

Learning in Games

Course title – Intitulé du cours	Learning in Games
Level / Semester – Niveau /semestre	MRes/M2 MED
School – Composante	Ecole d'Economie de Toulouse
Teacher – Enseignant responsable	Bruno Ziliotto
Other teacher(s) – Autre(s) enseignant(s)	
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Other teacher(s) – Autre(s) enseignant(s)	
Lecture Hours – Volume Horaire CM	15h
TA Hours – Volume horaire TD	
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 :

Bruno.ziliotto@tse-fr.eu

Course Objectives – Objectifs du cours :

“Learning in Games”

This course explores learning in game theory, focusing on models where agents interact repeatedly and adjust their strategies based on past observations. We will focus on understanding the long-run behavior of players, including its convergence and the relationship between the limiting outcomes and classical equilibrium concepts. Key questions include: under what conditions do players learn to play effectively, and how do differing levels of rationality and information influence long-term strategies? Through theoretical analysis and various applications, students will gain insight into learning-based decision-making in strategic environments.

Prerequisites – Pré requis :

Good understanding of Probability Theory, Calculus, and Game Theory.

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

Grading system – Modalités d'évaluation : project

Bibliography/references – Bibliographie/références :

Fudenberg, D., & Levine, D. K. (1998). *The theory of learning in games* (Vol. 2). MIT press.

Cesa-Bianchi, N., & Lugosi, G. (2006). *Prediction, learning, and games*. Cambridge university press.

Session planning – Planification des séances

Distance learning – Enseignement à distance :

Distance learning can be provided when necessary by implementing:

- *Recorded lectures (videos)*
- *MCQ tests and other online exercises / assignments*
- *Remote (online) tutorials (classes)*
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En cas de nécessité, un enseignement à distance sera assuré en mobilisant:

- *Vidéo enregistrée de la présentation du matériel pédagogique*
- *QCM et exercices en ligne*
- *TP/TD à distance*