Syllabus: Probability and Game Theory B

WEEK ONE

DAY	TOPICS	ACTIVITIES
1	Introduction to Probability Game Theory Overview	Yahtzee Class Lottery
2	Probability: Expected Value 2-Person - 2 Strategy Zero-Sum Games: 　Dominance, Mixed Strategies Permutations and Combinations	Matching Pennies
3	2-Person - N strategy Zero-Sum Games: 　Dominance, Saddle Points, Mixed Strategies Anchoring and Bargaining Probability Using Permutations and Combinations	Pigs and St. Petersburg games
4	Mixed Strategies and Unpredictability 2-Person Zero-Sum Games: 　Application: The Problem of Free Will Application: Jamaican Fishing Bayes' Rule	Mixed strategy games.
5	2-Person Zero-Sum Games: 　Game Trees Bayes' Rule, continued First Auction	Anchoring game Advantage Gambling talk

WEEK TWO

DAY	TOPICS	ACTIVITIES
6	2-Person Non-Zero Sum Games: Nash Equilibria, Non-Cooperative Solutions Utility Theory Application: Evolutionarily Stable Strategies	Prisoner's Dilemma Battle of the Sexes Chicken Stag Hunt
7	2-Person Non-Zero Sum Games: Prisoner's Dilemma, continued Rationality experiments discussion	Midterm Test Dollar Auction Cows game Iterated Prisoner's Dilemma
8	2-Person Non-Zero Sum Games: Coordination games, Iterated PD	Movie: *Thirteen Days* Axelrod tournament prep

9	N-Person Games:
	  Introduction
	  Voting Methods
	Game Theory applications: project prep
	Second Auction
		Voting simulations
		Axelrod prep
		Projects

10	N-Person Games – Cooperative Solutions: Fair Division (Continuous)	Project prep Private island division

WEEK THREE

DAY	TOPICS	ACTIVITIES
11	N-Person Games – Cooperative Solutions: Fair Division (Discrete)	Projects *Birthday* Problem

12	N-Person Games:
	  Auctions
	  Strategic Voting
	  Voting Power
		Coalitions

13	N-Person Games Apportionment, Auctions Application: NFL Draft	Axelrod Tourney NFL Draft simulation
14	Final Exam Risk Tournament	A Beautiful Mind Final exam
15	Wrap-up	Final auction

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