

## **ECGEB362 Risk, decision and strategy**

### **Syllabus**

#### **Administrative information**

**Instructor(s):** DECERF Benoît

**Quadrimester:** 2nd

**Number of credits and teaching hours:** 4 credits-30 hours

**Language:** English

#### **Learning outcomes**

This course is an introduction to the analysis of strategic interaction and uncertainty in economics and business. Its main objective is to equip students with economic tools to analyze, make predictions, and evaluate the situations with strategic interdependence between actors and/or uncertainty, and to motivate students to think about designing solutions when outcomes are inefficient in the absence of interventions.

#### **Content**

The first part of the course provides game-theoretic tools for analyzing strategic interdependence. We will analyze static and dynamic games of complete information, as well as some examples of repeated games. The second part presents basic tools for the study of uncertainty (expected utility framework), together with several market-based remedies to uncertainty: competitive insurance markets, risk pooling, hedging. The third part covers the analysis of situations with both strategic interdependence and uncertainty: moral hazard and adverse selection. In this part, we will also study solutions to these inefficiencies: principal-agent incentive contracts, signalling, and screening.

1 Introduction and the "road map". Efficiency. 2 Game theory 1: Games, representations, and equilibrium 3 Game theory 2: Dynamic games. Subgame perfection 4 Game theory 3: Games of repeated interaction. 5 Decision-making under uncertainty 6 Remedies to uncertainty: Insurance, risk pooling,

hedging. 7 Game theory 4: Static games with imperfect information 8 Game theory 5: Dynamic games with imperfect information 9 Hidden characteristics (adverse selection) 10 Remedies to adverse selection: Signalling and screening. 11 Hidden action (moral hazard) 12 Remedies to moral hazard: Incentive contracts.

### **Teaching methods**

The course is composed of 14 lectures (2 hours each). Some problem sets will be solved during the lectures, to consolidate the concepts discussed by the lecturer.

### **Evaluation**

The final exam is a closed-book 2h30 written exam, consisting on (i) exercises (problems) similar to those solved during the course and on (ii) theory questions.

Three voluntary take-home assignments are given during the course. The take-homes can be performed in small groups (max. 2 people). In the case that the grade obtained for the assignment is larger than 10 and better than the grade for the final exam, these take-homes count for 15% of the final grade.

### **Recommended readings**

An important part of the course is based on the textbook by Donald Campbell, *Incentives: Motivation and the Economics of Information* (2nd ed.), Cambridge University Press, 2006.