

## Management Science - Operations Research

**ECTS** : 3

**Volume horaire** : 27

### Description du contenu de l'enseignement :

This is an introductory course about management models, which aims to show how to approach in a structured and formalized way certain decision-making problems that arise within any socio-economic organization. It falls within the general framework of "business analytics", more precisely in the prescriptive part of this field where we aim at supporting managers in their decision-making. This course presents fundamental concepts and tools for modeling and solving these problems. Among the tools, the emphasis is on the use of the spreadsheet and in particular the use of the Solver module. Different modeling frameworks will be presented and illustrated on concrete cases. The program consists of three blocks:

- Graphs, routing problems, flows
- Linear programming
- Decision theory

### Compétence à acquérir :

- know how to model a decision-making situation using one of the frameworks presented
- use a few simple algorithms and spreadsheet tools to produce an optimal solution
- know how to interpret this solution in terms of a concrete decision

### Mode de contrôle des connaissances :

Participation: 20%, Mid-term exam: 30%, Final exam: 50%

### Bibliographie, lectures recommandées :

- Aide à la décision : une approche par les cas, Ph. Vallin, D. Vanderpooten, Ellipses.
- Introduction to Operations Research, F. S. Hillier and Lieberman G. J. , Mc-Graw Hill.