Experiment Instructions

This is an experiment in the economics of market decision making. If you listen and follow the instructions carefully, you may earn a considerable amount of money that will be paid to you in cash at the end of the experiment. The Ohio State University has provided the funds to be used in this experiment.

You may not write during the experiment unless you are specifically told to do so in the instructions. It is also important that you not communicate with other participants during the experiment. If you have questions or need assistance of any kind, please raise your hand and an experimenter will come to you. If you write when it is not allowed, talk, laugh, exclaim out loud, etc., during the experiment then you will be asked to leave.

A Note on Payoffs

In this experiment the average payoff is calibrated to be around $22; however, it is possible that some participants will earn around $50 and some will earn nothing. Anyone who earns less than $6 in the experiment will be paid a fixed amount of $6 for their time, so you are guaranteed at least $6 if you participate. As stated in the consent form, your participation is entirely voluntary; if you are not willing to take this risk, you are free to leave at any time in exchange for a $6 show-up fee.

THE EXPERIMENT

This experiment has two stages. We describe each below. At the end of the experiment you will be paid based on your performance in both stages.

STAGE 1

You will first participate in a sequence of computerized tests. Each test consists of one or more questions that have only one correct answer. Your score in each quiz will range from 0 (worst) to 10 (best) points. Your final score will be the average score across all quizzes, so again it will be from 0 to 10 points. You will receive $1 per point, so a perfect score on all quizzes pays $10.00, while getting every question wrong pays $0.00.

STAGE 2

The remainder of the experiment consists of ten different two-player "games". In each game you will be matched with another person in the room. The details of how you are matched will be explained later.

Each game represents a "decision situation" in which you and another person (who may be different in different games) separately and independently make decisions from a list of possible choices. Each possible pair of choices by you and the other person then leads to a monetary payoff for you and for the other person. At the end of the experiment you will be paid based on your monetary payoff from each game. Neither your choices

nor the choices of the other person in a game will affect how you or the other participants are matched in other games or the decision situations they face in the experiment.

TABLE GAMES

The first four games will be presented in a table format. The following is a simple example of a game in table format:

	L	R
U	2 , 2	0 , 3
D	3 , 0	1 , 1

In this example, you can choose a row of the table ("U" or "D") and the other person chooses a column ("L" or "R"). The pairs of numbers in the cells correspond to the actual payoffs to you and the other person based on both of your choices. The first number represents your payoff (in dollars) and the second number represents the other person's payoff. So, for example, if you choose "U" and he/she chooses "R" then the payoffs are "0 , 3", meaning you earn $0 and he/she earns $3. If you choose "U" and he/she chooses "L" then the payoffs are "2 , 2", meaning you both earn $2.

Note that you and the other person will be making your choices at the same time; you will only find out your actual payoff at the end of the experiment when we calculate your earnings for all of the games.

For each game the computer will provide a "calculator" that will let you figure out how much you and the other person earn for different combinations of possible choices. This is used only to help you with hypothetical calculations; you will not know the actual choice the other person will make when you work with the calculator and make your choice.

Also, you will actually play each game matched with **three** different persons in the room. The first person will be a randomly-selected other participant. The second person will be the person in the room (other than you) who scored *highest* on the quizzes from Stage 1. The third person will be the person in the room (other than you) who scored *lowest* on the quizzes from Stage 1. If you want, you may choose different strategies when playing against these three different people.

For simplicity, let's call these three choices your "ChoiceVsRandom", your "ChoiceVsHigh", and your "ChoiceVsLow". The computer will randomly match the players into groups of two in each game; however, you will not see the identity of the person with whom you are matched in each game.

For example, suppose there are four participants, called Person A, Person B, Person C, and Person D. Suppose A is randomly matched with D and B is randomly matched with C. Also suppose A scored the highest on the quizzes, B scored the second-highest, C scored third-highest, and D scored the lowest.

Each player earns a payoff from each of his three decisions. In this example, to calculate B's payoff from his ChoiceVsRandom, we compare that choice to C's ChoiceVsRandom

(since B and C were randomly matched). To calculate B's payoff from his ChoiceVsHigh, we compare that choice to A's ChoiceVsRandom (since A scored the highest on the quizzes). To calculate B's payoff from his ChoiceVsLow, we compare that choice to D's ChoiceVsRandom (since D score the lowest on the quizzes). Note that in all three cases we use the other person's ChoiceVsRandom to determine B's payoffs.

Now consider Person A. His payoff from his ChoiceVsRandom is determined by comparing it to D's ChoiceVsRandom (since they were randomly matched). His payoff from his ChoiceVsHigh is determined by comparing it to B's ChoiceVsRandom (since B scored the highest among everyone *excluding* A). His payoff from his ChoiceVsLow is determined by comparing it to D's ChoiceVsRandom (since D scored the lowest). Again, the other person's ChoiceVsRandom is used to determine A's payoffs.

Note that the computer does not inform players of their score (or of anyone else's scores) on the tests, so Person A does not know that he has the highest score and Person D does not know he has the lowest score. And players are not told the identity of the other player with whom they are randomly matched.

