Center for Tropical Ecology and Biodiversity, Tunghai University
and Fushan Botanical Garden, Taiwan
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WWWeb page for free software: http://www.bio.umontreal.ca/legendre/
WWWeb pages for this course : http://biol09.biol.umontreal.ca/Taiwan07/ (faster) and
http://biol10.biol.umontreal.ca/Taiwan07/ (slower)

Short course on

Advanced spatial ecology

0. Introduction to data analysis.
1. Ordination in reduced space: principal component analysis (PCA), principal coordinate analysis (PCoA), correspondence analysis (CA). Treatment of rare species in CA and CCA.
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. Discussion of research projects presented by the participants.

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