

# Third CEU Summerschool on Advanced Statistics and Data Mining (June 30th–July 11th, 2008)

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*Source:* <http://sci.tech–archive.net/Archive/sci.math/2008–04/msg01251.html>

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  - *Date:* Mon, 7 Apr 2008 09:08:38 –0700 (PDT)
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Dear colleagues,

San Pablo – CEU University in collaboration with other five universities (Málaga, Politécnica de Madrid, País Vasco, Complutense, and Castilla La Mancha), Unión Fenosa, CSIC and IEEE organizes a summerschool on "Advanced Statistics and Data Mining" in Madrid between June 30th and July 11th. The summerschool comprises 12 courses divided in 2 weeks.

Attendees may register in each course independently. Registration will be considered upon strict arrival order. For more information, please, visit <http://biocomp.cnb.csic.es/~coss/Docencia/ADAM/ADAM.htm>.

Best regards, Carlos Oscar

\*List of courses and brief description\* (full description at <http://biocomp.cnb.csic.es/~coss/Docencia/ADAM/ADAM.htm>)

Week 1 (June 30th – July 4th, 2008)

Course 1: Bayesian networks (15 h), Practical sessions: Hugin, Elvira, Weka, LibB

Bayesian networks basics. Inference in Bayesian networks.  
Learning Bayesian networks from data

Course 2: Multivariate data analysis (15 h), Practical sessions: MATLAB

Introduction. Data Examination. Principal component analysis (PCA).  
Factor Analysis. Multidimensional Scaling (MDS). Correspondence analysis.

Multivariate Analysis of Variance (MANOVA). Canonical correlation.

Course 3: Supervised pattern recognition (Classification) (15 h),  
Practical sessions: Weka

Introduction. Assessing the Performance of Supervised Classification Algorithms.

Classification techniques. Combining Classifiers.

Comparing Supervised Classification Algorithms

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Course 4: Association rules (15 h), Practical sessions: Bioinformatic tools

Introduction. Association rule discovering. Rule Induction. KDD in biological data.

Applications. Hands–on exercises.

Course 5: Neural networks (15 h), Practical sessions: MATLAB

Introduction to the biological models. Nomenclature. Perceptron networks.

The Hebb rule. Foundations of multivariate optimization. Numerical optimization.

Rule of Widrow–Hoff. Backpropagation algorithm.

Practical data modelling with neural networks

Course 6: Time series analysis (15 h), Practical sessions: MATLAB

Introduction. Probability models to time series. Regression and