Robustness in Operations Research and Decision Aiding

ECTS : 3

Volume horaire : 15

Description du contenu de l'enseignement :

In OR-DA, the term robust means a capacity for withstanding "vague approximations" and/or "zones of ignorance" in order to prevent undesirable impacts, notably the degradation of the properties that must be maintained. Consequently, robustness stems from a process that responds to a concern: a need for resistance or self-protection. Optimal solutions of classical models in OR may not have this capacity. The aim of this course is to introduce the basic robustness models.

Compétence à acquérir :

- Basic concepts and presentation of some examples.
- Study of classical criteria : min-max and min-max regret.
- Study of Bertsimas and Sim ' s model.
- Study of the multilevel programming approach.

Bibliographie, lectures recommandées :

- B. Roy, Robustness in operational research and decision aiding: A multi-faceted issue, European Journal of Operational Research 200(3), 629-638, 2010
- H. Aissi, B. Roy, Robustness in Multi-criteria Decision Aiding, in Trends in Multiple Criteria Decision Analysis, M. Ehrgott, J.R. Figueira, S. Greco Ed., Springer, 87-121, 2010
- H. Aissi, C. Bazgan, and D. Vanderpooten, "Min - max and min - max regret versions of combinatorial optimization problems: A survey", European Journal of Operational Research, 197(2), 427-438, 2009.