

UNIVERSITAT DE GIRONA Girona, Spain 2-6 July 2012 (15:30-19:30)



Course and Open Seminar on

Compositional Data Analysis

Officially accredited by IAMG



<u>Recommended background:</u> First semester courses in statistics, algebra and calculus; basic knowledge in multivariate statistics.

<u>How to apply</u>: Register on the website:

www.compositionaldata.com, and we will keep you informed.

Class size is limited!

Special prices for students.

Dpt. Informàtica i Matemàtica Aplicada Universitat de Girona Campus Montilivi, EPS-4 E-17071 Girona (Spain) [Coord:41°57'46.97"N 2°49'54.69"E] webmaster@compositionaldata.com A short course on compositional data analysis will be imparted at the premises of the University of Girona (UdG).

<u>Objective</u>: To provide an introduction to the theoretical and practical aspects of statistical analysis of compositional data, as well as an informal discussion forum on more advanced modelling topics.

<u>Contents</u>: Compositional data are vectors which components show the relative importance of some parts of a whole. Typical examples are data presented in percentages, ppm, ppb, or the like. Aitchison introduced the log-ratio approach to analyse CoDa back in the eighties. Since then, progress has been done in understanding the geometry peculiar to their sample space, the D-part simplex. This course will present the current state of the art in this field of active research and will cover the following topics:

- 1. Hypothesis underlying statistical data analysis (sample space, scale).
- 2. The Aitchison geometry of the simplex.
- 3. Coordinate representation; distributions on the simplex.
- 4. Exploratory analysis (centering, variation array, biplot, balances-dendrogram).
- 5. Linear processes in the simplex; regression.

6. Introduction to multivariate analysis: cluster and discriminant.

The above topics will be completed with an introduction to available software and an open discussion session. Bring your own data!

