

## Feuille de route

### I. Présentation du cours :

**Intitulé du cours :** Merger and Acquisitions – Strategic Games  
**Nom de l'enseignant :** Professeur Eric de Bodt  
([www.edebodt.net](http://www.edebodt.net) – eric.debodt@univ-lille2.fr)

**Nombre d'heures :** 40 heures  
**Nombre de crédits :** 5 crédits  
**Année universitaire :** 2011-2012  
**Semestre du cours :** Semestre 1



### Promotion(s) d'étudiants concernée(s) :

- Master 2 – Chaire de recherche « Crédit Mutuel Nord Europe : Banking and Finance Advanced Program »

### II. Objectifs du cours :

The “Mergers and Acquisitions – Strategic Games” will propose a practical introduction to Game Theory and Auction Theory concepts. Students will learn, playing numerous games, to master fundamental game theory concepts such as rational choices, beliefs, actions profiles, equilibrium in the frame work of strategic games, with perfect and imperfect information. The emphasis will be on intuitions and results (proofs will be presented when allowing a better understanding of the concepts), with in particular applications in the fields of Auctions theory and Mergers and Acquisitions.

### III. Approches pédagogiques :

- Class lectures with exercises
- Readings
- Support : A set of more or less 200 slides are provided to the students and constitutes the main support of the lecture. Matthews (1995) and Dasgupta and Hansen (2007) papers are available as .pdf files
- Lecture language: English

### References

- Osborne, M.J., “An Introduction to Game Theory”, Oxford University Press, 2004.
- Steven A. Matthews, 1995., A Technical Primer on Auction Theory I: Independent Private Values, Discussion Papers 1096, Northwestern University, Center for Mathematical Studies in Economics and Management Science.
- Dasgupta, S., Hansen, R, 2007, "Auctions in Corporate Finance", in B. E. Eckbo (ed.), Handbook of Corporate Finance: Empirical Corporate Finance (North-Holland/Elsevier, Handbooks in Finance series), Chapter 3

#### **IV. Plan de cours :**

- 1 Introduction
  - 1.1 What is game theory?
  - 1.2 The theory of rational choice
  - 1.3 Coming attractions: interacting decision-makers
- 2 Nash Equilibrium Theory
  - 2.1 Strategic games
  - 2.2 Example: the Prisoner's Dilemma
  - 2.3 Example: Bach or Stravinsky?
  - 2.4 Example: Matching Pennies
  - 2.5 Example: the Stag Hunt
  - 2.6 Nash equilibrium
  - 2.7 Examples of Nash equilibrium
  - 2.8 Best response functions
  - 2.9 Dominated actions
  - 2.10 Equilibrium in a single population: symmetric games and symmetric equilibria
- 3 Nash Equilibrium: Illustrations
  - 3.5 Auctions
- 4 Mixed Strategy Equilibrium
  - 4.1 Introduction
  - 4.2 Strategic games in which players may randomize
  - 4.3 Mixed strategy Nash equilibrium
  - 4.4 Dominated actions
  - 4.5 Pure equilibria when randomization is allowed
  - 4.7 Equilibrium in a single population
  - 4.9 The formation of player's beliefs
  - 4.10 Extension: finding all mixed strategy Nash equilibria
  - 4.11 Extension: games in which each player has a continuum of actions
  - 4.12 Appendix: Representing preferences by expected payoffs
- 9 Bayesian Games
  - 9.1 Motivational examples
  - 9.2 General definitions
  - 9.3 Two examples concerning information
  - 9.6 Illustration: auctions
- 5. Extensive Games with Perfect Information: Theory
  - 5.1. Extensive games with perfect information
  - 5.2. Strategies and outcomes
  - 5.3. Nash equilibrium
  - 5.4. Subgame perfect equilibrium
  - 5.5. Finding subgame perfect equilibria of finite horizon games backward induction

## **V. Evaluation des enseignements :**

### **Pour un enseignement à 1 ou 2 crédits (un seul choix)**

- Test final d'une durée de 2 heures (100% de l'évaluation)
- Epreuve orale d'une durée minimale de 15 minutes (100% de l'évaluation)
- Travail par groupe sur un dossier (100% de l'évaluation)

### **Pour un enseignement de 3 à 5 crédits**

#### Première épreuve (un seul choix)

- Test intermédiaire d'une durée de 1 heure (1/3 de l'évaluation)
- Epreuve orale d'une durée minimale de 15 minutes (1/3 de l'évaluation)
- Travail par groupe sur un dossier (1/3 de l'évaluation)

#### Deuxième épreuve (un seul choix)

- Test final d'une durée de 2 heures (2/3 de l'évaluation)
- Epreuve orale d'une durée minimale de 15 minutes (2/3 de l'évaluation)
- Travail par groupe sur un dossier (2/3 de l'évaluation)

Student evaluations will be based on two written tests and one case application. The two written tests will emphasize concepts mastering and main results of game and auction theories. The case application will provide the opportunity to the students to try to use these main concepts and results as a reading grid to interpret real economic behaviors.