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Analysis of community ecology data in R program (AnaDatR)

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Planned for winter semester 2016 (105-1)

About the class

The class will be focused on the use of R for analysis of multivariate ecological data. It is meant to be a continuation of [EEB5083\(B44 U1950\) Numerical Methods in Community Ecology](#) (群聚生態之分析方法), but oriented more practically and limited purely on the use of R (I expect, at least partly, students to gain their theoretical knowledge in *Numerical Methods in Community Ecology* or other courses). Before signing for this course, student should have also elementary experience with R program (gained by self-study or by attending other classes, such as [EEB5082 \(B44U1940\) Introduction to R for Ecologists](#) (R語言在生態學的應用)). In case that enrolled students have no experience with using of R program, I will at the beginning insert one class devoted to “simple guide to R”, which should ensure that everybody will have basic ability to master R program for the purpose of this class.

Syllabus (subject to changes)

- Introduction, data import, vegan library, recommended references, details about final examination.
- Unconstrained ordination (CA, PCA, DCA, PCoA, NMDS, drawing ordination diagrams, environmental variables in unconstrained ordination).
- Constrained ordination (RDA, CCA, db-RDA).
- Monte Carlo permutation test, forward selection, variance partitioning.
- Numerical classification (hierarchical and non-hierarchical classification, dendrogram, evaluation of classification results, indicator species).
- Trait vs environment analysis (community-weighted mean, fourth-corner problem, RLQ).
- Analysis of diversity (alpha and beta diversity, rarefaction curves).

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