Posgrado en Ciencias del Mar y Limnologia
Universidad Nacional Autónoma de México
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Curso de análisis cuantitativo de datos biológicos

A course on quantitative analysis of biological data

0. Introduction to data analysis.
1. Ordination in reduced space: principal component analysis (PCA), principal coordinate analysis (PCoA), correspondence analysis (CA).
2. Transformation of species abundance data tables prior to linear analyses.
3. Measures of similarity and distance, especially for community composition data.
4. Multiple regression. R-square and adjusted R-square. Partial regression.
5. Statistical testing by permutation.
6. Canonical redundancy analysis (RDA) and canonical correspondence analysis (CCA). Multivariate analysis of variance by canonical analysis.
7. Forward selection of environmental variables in RDA.
8. Spatial modelling: Origin of spatial structures. Multi-scale modelling of the spatial structure of ecological communities (PCNM). Extensions: MEM, AEM.
9. Spatial structure functions: correlograms, variograms.
10. Cartographic interpolation, kriging.
11. Spatial variation partitioning: canonical analysis or Mantel test?

⇒ *Practicals for these topics using the R statistical language.*