Optimization and linear programming

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Syllabus

This course is an introduction to real analysis, optimization and linear programming. Its aim is to make students familiar with the notion of proof (almost all the results in this course are proved). Relying on computations is indeed not always sufficient and one has to devise some specific theoretical arguments. The course includes the following four chapters.

- Chapter 1 Definitions and preliminary results.

- Chapitre 2 Separating hyperplane Theorem and Suppporting hyperplane Theorem.

- Chapitre 3 Karush-Kuhn-Tucker-Uzawa Theorem and Saddle point Theorem.

- Chapitre 4 Linear programming.

There will be a written test every week as well as a final oral examination. Regarding the latter, each student has to prove a relatively simple result in mathematical economics (this result is assigned at least two months before the examination).

Written test: 50% Oral examination: 50 %

References

A set of lecture notes is distributed to the students. In addition, the following books might be useful.

- *Optimization in economic theory*, 1986, A.K. Dixit, Oxford University Press.

- *Mathematical economics*, A. Takayama, 1985, Cambridge University Press.

- *Foundations of mathematical economics*, M. Carter, 2001, M.I.T Press.