

Functional Genomics: Principles of Statistics and Biology



Date and location:

May 9th - 13th, 2005
Centro Studium
San Domenico
(Florence, Italy)

Courses on Statistics for Functional Genomicists and Functional Genomics for Statisticians

Aims: the courses are intended to offer the opportunity of interchange between biologists or biomedical researchers and statisticians in the field of Functional Genomics.

Format - general: the event is one-week lasting, splitted into two parallel courses. The first is a course on Biology and Functional Genomics oriented mainly to statisticians; the second is a course of Statistical Methods for Functional Genomics Data Analysis oriented mainly to biologists

Format - day structure: each day is divided into lectures and tutorials. The tutorials are designed to be shared by attendees of the two courses. They are intended to introduce standard validated approaches using tools easily accessed by non statisticians. On each day, in the format of a Workshop, one or more keynote speakers will address emergent relevant topics or debated issues

How to apply: send a curriculum vitae to

Prof. Annibale Biggeri,
Department of Statistics "G. Parenti",
viale Morgagni 59 , 50134 Florence (Italy)

e-mail: **abiggeri@ds.unifi.it**

The fee is 1000 Euros, comprehensive of course materials and accommodation.
Details on payment will be sent to each participant after acceptance.

The courses are organized by...

the Project PRIN 2003133820

"The Statistical Approach to the Study of Gene Expression Profiles"

held by the following Universities:

Department of Statistics "G. Parenti", University of Florence, Prof. Annibale Biggeri

Department of Statistical Sciences, University of Padoa, Prof. Monica Chiogna

Institute of Medical Statistics and Biometrics, University of Milan, Prof. Giuseppe Gallus

Department of Mathematics, Politecnico di Torino, Prof. Mauro Gasparini

Department of Statistical Sciences, University of Udine, Prof. Corrado Lagazio

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Center for Biological Research CRIBI, University of Padoa. Fondazione EdoTempia, Biella

The International Biometric Society, Italian Region.

Sponsorships:

Tuscany Cancer Institute, Tuscany Region.

Ministry of Education and Scientific Research, Italy.

Nutrigenomics Organization NuGO, European Union Network of Excellence VI Framework Programme.

Faculty:

Biology: Duccio Cavalieri (University of Florence), Lucio Luzzatto (Tuscany Cancer Institute), Manuela Gariboldi, Loris De Cecco (IFOM), Gerolamo Lanfranchi (CRIBI), Francois Képès (Genopole), Rob Stierum Marjan Van Erk (TNO).

Statistics: Avner Bar-hen (University of Marseille), Geoff McLachlan (Queensland University), Terry Speed (University of California at Berkeley), Ernst Wit (Glasgow University), Giovanna Chiorino (EdoTempia), Mauro Gasparini (Politecnico, Turin), Chiara Romualdi and Monica Chiogna (University of Padoa), Lara Lusa (IFOM), Giuseppe Gallus (University of Milan), Simona Toti Michela Baccini and Annibale Biggeri (University of Florence), Marta Blangiardo (Imperial College, London), Corrado Lagazio (University of Udine)

Bioinformatics: Itzak Pilpel (Weizman Institute), Alvis Brazma, Susanna Sansone, Philippe Rocca Serra (European Bioinformatics Institute), Paul Grosu (Bauer Center for Genomic Research, Harvard University), James Reid (IFOM).



Istituto Toscano Tumori



Ministero dell'Istruzione
dell'Università e della Ricerca

	Statisticians	Biologists
Day - 1		
9,00 - 10,00	General Introduction: Scientific Questions and Study Design	
10,30 - 12,30	Basics on Biology	Principles of Data Quality Control - Descriptive statistics and normalization
	Principles of Molecular Biology (<i>G. Lanfranchi</i>)	Probability, Test of Hypothesis, False Discovery Rate, P-value vs Q-value (<i>A. Bar-Hen, A. Biggeri</i>)
15,00 - 16,30	Tutorial on normalization and multiple test corrections	
17,00 - 19,30	Workshop: Significant Fold Changes	
Day - 2		
9,00 - 12,30	Population Genetics Basics on Genomics (<i>I. Pilpel, D.Cavaliere</i>)	Class discovery and class prediction Unsupervised and supervised clustering Probabilistic models (<i>G. McLachlan, C. Romualdi</i>)
15,00 - 16,30	Tutorial on gene profiling and signatures	
17,00 - 19,30	Workshop on Oncogenetics (<i>L. Luzzatto, Tuscany Cancer Institute</i>)	
Day - 3		
9,00 - 12,30	Gene expression experiments Biological Validation and Alternative Experimental Designs (<i>M. Gariboldi, L. De Cecco</i>)	Design of Experiments Welsch t and moderated t - ANOVA models (<i>E. Wit, M. Gasparini</i>)
15,00 - 16,30	Tutorial on simple class comparison designs	
17,00 - 19,30	Workshop: Bayesian approaches to differential gene expression analysis	
Day - 4		
9,00 - 11,00	Time course experiments (<i>T. Speed</i>)	
11,30 - 13,00	Postgenomics Principles of System Biology (<i>F. Képès</i>)	Bioinformatics Microarray standards and databases (ArrayExpress, GEO, BASE, Rosetta Resolver) (<i>A.Brazna, P. Rocca-Serra, J. Reid, P. Grosu</i>)
15,00 - 16,30	Tutorial on Datamining on the web: retrieving biologically relevant information from a list of genes	
17,00 - 19,30	NuGO Workshop: Current issues on time course experiments	
Day - 5		
9,00 - 11,00	Pathway-based Microarray Data Analysis (<i>D. Cavaliere</i>)	
11,00 - 12,00	Pathway and network perspectives from nutrition and toxicology (<i>R. Stierum - M. Van Erk</i>)	
12,00 - 13,00	Standardization initiative in functional genomics (<i>S.A. Sansone</i>)	
15,00 - 16,30	From microarray data to gene networks (<i>Alvis Brazna</i>)	
17,00 - 19,30	Workshop on Pathways Discovery and Analysis	