

REGISTRATION

Registration deadline:

February 12th, 2015
(limited number of spaces available)

Registration fees:

Standard rate: 350€
Student rate: 175€ (maximum of 5 spaces)

More information:

www.icbusc.com

info@icbusc.com

LOCATION AND TIMETABLE

Centro de Estudios Avanzados
University of Santiago de Compostela

Parque de Vista Alegre
Rúa Salvadas, s/n
15705 Santiago de Compostela
Spain

10:00h-18:30h (from Tuesday to Thursday)

TARGET AUDIENCE

Statisticians and researchers in biomedicine, biology, economics and other disciplines, working with complex data structures.

ORGANIZERS

Scientific Committee:

Carmen Cadarso Suárez (Unit of Biostatistics, University of Santiago de Compostela, Spain)

Pablo García Tahoces (Department of Electronics and Computer Science, University of Santiago de Compostela, Spain)

Francisco Gude Sampedro (Unit of Clinical Epidemiology, University Clinical Hospital of Santiago de Compostela, Spain)

Nadja Klein (Chairs of Statistics and Econometrics, Georg-August University of Göttingen, Germany)

Thomas Kneib (Chairs of Statistics and Econometrics, Georg-August University of Göttingen, Germany)

Geert Molenberghs (Interuniversity Institute for Biostatistics and Statistical Bioinformatics, Hasselt University and Catholic University of Leuven, Belgium)

Estelita Vaz (Department of Mathematics and Applications, University of Minho, Portugal)

Organizing Committee:

Ana Bouzas Lorenzo (Unit of Biostatistics, University of Santiago de Compostela, Spain)

Roberto Domínguez Gómez (Unit of Biostatistics, University of Santiago de Compostela, Spain)

Vicente Lustres Pérez (Biostatech S.L., University of Santiago de Compostela spin-off, Spain)

Distributional Regression with applications in Biomedicine, Biology, and Economics

University of SANTIAGO DE COMPOSTELA (SPAIN)
February 24-26, 2015



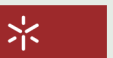
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Distributional Regression with applications in Biomedicine, Biology, and Economics

COURSE DESCRIPTION

In many modern applications, one is not only interested in explaining the effect of covariates on the expected outcome but would rather try to regress the complete distributional on explanatory variables.

In this course, we will introduce distributional regression, a generic framework for performing regression analyses where several parameters of a potentially multivariate response distribution are related to flexible regression predictors.

Although classic regression analyses entail easy interpretation, they only focus on means and averages and therefore may lead to erroneous conclusions when modeling complex data structures. The distributional regression framework allows us to overcome these problems.

To fully exploit the capabilities of distributional regression, we will consider structured additive regression specifications, which allow for combination of nonlinear effects of continuous covariates, spatial effects, random effects and a number of extensions.

The Distributional Regression methodology can be used in a variety of disciplines including: medicine, biology, genomics, ecology, marine research, and economics and finance.

Software:

The methodology will be illustrated with practical dataset exercises.

Statistical software:



Main R packages: BayesR, R2BayesX and gamlss.

TIMETABLE

Tuesday, February 24th

09:15-09:45 Registration

09:45-10:00 Opening

Session 1: Geoadditive Regression

10:00-12:00 Penalised Spline Smoothing and Varying Coefficients

12:00-12:30 Coffee break

12:30-14:30 Spatial Effects and Markov Chain Monte Carlo Simulation

16:30-18:30 Practical exercises using R

Wednesday, February 25th

Session 2: Univariate Distributional Regression

10:00-12:00 Response Types and Interpretation of Effects

12:00-12:30 Coffee break

12:30-14:30 Model Choice

16:30-18:30 Practical exercises using R

Thursday, February 26th

Session 3: Multivariate Distributional Regression

10:00-12:00 Response Types and Model Choice

12:00-12:30 Coffee break

12:30-14:30 Copula Regression

16:30-18:30 Practical exercises using R

INSTRUCTORS



Thomas Kneib, professor of statistics at the Georg-August-University Göttingen (Germany), focuses mainly on semiparametric regression models and corresponding inferential principles. He has contributed to the development of structured additive regression (STAR) for several classes of regression models including regression for survival times, multi-state models or quantile and expectile regression. He has been working with mixed model based empirical Bayes as well as fully Bayesian approaches based on Markov Chain Monte Carlo simulations but has also been studying functional gradient descent boosting as an alternative. He is coauthor of the BayesX software for Bayesian inference in STAR models and a number of R packages.



Nadja Klein, recently finished her PhD thesis on "Bayesian Structured Additive Distributional Regression" at the Georg-August-University Göttingen (Germany) in which she contributed to the development of Bayesian inference in distributional regression and the integration of STAR predictors into this framework. In addition, she developed distributional regression for multivariate responses and conditional copulas models. As a part of her work she implemented the novel models into the software BayesX and is coauthor of the two R packages BayesR and BayesX.