



Università degli Studi di Padova

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# Psicologia

Mercoledì 5 Febbraio 2014

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&gt; Offerta formativa 2012/13

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## STATISTICS FOR BRAIN AND COGNITIVE SCIENCES

M-PSI/03, 6 crediti

Corsi di laurea / indirizzi:

> Lauree magistrali N.O. DM 17/2010 / [Cognitive neuroscience and clinical neuropsychology \(CN2\)](#)

Prof. Vidotto Giulio

[Sede e calendario lezioni](#)[Dati statistici votazioni esami](#)

### Teaching language

Inglese

### Educational And Training Objectives

The course provides the understanding of the underlying theory and the practical problems required for the successful application of linear models. Topics are multiple linear regression, ANOVA, and generalized linear models.

Objectives are: Understand statistical foundation of regression model and ANOVA; Interpret the results of regression analysis and ANOVA; Assessing the quality of the models.

### Pre-requisites

Probability, random variables, descriptive and inferential statistics, confidence intervals, t-tests, F-tests, basic issues in experimental design. The students can easily find materials on Internet (e.g. a comprehensive list of prerequisites is provided by the course of Statistical Methods in Brain and Cognitive Science on the MIT website).

### Course content

Matrix Algebra (an introduction). Simple Linear Regression: An algebraic and geometrical approach. Linear Models: Simple and Multiple Regression, Regression with Dummy Variables, ANOVA for Factorial Designs, Repeated Measures ANOVA, Analyses of Covariance, Contrasts and Multiple Comparisons. Generalized Linear Models (an introduction). Moreover, upon completion of the course the students should also be experienced in the use of the R Packages.

### Recommended reading

Course materials:

The slides to be used in the lectures and lab lessons.

Julian J. Faraway (2005). Linear models with R. Chapman &amp; Hall/CRC.

For further deepening:

George H. Dunteman (1984), Introduction to Linear Models. Sage Publications.

John Fox (1997). Applied Regression Analysis, Linear Models and Related Methods. Sage Publications.

### Teaching methods

Frontal lessons and laboratory practices.

### Assessment methods

**Type of examination:** Written and oral**Written examination:** Open questions

### Notes

The exam is divided into two parts: a lab exam, in which the student has to write-execute simple R programs (according to given specifications), and finally interprets the statistical results; with a written part, in which the student has to respond to few asked questions. The oral examination is a discretionary part of the evaluation.

### COMUNICAZIONI AGLI STUDENTI (a cura del docente)

Nessuna comunicazione disponibile.

