

Scoring

Course title - Intitulé du cours	Scoring
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Christine THOMAS – Stéphane AMARSY
Other teacher(s) - Autre(s) enseignant(s)	
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Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

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Course's Objectives - Objectifs du cours :

Theoretical part After defining the scoring goals and vocabulary, the first chapter of the course is an introduction to the generalized linear model. Then we cover extensively the logistic regression model. We detail the definition, estimation and interpretation of the odds ratios as well as the computations of marginal effects. We then discuss tools such as the Lorenz and ROC curves for the evaluation of the quality of a scoring model (and the selection of a score threshold for the logistic case). Codes are given in R. Applied part S. Amarsy discusses a scoring case study using the SAS software.

Prerequisites - Pré requis :

Practice of R and SAS

Practical information about the sessions - Modalités pratiques de gestion du cours :

Personal computers allowed.

Grading system - Modalités d'évaluation :

50% of the grade is a final exam on the theoretical part with exercises and interpretation of R code. The remaining 50% of the grade is a project with S. Amarsy.

Bibliography/references - Bibliographie/références :

About generalized linear models: - chapters 1 and 6 of Extending the linear model with R, J.J. Faraway, Chapman & Hall/CRC, 2006. - chapter 7 of W.N. Venables and B.D. Ripley, Modern Applied Statistics with S, 2002, Springer. - chapter 1 and 2 of Generalized additive models, an introduction with R, S. Wood, Chapman & Hall/CRC, 2006. - chapter 2 of L. Fahrmeir and G. Tutz, Multivariate statistical modelling based on generalized linear models, Springer series in statistics, 1994. 2) About logistic regression and alternatives - J.M. Hilbe, Logistic regression models, CRC Press, Chapman and Hall, 2009. - D.W. Hosmer, S. Lemeshow, Applied logistic regression, second edition, Wiley, 2000. - chapter 10 of S. Tufféry, Data mining et statistique décisionnelle, 2005. - S. Tufféry, Etude de cas en statistique décisionnelle, 2009. - chapter 2 of JP. Nakache and J. Confais, Statistique explicative appliquée, Technip, 2003. - M. Bardos, Analyse discriminante, application au risque et scoring financier, Dunod, 2001. - G. Shmueli et al., Data mining for business, techniques, and applications in R, Wiley, 2018. 3) About the practice of scoring - R. Anderson, The credit scoring toolkit, Oxford U.P., 2007. - Thomas, Edelman and Crook, Credit scoring and its applications, SIAM, 2002. - N. Siddiqi, Credit risk scorecards, Wiley, 2006.