Multivariate Data Analysis (MAE0330)

University of São Paulo

Spring 2021

1   Description

This course provides an introduction to multivariate data analysis methods and applications.

2   Program

Descriptive Statistics. Cluster Analysis. Multivariate Regression Analysis. Principal Component Analysis. Multidimensional Scaling. Correspondence Analysis. Factor Analysis. Structural Equation Modeling. Discriminant Analysis. Canonical Correlation Analysis. Partial Least Squares (PLS). Big-p problems. Big-n problems.

Bibliography

[1] R. A. Johnson, D. W. Wichern, *Applied Multivariate Statistical Analysis*, 6th ed., New Jersey: Prentice Hall, 2007.

[2] K. V. Mardia, J. T. Kent, J. Bibby, *Multivariate Analysis*, London: Academic Press, 1979.

[3] M. J. Greenacre, *Theory and Applications of Correspondence Analysis*, London: Academic Press, 1984.

[4] M. J. Greenacre, *Correspondence Analysis in Practice,* 2nd ed., Boca Raton: Chapman & Hall, 2007.

[5] B. Everitt, *An R and S-Plus Companion to Multivariate Analysis,* London: Springer, 2005.

[6] J. F. Hair, W. C. Black, B. J. Babin, R. E. Anderson, *Multivariate Data Analysis,* 7th ed., Upper Saddle River: Prentice Hall, 2010.

[7] B. F. J. Manly, *Multivariate Statistical Methods*, 3rd ed., Boca Raton: Chapman & Hall, 2005.

[8] J. Neter, M. H. Kutner, W. Li, C. J. Nachtsheim, *Applied Linear Statistical Models*, 5th ed., Boston: McGraw-Hill, 2005.

[9] T. Hastie, R. Tibshirani & M. Wainwright. *Statistical Learning with Sparsity.* The Lasso and Generalizations. CRC Press, 2015.

[10] A. J. Izenman, *Modern Multivariate Statistical Techniques: Regression, Classification, and Manifold Learning*, Springer, 2013.

Mondays (2:00pm); Wednesdays (10:00am); Fridays (8:00am)

Instructor: Lúcia Pereira Barroso (`lbarroso@ime.usp.br`)

Teaching assistant: Heitor Baldo (`hbaldo@usp.br`)