

- Faculté des sciences
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### Advanced regression methods (3ST2003)

| Filières concernées          | Nombre d'heures                 | Validation        | Crédits ECTS |
|------------------------------|---------------------------------|-------------------|--------------|
| <b>Master en statistique</b> | <b>Cours: 2 ph<br/>TP: 2 ph</b> | <b>écrit: 2 h</b> | 6            |

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

#### Période d'enseignement:

- Semestre Automne

#### Equipe enseignante:

Professeur : Y. Tillé  
Institut de statistique

Assistante : Audrey-Anne Vallée,

#### Objectifs:

- To present the methods of the general linear model in a formal way including the fundamental results as the Gauss-Markov Theorem and the general theory of Wald test.
- To teach students how to apply the presented methods by means of the R language.
- To teach students to be able to choice the appropriate regression method for given datasets.

#### Contenu:

Univariate and multivariate regression. Method of least squares.  
General linear model. Hypotheses and development. Gauss-Markov theorem.  
Estimation, inference. Inference. Test of hypotheses.  
The general family of Wald tests.  
Heteroscedasticity, autocorrelation.

#### Forme de l'évaluation:

2 hours written exam during the session.

#### Documentation:

Syllabus available on the claroline platform.

#### Forme de l'enseignement:

- 6 ECTS, with 3 ECTS course and 3 ECTS exercices
- Autumn semester
- Compulsory course for the master in statistics