GRADUATE – Disciplines Menu
Doctorate and Masters in Economics

DISCIPLINE: Game Theory ACRONYM:	CODE: MDPTEC098
PROFESSOR: Sergio Ribeiro da Costa Werlang	WORKLOAD: 20h CREDIT HOUR: 2
MANDATORY: ☒YES ☐ NO	COURSE: ☐M ☒D ☐MD

PREREQUISITES:

Topics Needed for the Complete Exploitation of the Course

Choice Involving Risk; Games; Dominant and Dominated Strategies; Iterated Elimination of Strictly Dominated Strategies; Mixed Strategies; Nash Equilibrium; Existence of Nash Equilibria; Corollary: Existence of Nash Equilibria in Mixed Strategies; Games in the Extensive Form; Second Kuhn Theorem; Calculation of Perfect Equilibria in Subgames - The Backward Induction; Repeated Games; Definition;

Applications of the Backward Induction Principle: (1) The Prisoners' Dilemma Repeated a Finite Number of Times; (2) The Negotiation of Rubinstein; Repeated Games - Popular Theorems; Adverse Selection and Moral Hazard; The Sequential Rationality in Games of Imperfect Information; Sequential and Perfect Bayesian Equilibrium; Repeated Games of Incomplete Information: Reputation and Credibility.

CONCENTRATION AREA:
Economic Theory

STUDY PLAN

Course in Game Theory

Description

1. The course will have 9 classes, 1 test and 4 classes of monitoring.
2. There will be 4 exercise lists.
3. The exercise lists will be corrected in the monitoring class.
4. The exercise lists have a weight of 20%, and the test 80%.
5. We suppose the following topics are known.

An Introduction to Behavioral Economics and the Systematic Use of the Experimental Method in Economics through Knightian Uncertainty or Ambiguity

1st Class. Uncertainty - Individual Choice without Interdependence (1st Part)

Uncertainty x Risk. The Bayesian Model of Savage. Non-Bayesian Models. Allais, Ellsberg and Kahneman and Tversky. Individual Decisions under Uncertainty. The Models of Gilboa-Schmeidler. The Integral of Choquet. The Theorem of Rosenmüller-Schmeidler. Experimental Methods in Economics and Psychology. What Behavioral Economics is.

References: Knight (1921), Keynes (1921), Savage (1954), Allais (1953), Shackle (1955), Ellsberg (1961), Kahneman and Tversky (1979), Schmeidler (1982, 1986, 1989), Choquet (1953), Gilboa (1987), Gilboa and Schmeidler (1989) and Sarin and Wakker (1992).

2nd Class. Experimental Economics - Economics (Part I - Prof. Joísa Campanher Dutra)

Uses of Experiments: Public Assets, Negotiation Behavior (Information on Negotiation), Experiments in Auctions. Control of Incentives – Preferences with Monetary Utilities. Experiments of Risk X Uncertainty - Individual Choices.

References: Kagel and Roth (1995), Smith and Walker (1993), Smith and Walker (1997).

3rd Class. Experimental Economics - Economics (Part II - Prof. Joísa Dutra) and Psychology (Prof. Eduardo Bittencourt Andrade)

Continuation of the Previous Class. Protocols of Experiments in Psychology and their Differences to the Economy. Examples in Marketing.

References: Kagel and Roth (1995), Smith and Walker (1993), Smith and Walker (1997). Others will be chosen later.

4th Class. Uncertainty - Individual Choice without Interdependence (2nd Part)

Relations between the Models of Gilboa and Schmeidler. Model of Bewley. Other Uncertainty Models. Choice of Portfolio under Uncertainty. Definitions of Aversion to Uncertainty.

References: Gilboa (2009), Bewley (2002), Hurwicz (1951), Klibanoff, Marinacci and Mukerji (2005), Hansen and Sargent (2004), Chateauneuf and Faro (2009), Maccheroni, Marinacci and Rustichini (2006), Dow and Werlang (1992a), Simonsen and Werlang (1991), Ghirardato and Marinacci (2002) and Chateauneuf and Ventura (2010).

5th Class. Uncertainty - Individual Choice without Interdependence (3rd Part)

Individual Decisions under Uncertainty. Rules of Revision (Updating). Dynamic Consistency and Consequentialism. Theorem of Ghirardato. Independence. Definitions of Support. NEO-additive Preferences. Empirical Evidence.

References: Ghirardato (2002), Gilboa and Schmeidler (1993), Jaffray (1992), Cohen, Gilboa, Jaffray and Schmeidler (2000), Dominiak, Dürsch and Lefort (2012), Marinacci (1999).

6th Class. Uncertainty - Individual Choice without Interdependence (4th Part)

Other Applications of the Individual Decision.

References: Dow and Werlang (1992b), Epstein and Wang (1994), Nishimura and Ozaki (2004, 2007), Asano Okudaira and Sasaki (2015), Caballero and Krishnsamurthy (2005), Miao (2003), Epstein and Schneider (2007), Castro and Chateauneuf (2011), Rigotti and Shannon (2005, 2012) and Routledge and Zin (2009).

7th Class. Knightian Uncertainty – Games – Theory

Experimental Evidence: Nash equilibria are not played. Nash Equilibrium under Uncertainty.

References: Axelrod (1981), Neelin, Sonnenschein and Spiegel (1989), Spiegel, Currie, Sen and Sonnenschein (1994), Goeree and Holt (2001), Dow and Werlang (1994), Marinacci (2000), Eichberger and Kelsey (1996 a), Eichberger and Kelsey (2014).

8th Class
Knightian Uncertainty – Games – Empirical Evidence and Applications; Explaining the Anomalous Experimental Results with Uncertainty. Provision of Public Asset.

References: Eichberger and Kelsey (2002), Kilka and Weber (2001), Eichberger and Kelsey (2011), Le Roux and Kelsey (2015), Eichberger, Kelsey and Schipper (2008), Eichberger and Kelsey (1996b).

9th Class
Knightian Uncertainty – Games – Applications. Other Applications: Moral Hazard, Partnerships, Auctions, Cournot, Negotiation, Rational Expectations,

References: Lopomo, Rigotti and Shanonn (2011), Kelsey and Spanjers (2004), Levin and Ozdenoren (2004), Werlang (2000), Boff and Werlang (1998), Dow, Simonsen and Werlang (1993).

10th Class
Test.

GOALS
The course aims to introduce students to non-Bayesian models of uncertainty and experimental methodology. It is an introduction to behavioral economics, through uncertainty modeling and its applications both to games and individual decision problems.

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