

ISPUP, University of Porto, in collaboration with the Unit of Biometria, ICBAS-UP & the Unit of Biostatistics-School of Medicine, University of Santiago de Compostela, Spain.

Programme:

0. Introduction to R.

1. Generalized Linear Models - GLMs

1.1. Some theory about the GLM.

1.2. Estimation and inference.

1.3. GLMs with R. Practical examples.

2. Introduction to flexible regression methods

2.1. Polynomial regression. Piecewise polynomial regression.

2.2. Regression splines: B-splines (bs), natural splines (ns).

2.3. Penalized regression splines.

2.4. Smoothing regression techniques.

2.4.1. Univariate smooth functions (Smoothers).

2.4.2. Smoothing bases: P-splines (ps), thin plate regression splines (tp),..

2.4.3. Effective number of "degrees-of-freedom" of a smoother.

2.5. Exercises with R.

3. Generalized Additive Models– GAMs

3.1. Some theory about the GAM.

3.1.1. Estimation and inference.

3.1.2. Multivariate selection of smoothing parameters.

3.2. GAM including interactions. Tensor product bases (te).

3.3. GAMs with R.

3.3.1. The mgcv package.

3.3.2. GAMs in practice: Real data examples.

Information

Fee: €150 (internal members); €200 (external members)

Language: English

Place: Institute of Public Health, University of Porto - Rua das Taipas, nº 135, Porto (Portugal)

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Online application: The registration process is done at <http://www.ispup.up.pt>

Registration deadline: 25th June 2013

DETAILED PROGRAMME

Monday 01 07 2013	09.00-13.00	Introduction to R Generalized Linear Models - GLMs
	14.00-18.30	Introduction to flexible regression methods
Tuesday 02 07 2013	09.00-13.00	Introduction to flexible regression methods
	14.00-18.30	Introduction to flexible regression methods
Wednesday 03 07 2013	09.00-13.00	Generalized Additive Models– GAMs
	14.00-18.30	Generalized Additive Models– GAMs

Professor:

Carmen María Cadarso-Suárez
Unit of Biostatistics-School of Medicine.
University of Santiago de Compostela.

References:

Hastie T.J. and Tibshirani T.J. (1990). Generalized Additive Models. Chapman & Hall.
McCullagh P. and Nelder J.A. (1989). Generalized Linear Models. Second Edition. Chapman & Hall/CRC.
Wood S. (2006). Generalized Additive Models. An introduction with R. Chapman & Hall/CRC.