

- Faculté des sciences économiques
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## Seminar of Statistical softwares (5ST2007)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
<b>Master en finance</b>	<b>Cours: 2 ph</b>	<b>cont. continu</b>	<b>3</b>
<b>Master en méthodologie d'enquête et d'opinion publique</b>	<b>Cours: 2 ph</b>	<b>cont. continu</b>	<b>3</b>
<b>Master en statistique</b>	<b>Cours: 2 ph</b>	<b>cont. continu</b>	<b>3</b>

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

### Période d'enseignement:

- Semestre Automne

### Equipe enseignante:

Dr. Alina Matei  
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### Objectifs:

The seminar introduces two important statistical softwares: R and SAS. At the end of this seminar, the students should be able to use these two softwares, interpret and analyse an output.

### Contenu:

1. An introduction in R
  - The uses of R, R objects, vectors, matrices, lists, data frames.
  - Looping, graphics, random numbers, functions.
  - R packages.
  - Simple examples of statistical analyses (simple linear regression, multiple regression, generalized linear models, anova).
2. An introduction in SAS
  - The uses of SAS, the SAS windows, and the SAS language.
  - Methods to input data into SAS, create and modify SAS data sets.
  - Flow control statements, random numbers, specific procedures, macros.
  - Simple examples of statistical analyses (simple linear regression, multiple regression, generalized linear models, anova).

### Forme de l'évaluation:

P ES : Continuous assessment - one practical assesement within-semester and an end-of-semester practical examination (2 hours).

Reexamination session (August-September) : practical exam (2 hours).

### Documentation:

For R:

- Peter Dalgaard, Introductory Statistics with R, Springer, 2002.
- Michael J. Crawley, Statistics, An Introduction using R, Wiley, 2005.
- Brian Everitt, An R and S-plus Companion to Multivariate Analysis, Springer, 2005.
- Julian J. Faraway, Linear Models with R and Extending the Linear Model with R: Generalized Linear, Mixed Effects and Nonparametric Regression Models, Chapman & Hall /CRC, 2004 and 2005.

For SAS:

- G. Der and B. S. Everitt, A handbook of statistical analyses using SAS, Chapman & Hall / CRC, 2002.
- R. Cody, Learning SAS by Example: A Programmer's Guide, SAS Publishing; Pap/Cdr edition, 2007.
- M. G. Marasinghe and W. J. Kennedy, SAS for Data Analysis, Springer. 2008.

### Pré-requis:

Basic notions of probability and statistics, including statistical reasoning, statistical inference, and data analysis.

### Forme de l'enseignement:

- 3 ECTS credits

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### **Seminar of Statistical softwares (5ST2007)**

- Compulsory course for master in statistics
- Autumn Semester
- Course + practical exercises on computer: 2 hours