

Static optimization refresher

Course title - Intitulé du cours	Static optimization refresher
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	SILVA_FRANCISCO
Other teacher(s) - Autre(s) enseignant(s)	
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Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	
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 :

francisco.silva@unilim.fr

Availability: After the course, by email and by appointment.

Course's Objectives - Objectifs du cours :

- It is a basic course oriented to operational methods which is meant for (static) optimization users. - We shall insist a lot on intuition and on the geometry of optimization problems which are not generally well understood. Some classical exercises will illustrate the standard methods of optimization (e.g. using second order conditions, solving simple equality/inequality constrained minimization, graphical solutions for linear programs, etc). - Students willing to deepen the subject may use the bibliographical references provided at the end of the syllabus. - Students already familiar with optimization but who need to refresh their memory might also find this course profitable.

Prerequisites - Pré requis :

- Basic Calculus. - Elementary notions of linear algebra. - Elementary differential calculus. - Basic notions in real analysis : supremum/infimum, limits, continuity of functions, closed/open sets, compact sets.

Grading system - Modalités d'évaluation :

Pas d'évaluation.

Bibliography/references - Bibliographie/références :

Elementary references: - Optimization in Economic Theory, A.K. Dixit, 1990. - Mathematical Optimization and Economic Theory, M. Intriligator, SIAM, 2002. Some accessible references: - Chong E.K.P., Zak S.H., "An introduction to optimization" (Second Edition), Wiley Inter-Science in Discrete Mathematics an Optimization, 2001. - Luenberger, D. G. Optimization by vector space methods". John

Wiley & Sons, Inc., New York-London-Sydney 1969 xvii+326 pp. - Sundaram, R.K. "A first course in optimization theory". Cambridge University Press, Cambridge, 1996. xviii+357 pp. More involved material: - Bonnans F., "Optimisation continue", Dunod, 2006. - Boyd S. and Vandenberghe L., "Convex Optimization", Cambridge University Press, 2004. Available online, MOOC available after registration. - Borwein, J., Lewis, A.S., "Convex Analysis and Nonlinear Optimization", Springer-Verlag 2000. - Ruszczyński, A., "Nonlinear Optimization", Princeton University Press, 2006.