Modèles de régression

Lecturer
Davy PAINDAVEINE (Coordinator)

Course mnemonic
STAT-F406

ECTS credits
5 credits

Language(s) of instruction
French

Course period
Second term

Campus
Plaine

Course content

1. Linear regression (least squares estimation, matrix notation, variance estimation, exact and asymptotic inference on the regression parameter, weighted and generalized least squares estimations)

2. Nonparametric regression (kernel density estimation, Nadaraya-Watson, local polynomials, nearest neighbors, splines)

Objectives (and/or specific learning outcomes)

With the help of this course unit, students will be able to

> explain why regression models are of interest

> perform a regression analysis that is suitable to the context

> apprehend the fundamental differences between parametric and nonparametric estimation

Teaching method and learning activities

For Part 1: standard lectures
For Part 2: flipped classroom (with exrecise sessions) based on detailed course notes

Contribution to the teaching profile

> Learning the fundamental concepts in probability and (theoretical or applied) statistics- Learning some advanced notions in some fields of probability and statistics- Being able to model real data and to analyze them by using classicla statistical methods- Chosing adequately the statisticla analysis that is suitable for the problem considered

References, bibliography and recommended reading

Ravishanker, N., and D. K. Dey (2001). A first course in linear model theory, Chapman & Hall.

Dobson, A. J. (2001). An introduction to generalized linear models, Chapman & Hall.

Gyorfi, L., Kohler, M., Krzyzak, A., and Walk, H. (2002). A distribution-free theory of nonparametric regression, Springer Verlag.

Course notes

Université virtuelle and Syllabus

Other information

Place(s) of teaching

Plaine

Contact(s)

Davy Paindaveine
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Evaluation method(s)

Other

Evaluation method(s) (additional information)

A unique, written, exam is organized in May/June (première session), then in August/September (seconde session). The exam will offer both open and closed (MCQ and/or true-or-false) questions. Questions may refer to theory (including proofs) and exercises.

Determination of the mark (including the weighting of partial marks)

The final grade is unique and cannot be considered in parts.

Main language(s) of evaluation

French

Programmes

Programmes proposing this course at the faculty of Sciences

MA-MATH | **Master in Mathematics** | finalité Research/unit 1 and finalité Research/unit 2 **and** MA-STAT | **Master in Statistics : General** | finalité Research General/unit 1