



# Institut de statistique

## STAT

### STAT3221 Advanced linear models

[15h] 3 credits

This course is taught in the 2nd semester

**Teacher(s):** Philippe Lambert  
**Language:** english  
**Level:** 3rd cycle course

#### Aims

This is a third cycle course giving a critical overview of recent scientific developments in the field. It will deal with present extensions of linear and generalised linear models. The considered extensions will be of two types :

- an explicit modelling of dispersion as a function of available covariates.
- an amendment of (generalised) linear models to deal with clustered or longitudinal data.

These techniques will be illustrated by the analysis of datasets using SAS or S-Plus.

#### Main themes

- Review of generalised linear models
- Dispersion models
- Linear mixed models.
- Generalised linear mixed models.
- Autoregressive models.
- Marginal models and generalised estimating equations.

#### Content and teaching methods

- Review of generalised linear models
- Dispersion models
- Linear mixed models.
- Generalised linear mixed models.
- Autoregressive models.
- Marginal models and generalised estimating equations.

#### Other credits in programs

<b>STAT3DA/B</b>	diplôme d'études approfondies en statistique (biostatistique et épidémiologie)	(3 credits)	
<b>STAT3DA/E</b>	diplôme d'études approfondies en statistique (statistique et économétrie)	(3 credits)	
<b>STAT3DA/M</b>	Diplôme d'études approfondies en statistique (méthodologie de la statistique)	(3 credits)	
<b>STAT3DA/P</b>	diplôme d'études approfondies en statistique (pratique de la statistique)	(3 credits)	Mandatory