**Reading group syllabus**

Federico Camerlenghi, Bernardo Nipoti

**Title: The Dependent Dirichlet Process and Related Models**

1. Introduction to the Dirichlet process and Mixture models:
    a. Exchangeability and the Dirichlet process
    b. Partial exchangeability
    c. Dirichlet Process mixtures

2. MacEachern's dependent Dirichlet process (DDP):
    a. The single-weight DDP
    b. The single-atom DDP

3. Variations of MacEarchern's DDP
    a. Weighted mixture of DPs (WMDP)
    b. Kernel stick-breaking
    c. Probit and logit stick-breaking
    d. Hierarchical mixture of DP
    e. The Hierarchical DP
    f. The nested DP
    g. The product of independent DPs

4. DDP models and implied random partitions

5. DDP and autoregressive models

**Main references**

- Quintana, F. A., Müller, P., Jara, A., & MacEachern, S. N. (2022). The dependent Dirichlet process and related models. *Statistical Science*, *37*(1), 24-41.
- Camerlenghi, F. & Nipoti, B. (2021). *Bayesian Nonparametric Mixture Models*. Lecture notes.
- MacEachern, S. N. (2000). Dependent Dirichlet processes. Technical Report, Department of Statistics, The Ohio State University.