MULTIVARIATE STATISTICS
FOR
GEOPHYSICAL AND PETROPHYSICAL ANALYSIS

Luigi Beghi & Rimantas Eidukevicius

PROGRAM

DAY-1

-Probability: probability spaces
-Conditional probability, Bayes' law,
-Random variables, probability distributions,
-Expected value, variance
-Distributions: Gauss, Uniform, Log-Normal,
Bernoulli, Poisson
-Independent random variables
-Functions of random variables
-Examples
-Sampling; empirical probability distribution; law of large numbers; arithmetic mean, median, empirical variance, standard deviation.
Linear bivariate regression (y = a x + b), linear correlation coefficient r.
-test
-Variance ratio (explained ratio/residual ratio).
-Related non linear bivariate regressions (exponential and "power" functions).

DAY-2

-Linear Multivariate Regression
-Similarity and Distance Coefficient between Multivariate Variables

DAY-3

-Cluster Analysis
-Sequential agglomerative Cluster Analysis (Dendograms)
-Examples

Practical examples of Petrophysical and Geophysical applications are extensively applied in each phase of the course with use of the Software R.

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BIOGRAFIES

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Luigi Beghi

Prof. Luigi Beghi holds a University Degree in Physics (Laurea in Fisica) from the University of Padua, Italy, and a University degree in Electronic Engineering (Laurea in Ingegneria Elettronica) from the University of Padua, Italy.
1961-1964 Assistant at the Physics Institute "G. Galilei", University of Padua, Italy
- From October 1, 1964 until October 31, 1967 and from November 1, 1968 until January 1, 1986: assistant professor, in charge of the course of "Analog calculation" (Calcolo analogico elettronica) at the Department of Mathematics, University of Padua, Italy
- From November 1, 1967 to February 28, 1969: staff member of the European Space Research Organization at Darmstadt (Federal Republic of Germany)
- From February 1, 1986 up to the present, associated professor of "Calculus" (Istituzioni di Matematiche) and in charge of the course of "Mathematical methods in Biology" (Metodi Matematici e Statistici per la Biologia) at the Faculty of Mathematics and Natural Sciences, University of Padua, Italy
- From the Academic year 1980/81 up to the present, in charge of the course of "Mathematical methods in Medicine" (Scuole di Specializzazione in Medicina Nucleare e Chimica Clinica) at the Faculty of Medicine of the University of Padua, Italy
- Member of the Interdisciplinary Center of Bioengineering (Centro Interdisciplinare per la Bioingegneria) of the University of Padua, Italy
- Instructor of Multivariate Statistics at GeoNeura - Munich
- Actual interests: Multivariate Statistics and Spatial Statistical applications in the Petrophysical and Geophysical Analysis.

-Gigi is the author or co-author of over 60 publications and technical reports in the areas of numerical calculus, statistical data processing, pattern recognition, biocybernetics and mathematical psychology, as well as the author of the following textbooks:

- L. Beghi "Metodi per lo studio dei sistemi lineari" (Linear systems), Libreria PICCIN Publ., Padova, pgs 1-251, 1971
- L. Beghi "Sistemi lineari ed elaborazione dei dati" (Linear systems and data processing), CLEUP Publ., Padova, pgs 1-527, 1979
- L. Beghi "Metodi matematici e statistici per la Biologia" (Mathematical and statistical methods in Biology), Libreria PROGETTO Publ., Padova, pgs 1-206, 1990

Present research interests

Biomathematics, Statistical Data Processing in Biology and Medicine, Mathematical Psychology and Biocybernetics (visual perception), Multivariate Statistical applications in the Geophysical and Petrophysical Analysis

Publications in the period 1991-2000

A. Giacomini, L. Beghi, M. De Paoli, G. Roveroni, F. Galeotti, A. Corsini, M. Plebani "Interpretation of results for tumor markers on the basis of analytical and biological variability" Journal of Tumor Marker Oncology, 9, 41, 1994


L. Beghi, E. Xausa, M. Zanforlin "3-D perception in stereokinetic phenomena" Research Developments in Biological Cybernetics, 1, 33-54, 1996


**Rimantas Eidukevicius**

Professor of Mathematics at the University of Vilnius - Lithuania

-University Degree in Mathematics at Vilnius University (Lithuania)
-PhD in Applied Mathematics (Stochastic Processes) at Vilnius University

-Professor of Mathematics at the Faculty of Mathematics and Informatic, Department of Mathematical Statistics, since 1990
-Research interests in Applied Statistics with international cooperation (Germany, Italy)

-Teacher of Applied Statistics to the PhD students in Biology at Padua University

-Instructor of Multivariate Statistics at GeoNeurale - Munich
-Actual interests: Multivariate Statistics and Spatial Statistical applications in the Petrophysical and Geophysical Analysis.
GeoNeurale - MUNICH

at the
GATE – Garchinger Technologie und Gründerzentrum
7-9 November 2011

3 DAYS COURSE

LEVEL: Advanced

Audience: Geophysicists, Petrophysicists, Geologists, Petroleum Engineers, Modeling Specialists

COURSE FEES:
2650 Euro + 19% VAT  (VAT Tax is 100% refunded from the German Finance Ministry)

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15 October 2011

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