Extreme Value Analysis

Course title - Intitulé du cours	Extreme Value Analysis
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	AFANTENOS STERGOS
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	21
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 :

Stergos Afantenos

stergos.afantenos@irit.fr

Course's Objectives - Objectifs du cours :

The goal of this class is two-fold. Firstly we aim at presenting the basic notions of Graph Theory to students that have no prior experience with the subject. Notions like directed and undirected graphs, trees, DAGS, maximum spanning trees, shortest paths, graph coloring etc will be presented. Secondly we aim at presenting computationally efficient algorithms that are capable of solving specific graph related problems. We will present the depth- and breadth-first algorithms, MST algorithms (e.g. Prim and Kruskal with or without Union-Find), the Bellamn-Kalaba algorithms for shortest paths, and algorithms for Maximum-Flow. At each step our objectif will be to familiarise participants with underlying theoretical notions as well as presenting efficient algorithms that are capable of tackling each problem.

Prerequisites - Pré requis :

Elementary mathematical notions, such as a basic understanding of set theory. Notions of Computational Complexity can be handy, but are not strictly required.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Students are not required to have any electronic devices with them. The instructors reserve the right of not accepting students that are late to the course.

Grading system - Modalités d'évaluation :

In terms of grading there will be a single final exam.

Bibliography/references - Bibliographie/références :

- THOMAS H. CORMEN CHARLES E. LEISERSON RONALD L. RIVEST CLIFFORD STEIN. Introduction to Algorithms. MIT Press, 2009. Third Edition

- Sanjoy Dasgupta Christos Papadimitriou Umesh Vazirani. Algorithms. McGraw-Hill, 2008

Distance learning – Enseignement à distance :

In case that distance learning is permitted or mandatory we will make use of interactive virtual classrooms and chatrooms during the hours of the class. Students are not required to have a camera and it probably would be a good idea not to use it in order to avoid bandwidth problems. Students can make use either of a microphone to pose questions or use chat.