *Journal of the Royal Statistical Society, Series B* **61**, 381–400.
3. Speed, T. (1991) Discussion to “BLUP is a Good Thing: The Estimation of Random Effects” by Robinson, G. K., *Statistical Sciences*, 6, 15-51.
4. Wang, Y. (1998) Smoothing spline models with correlated random errors. *Journal of the American Statistical Association* **93**, 341–348.
5. Zhang, D. and Lin, X. (2008). Variance Component Testing in Generalized Linear Mixed Models for Longitudinal/Clustered Data and Other Related Topics. In *Model Uncertainty in Random Effects and Latent Variable Model*, ed. by Dunson, D.
6. Zhang, D. and Lin, X. (2003). Hypothesis testing in semiparametric additive mixed models. *Biostatistics* **4**, 57–74.
7. Zhang, D., Lin, X., Raz, J., and Sowers, M. (1998) Semiparametric stochastic mixed models for longitudinal data. *Journal of the American Statistical Association* **93**, 710–719.

#### Topic 5: Relaxing distributional assumption of random effects in mixed models

1. Aitkin, M. (1999) A general maximum likelihood analysis of variance components in generalized linear models, *Biometrics*, **55** 117-128.
2. Chen, J., Zhang, D. and Davidian, M. (2001) A Monte Carlo EM algorithm for generalized linear mixed models with flexible random effects distribution. *Biostatistics*, in press.
3. Laird, N.M. (1978) Nonparametric Maximum Likelihood Estimation of a Mixing Distribution. *Journal of the American Statistical Association* **73**, 805–813.
4. Laird, N.M. (1991) Topics in likelihood-based methods for longitudinal data analysis. *Statistica Sinica*, **1**, 33-50.
5. Magder, L.S. and Zeger, S.L (1996). A smooth nonparametric estimate of a mixing distribution using mixtures of Gaussians. *Journal of American Statistical Association* **91**, 1141–1151.

6. Tao, H., Palta, M., Yandell, B.S., and Newton, M.A. (1999) An estimation methods for the semiparametric mixed effects model. *Biometrics* **55**, 102–110.
7. Verbeke, G. and Lesaffre, E. (1996) A linear mixed effects model with heterogeneity in the random effects population. *Journal of the American Statistical Association* **91**, 217–221.
8. Verbeke, G., Spiessens, B., and Lesaffre, E. (2001) Conditional Linear Mixed Models, *American Statistician*, **55** 25-34.
9. Zhang, D. and Davidian, M. (2001) Linear mixed models with flexible distributions of random effects for longitudinal Data. *Biometrics*, **57**, 795-802.