

# Multivariate Analysis Preliminary Exam Syllabus

Department of Mathematical Sciences

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Fixed-effect models, random-effect models, maximum likelihood (ML) estimation, restricted maximum likelihood (REML) estimation, mixed-effect models, nested designs, approximation of F-tests, analysis of covariance (ANCOVA) models, repeated measure designs, multivariate normal distribution, inference about a mean vector, multivariate analysis of variance (MANOVA) models, multivariate linear regression models, principal component analysis, factor analysis, discriminant analysis.

This material is covered in STAT 7023.

Texts:

Kutner, Nachtsheim, Neter, and Li, *Applied Linear Statistical Models* (5th edition).

Johnson and Wichern, *Applied Multivariate Statistical Analysis* (6th edition).

Milliken and Johnson, *Analysis of Messy Data* (Volume 1, 2nd edition).

Searle, *Linear Models*.

Searle, Casella, and McCulloch, *Variance Components* (1st edition).