



Institut de statistique

STAT

STAT2430 Statistical Computing.

[15h+15h exercices] 7 credits

This course is taught in the 1st semester

Teacher(s): Bernadette Govaerts
Language: french
Level: 2nd cycle course

Aims

At the end of this course, the students will have gain a critical view of the different classes of statistical software available on the market and basic culture on statistical algorithms and graphics. They will also be able to realise basic statistical analysis with different software (SAS, S-Plus, R, Excel, SPSS...) and write programs in the S and SAS programming languages.

Main themes

- Steps of a statistical data analysis
- Classes of statistical software
- Statistical graphics : main classes of graphics and efficient use
- Random numbers generation, calculation of probabilities and quantiles for most common statistical distributions.
- Algorithms to estimate linear and non linear models.
- Programming in the S language under the S-Plus or R environment.
- Programming in SAS (Use of SAS/BASE, SAS/STAT and SAS/Graph).

Content and teaching methods

- Steps of a statistical data analysis
- Classes of statistical software
- Statistical graphics : main classes of graphics and efficient use
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Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisites

Basic course in statistics and capability to work on a personnel computer.

Teaching materials

See web site : www.stat.ucl.ac.be/cours/stat2430

References :

W.S. Cleveland [1985] , The elements of graphing data,

F.C. Dilorio [1991] , SAS Application Programming, A Gentle Introduction, Duxbury Press.

Kennedy and Gentle [1980] , Statistical Computing, Marcel Dekker

Preud'home E. [1996] , SAS 6.10, Cours IUT II Grenoble.

Rubinstein [1981] , Simulation and the Monte Carlo Method, Wiley.

Seber G. et R. Wild [1989] , Non Linear Regression, Wiley.

S-Plus User's Manual, Statsci, Mathsoft Inc., Seattle.

For more information:

<http://www.stat.ucl.ac.be/cours/stat2430/index.html> <http://www.stat.ucl.ac.be/cours/stat2430/index.html>

Other credits in programs

ACTU21MS	Première année du master en sciences actuarielles, à finalité spécialisée	(7 credits)	
ESP31DS/DM	Première année du diplôme d'études spécialisées en santé publique (gestion des données médicales)	(7 credits)	
ESP3DS/EP	Diplôme d'études spécialisées en santé publique (recherche clinique)	(7 credits)	
MAP22	Deuxième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(4 credits)	
MAP23	Troisième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(4 credits)	
MATH21/S	Première licence en sciences mathématiques (Statistique)	(4 credits)	Mandatory
STAT2MS	Master en statistique, orientation générale, à finalité spécialisée	(7 credits)	Mandatory
STAT3DA/B	diplôme d'études approfondies en statistique (biostatistique et épidémiologie)	(7 credits)	
STAT3DA/E	diplôme d'études approfondies en statistique (statistique et économétrie)	(7 credits)	
STAT3DA/M	Diplôme d'études approfondies en statistique (méthodologie de la statistique)	(7 credits)	
STAT3DA/P	diplôme d'études approfondies en statistique (pratique de la statistique)	(7 credits)	