


 Faculty of Applied Sciences

**INMA2472 Operations research : Advanced linear programming**

[30h+22.5h exercises] 5 credits

This two-yearly course is taught in 2006-2007, 2008-2009,...

This course is taught in the 1st semester

**Teacher(s):** Yves Smeers  
**Language:** French  
**Level:** Second cycle

### Aims

In depth study of the different facets of a particular problem of linear programming, spanning modelling, numerical and economic aspects as well as practical applications.

### Main themes

The course concentrates on portfolio management models and linear programming approaches to the pricing of financial derivative

### Content and teaching methods

The initial portfolio management problem by quadratic programming

Alternative formulation of risk criteria currently adopted in practice (VaR): modelling, economic and numerical aspects

Alternative models of (coherent) risk criteria, economic and numerical properties, modelling through linear programming; current acceptability of these new methods in practice

Modelling of the derivative pricing problem through linear programming

**Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)**

Students must have a background in linear programming. The rest of the course is self-contained.

### Other credits in programs

**MAP23** Troisième année du programme conduisant au grade (5 credits)  
 d'ingénieur civil en mathématiques appliquées