

Game Theory

Course title – Intitulé du cours	Game Theory
Level / Semester – Niveau /semestre	M2ETE DEEQA/S1
School – Composante	Ecole d'Economie de Toulouse
Teacher – Enseignant responsable	Jérôme Renault , Takuro Yamashita
Other teacher(s) – Autre(s) enseignant(s)	Fabien Gensbittel
Other teacher(s) – Autre(s) enseignant(s)	
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Lecture Hours – Volume Horaire CM	30
TA Hours – Volume horaire TD	15
TP Hours – Volume horaire TP	
Course Language – Langue du cours	English
TA and/or TP Language – Langue des TD et/ou TP	

Teaching staff contacts – Coordonnées de l'équipe pédagogique :

Fabien Gensbittel : office T 581, fabien.gensbittel@tse-fr.eu
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Jérôme Renault : office T 589, jerome.renault@tse-fr.eu
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Takuro Yamashita: office T 590, takuro.yamashita@tse-fr.eu

Course Objectives – Objectifs du cours :

Learning how to deal with strategic interactions.

Fundamentals of Game Theory, with a formal presentation.

Prerequisites – Pré requis :

Nothing compulsory. Some knowledge of game theory, basic mathematical analysis and probability will help.

Grading system – Modalités d'évaluation :

Terminal exam

Bibliography/references – Bibliographie/références :

Lecture notes available at: <https://sites.google.com/site/jrenaultsite/lecturenotes>

A Course in Game Theory: M.J. Osborne and A. Rubinstein. MIT Press 1994.

Game Theory: Analysis of Conflict, R.B. Myerson. Harvard University Press, 1991.

Game Theory, D. Fudenberg and J. Tirole. MIT Press, 1991.

Game Theory for Applied Economists, Gibbons. Princeton University Press 1992.

Game Theory. Maschler, Solan and Zamir, Cambridge UP 2013.

Repeated Games and Reputation. Mailath and Samuelson, Oxford U Press 2006.

Mathematical Foundations of Game Theory. Laraki, Renault and Sorin, Springer 2019.

Session planning – Planification des séances

I Strategic games: dominant strategies, Nash equilibria, mixed strategies, elimination of strictly dominated strategies, rationalizability, value and optimal strategies of zero-sum games.

II Extensive-form games: model, associated strategic form, perfect information games, behavior strategies, sequential rationality; subgame-perfect, Bayesian-perfect and sequential equilibria.

III Bayesian games and games with incomplete information.

IV Correlated equilibrium: examples, definitions, canonical correlated equilibria, extensive-form correlated equilibria and communication equilibria.

V Introduction to repeated games. Feasible and individually rational payoffs. Folk Theorems. (Characterization of perfect equilibrium payoffs à la APS.)

Distance learning – Enseignement à distance :

Distance learning can be provided when necessary by implementing :

- *Interactive virtual classrooms*
- *Recorded lectures (videos)*
- *MCQ tests and other online exercises / assignments*
- *Remote (online) tutorials (classes)*
- *Chatrooms*

En cas de nécessité, un enseignement à distance sera assuré en mobilisant:

- *Classe en ligne interactive*
- *Vidéo enregistrée de la présentation du matériel pédagogique*

- *QCM et exercices en ligne*
- *TP/TD à distance*
- *Forum...*