

## STAT 441 – MULTIVARIATE STATISTICAL METHODS 2011/2012

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**Description:** Extensions of methods of estimation and testing hypotheses to multivariate normal data. Introduction to the exploratory and descriptive use of canonical correlations, principal components, factor analysis, discrimination and classification techniques, and cluster analysis. Emphasis will be on computer implementation and applications to various subjects.

**Prerequisite:** Statistics 306 and Math 307 or Math 223.

**Textbook:** R.A. Johnson and D.W. Wichern (1992). Applied Multivariate Statistical Analysis, Fifth Edition.

**Instructor:** Matias Salibian-Barrera – matias+stat-ubc-ca

### **Schedule of Topics:**

1. Background on the univariate normal distribution, multivariate distributions and matrix algebra.
2. The multivariate normal distribution, interpretation, estimation, inference.
3. Principal components.
4. Factor analysis.
5. Discriminant analysis.
6. Additional topics taken from: cluster analysis, canonical correlation, multivariate analysis of variance, multivariate regression and robust methods for multivariate data