

## Generalized Linear Model

### Objectives

At the end of the course, the students should be able to understand the principles, to apply the methods and to correctly interpret the results obtained using a Generalized Linear Model.

### Contents

1. Outline of Generalized Linear Models
2. Logistic Regression Models
3. Poisson Regression Models
4. Loglinear Models for Contingency Tables
5. Regression Models for Categorical Outcomes
6. Proportional Odds Model for Ordinal Outcomes
7. Regression Models for Asymmetric Outcomes (e.g. Gamma distribution)
8. Introduction to Survival Analysis

### Evaluation

According curriculum 2009-2010 :

- ES : 2-hour final written test during the last week of the semester
- *Reexamination session (September) : 2h written test*

### Textbooks

- McCullagh, P. & Nelder, JA, *Generalized Linear Models*, 2<sup>nd</sup> edition, Chapman & Hall, 1989
- Chambers, JM & Hastie, TJ, *Statistical Models in S*, Wadsworth & Brooks/Cole, 1992
- Agresti, A, *An Introduction to Categorical Data Analysis*, Wiley, 1996

### Characteristics

- 3 ECTS credits
- Compulsory course for master in statistics
- Spring semester
- Course : 2 hours
- Prerequisite : Basics of Statistics, Linear Regression Models

### Teaching team

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### Exercises

Application of the methods using software R.