CAS EC513(A1) **Boston University**
Game Theory **Spring 2026**

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OFFICE HOURS: (IN PERSON) W 3:30-5 PM & TH 5:30-7 PM RM.309, 270 BAY STATE RD.
(REMOTE) TH 5:30-7 PM ONLINE VIA ZOOM
(Web link to online office hours will be provided on the course website.)

LECTURES: W 6:30 - 9:15 PM SSW 315

TEXT: Martin J. Osborne, ***An Introduction to Game Theory***, Oxford University Press 2004
REFERENCES:
1. Martin J. Osborne & Ariel Rubinstein, ***A Course in Game Theory***, MIT Press 1994
(The full text of this book can also be accessed for free at http://theory.economics.utoronto.ca/books/. You must register and observe the authors' terms of usage.)
2. Robert Gibbons, ***Game Theory for Applied Economists***, Princeton University Press 1992

GRADE: Exam1 [40%] + Exam2 [60%] **No make-up exams will be given.**
(Coverage, format and logistics of the exams will be announced in class and on the course website.)

COURSE DESCRIPTION: The origins of modern game theory and its application to economics can be traced back to the 1830's, when the mathematician Antoine Augustin Cournot wrote his now famous model of duopoly, but for a century its development was fitful and slow. After the appearance of John von Neumann and Oskar Morgenstern's 'Theory of Games and Economic Behavior' in 1944, interest and research in the subject underwent a phase of rapid and extensive growth. It is now regarded by economists and social scientists as a central theory of human strategic interaction, and in recent years it has even entered the conversations of an educated public.

In this master's level course, we will study the logical and analytic underpinnings of game theory, as well as its economic applications. From the rigorous formulation of models of interaction and the concept of strategies, we will move on to the positive and normative assertions of game theory – Nash Equilibrium, Iterated Deletion of Dominated Strategies, Rationalizability, Sub-game Perfection, Evolutionary Stability etc., and examine assumptions about human decision and social institutions that may support these assertions. Many of these ideas have been motivated by economic phenomena, which still provide the best illustrations of game theory as well as inspirations for game theorists.

It is also well known that game theory frequently makes predictions which appear to be at odds with observed human behavior, whether seen in natural settings or deliberate experiments. We will discuss some of these findings, and may occasionally engage in experimentation ourselves. However, even when we feel that game theory fails to deliver empirically sound predictions or prescriptions, a useful way to understand why it may be so is to scrutinize its assumptions and logic as closely and deeply as we can.

The student is assumed to come equipped with basic knowledge of economic theory and mathematics (including some calculus and probability theory), but most important of all is his/her ability and willingness to think clearly and logically.

COURSE SCHEDULE: See attached.
COURSE WEBSITE: http://learn.bu.edu/ (BLACKBOARD)

ACADEMIC CONDUCT:
It is the student's responsibility to read, understand and observe the University's *Academic Conduct Code*. (For graduate students: https://www.bu.edu/cas/files/2017/02/GRS-Academic-Conduct-Code-Final.pdf; for undergraduates including BA/MAs: https://www.bu.edu/academics/resources/academic-conduct-code/). Cases of suspected misconduct will be referred to the appropriate University authorities. Furthermore, acts of plagiarism or cheating will be penalized with failing grades.

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COURSE SCHEDULE Details of this schedule are subject to change. Registered students can log into the course website at https://learn.bu.edu/. You should visit this website frequently to get the latest course schedule, check announcements, obtain class material and verify your personal grading record. Recordings and notes from the lectures will also be posted there.

♦ LECTURE and READING are complements rather than substitutes. To do well in this course, you must understand both thoroughly. Readings from the TEXT are given in this schedule. Additional reading will be assigned or suggested from time to time.
♦ HOMEWORK problems will be assigned from time to time in relation to the progress of the course. Although they will not be collected and graded, working through practice problems is essential for mastering the course material and preparing for the exams. SOLUTIONS to the exams and some homework problems will be posted on the course website, and we may devote some time in class to solving problems. But you will not benefit from the solutions until you have worked seriously on the problems.
♦ EXAM dates are given below. The two exams will test your comprehensive understanding of the course material up to the time of the exam.

DATE	LECTURE	READING
W1/21	**Modeling Strategic Interactions:** **Strategic (Normal) Form Games with Complete Information** Nash Equilibrium and the Problems It Raises	Chapters 1, 2, 3
W1/28	Cournot & Bertrand Models of Oligopoly Strategic Substitutes vs. Strategic Complements	
W2/04	Mixed Strategy and Nash Equilibrium in Mixed Strategies Existence of Nash Equilibrium	Chapter 4
W2/11	**Extensive Form Games with Complete and Perfect Information** Backward Induction and the Problems it Raises	Chapters 5, 6, 7
W2/18	Zermelo's Theorem and the Game of Chess Centipede Game & Chain Store Paradox Rubinstein Bargaining Model and Subgame Perfect Equilibrium	Chapter 16 Section 16.1 (Sec.16.2-4 are of related interest but not part of the course)
W2/25	**Reprise: Strategic (Normal) Form Games with Complete Information** Iterated Deletion of Dominated Strategies Maximin and Rationalizable Strategies	Chapters 11, 12
W3/04	**Strategic (Normal) Form Games with Incomplete Information** Decision under Uncertainty and Statistical Inference Bayesian Nash Equilibrium	Chapter 9
W3/11	*<No Class: Spring Recess>*	
W3/18	Applications of Bayesian Nash Equilibrium, Correlated Equilibrium	
W3/25	**EXAM 1**: covers course material through 3/18	

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DATE	LECTURE	READING
W4/01	**Extensive Form Games with Imperfect or Incomplete Information** Sequential Rationality and Inference about the Past Perfect vs. Imperfect Recall Perfect Bayesian Equilibrium Signaling and Screening in Labor Markets Reputation in Repeated Interactions & Monetary Policy Cheap Talk, Persuasion & Debate	Chapter 10
W4/08	**Evolution of Behavior and Belief** Population Dynamics and Evolutionary Stability	Chapter 13
W4/15	**Repeated Games** Inter-temporal Preference and Decision Reward, Punishment and Cooperation Subgame Perfect Equilibrium and Recursive Strategies	Chapters 14, 15
W4/22	*<No Class: Substitute Monday Schedule>*	
W4/29	**Social Norms** Mutual Sanction vs Third-Party Sanction Subgame Perfect Equilibrium Payoffs and Strategies	
W5/06 <6-8pm>	**EXAM 2**: covers material from the whole course	

*Final exam schedule is subject to confirmation or change by the University Registrar's official announcement later in the semester.