

Econ 3542: Experimental and Behavioral Economics
Exam #1 Review Questions

- **Chapter 1 (Intro)**
 - Briefly describe the early history of market experiments.
 - Suppose you design an experiment to examine the effects of communication (i.e., communication or no communication) on players in a simple game. You run 10 experiment sessions with 16 subjects per session, and in all cases Treatment 1 is the communication treatment, and Treatment 2 is the no-communication treatment. What problem do you see with this design?
 - Why do context-laden experiments (as opposed to using neutral-language in instructions and setup) run the risk of loss-of-control to the experimenter?
- **Chapter 2 (Pit Market)**
 - Describe two different market institutions (and what we mean by “institution” in this context)
 - Setup the parameters for a market experiment if you will have 3 buyers, 3 sellers, and you want to have a predicted equilibrium price of \$10 and quantity traded of $Q^*=6$. Draw this market setup. (hint: you need to decide what buyer values and seller costs to use, and how many units each buyer and seller can trade).
- **Chapter 3 (simple games)**
 - Define “dominant strategy”, “dominant strategy equilibrium” and “Nash equilibrium”.
 - Design a simple two-strategy simultaneous move game that has a (pure strategy) Nash equilibrium, but no dominant strategies for either player.
- **Chapter 4 (risk and decision-making)**
 - Use a simple graph of one’s utility function to show how diminishing marginal utility (i.e., a concave utility function) results in risk averse behavior.
 - Does it matter if we use hypothetical or real payoffs (or high or low payoffs) in experiments? (You can answer this specifically for risky choice experiments, but it is an important question for any experiment really).
- **Chapter 5 (games with randomized strategies)**
 - Consider the payoff matrix below that one could use to describe the final penalty kick during the shootout that determined the winner of the 1999 Women’s World Cup (the U.S. won, by the way).

		U.S. Kicker	
		Kick to Goalie’s right	Kick to Goalie’s left
Chinese Goalie	Dive to the right	0 , 0	-10 , 10
	Dive to the left	-10 , 10	0 , 0

Show that there is no pure strategy Nash equilibrium in this game, and calculate the mixed-strategy (i.e., randomized) equilibrium. Draw the reaction functions that graphically depict the mixed-strategy equilibrium (you’ll notice that, fundamentally, this is nothing more than a game of matching pennies).

- Without doing any calculations (they would be real hard!), use intuition to describe what the mixed-strategy equilibrium is for the game of rock-paper-scissors.
- **Chapter 6 (Monopoly and Cournot)**

- How can we evaluate the efficiency of Monopoly market experiment outcomes? Does this efficiency tell us about the “fairness” of the outcomes?
- Suppose you want to design a Cournot experiment (i.e., 2 seller market). If you set it up so that market demand is $P=12-Q$ (P is market price, and Q is the market quantity determined by both firms’ production, or $Q=q_1+q_2$), and each firm has marginal cost equal to 2. What are the reaction functions of each firm? (hint: because $MC=2$ for both firms, the reaction functions will be symmetric). What is the predicted Cournot outcome?
- **Chapter 8 (Market Power)**
 - Think about three somewhat distinct experiments that could all be used to examine the general issue of market power (think about “games” too)
 - Suppose a market experiment is designed so that the number of sellers is small relative to the number of buyers. What type of trading institution might you use for the experiment, and why?
 - What results related to price convergence paths have market experiments shown when the elasticities of supply and demand differ greatly (i.e., the design of supply and demand is “unbalanced” in some sense)?
- **Chapter 11 (Asset Markets)**
 - Describe the difference between a “rational” versus an “irrational” asset market price-bubble.
 - Graph the design of a 5-round asset market experiment where there is no redemption value for shares held at the end of round 5 (they’re worth zero). In each round, however, a dividend is drawn at the end of each round and will pay either a high (\$2.00) or low (\$1.00) dividend for each share a trader holds. There is a 50% chance that either high or low dividend will be drawn, so the *expected* dividend is \$1.50 per share in each round (the dividend draw occurs in round 5 also). Show the fundamental value of each asset share in your graph, along with the rational vs. irrational bubble boundary.