LIMIT-TARGET GAMES

The last six games are presented in the following form:

	Lower Limit	Target	Upper Limit
Your Limits & Target:	400	0.8	600
His/Her Limits & Target:	200	0.8	800

In the final 6 games you will be matched with three other persons in exactly the same way as in the previous four games, playing randomly-selected person, the highest-scoring person, and the lowest-scoring person. The following instructions describe how your payoffs are computed for each of these matches.

In these games you are given an interval, defined by a lower limit and an upper limit, and a target. You then pick any number in your interval (between the lower and upper limits), called your "guess". The person with whom you are matched will also make a "guess" that's between their lower and upper limits.

In each match, we take the other person's guess, multiply it by *your* target, and measure how close your guess is to that number. For example, if the other person's guess was 600 and your target is 0.8, then we measure how close your guess is to 600*0.8=480. If you guessed 450 then your guess was "off" by 30. We call this number the "error" in your guess.

We also calculate the "error" in the other person's guess. If their target is also 0.8, then we measure how close their guess (600) is to from your guess times their target (450*0.8=360). In this case, their error is 240.

You will be paid for this game based on how small your error is, and smaller errors mean larger payoffs. Only the absolute error matters, **not** whether the difference between your guess and your target times his/her guess is positive or negative. You have the same error when your guess is too high by a given amount as when it is too low by the same amount.

Specifically, if your error is some number E then your payoff in dollars will be:

$$15 - (11/200)\,E \qquad \text{if } E \le 200$$
$$5 - (1/200)\,E \qquad \text{if } E > 200 \text{ and } E \le 1000$$
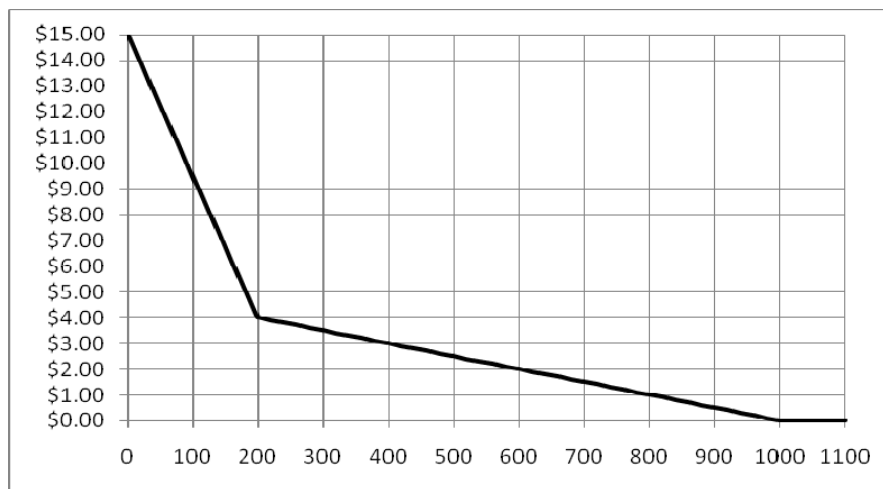$$0 \qquad\qquad\qquad \text{if } E > 1000$$

In the above example your error was 30. Thus, you would earn
$$15 - (11/200)*30 = 15 - 1.65 = \$13.35.$$
The other person's error was 240, so they would earn
$$5 - (1/200)*240 = 5 - 1.20 = \$3.80.$$

A graph of your payoff for each possible error E is given below. Note that larger errors mean smaller payoffs. Your maximum payoff in one match is $15 and your minimum payoff is $0.

To help your understanding, let's work out another example. Suppose the limits and targets are given by the following table:

	Lower Limit	Target	Upper Limit
Your Limits & Target:	400	1.3	1000
His/Her Limits & Target:	200	0.8	600

Suppose you guess 800 as your ChoiceVsRandom and the person with whom you're randomly matched guesses 500. Your error is then:

$$800 - 1.3*500 \ = \ 800 - 650 \ = \ 150$$

and so you would earn:

$$15 - (11/200)*150 = 15 - 8.25 = \$6.75$$

The other person's error is:

$$500 - 0.8*800 \ = \ 500 - 640 \ = \ -140 \ \text{(which is the same as +140)}$$

and so they would earn:

$$15 - (11/200)*140 = 15 - 7.70 = \$7.30$$

In the experiment, the computer will provide a link to a calculator that you are free to use to help you with calculations. This is used only to help you with hypothetical calculations; you will not know the actual guess of the other person when you work with the calculator and make your guess.

FINAL PAYOFFS

At the end of the experiment, you will be paid based on two things: Your earnings on your quizzes and your earnings on **FOUR** of the games you played.

To calculate your earnings from 4 of the games, we take all three matches from all ten games and calculate the 30 different payoffs that you earned. We then randomly draw 4 of those payoffs and pay you those 4 earnings. Each game and each match is equally likely to be drawn, so you will not know until the end of the experiment which 4 matches will be used to calculate your payoffs.

We will add these three payoffs together and pay them to you in cash at the end of the experiment.

You need to sign & date the consent form before participating, and you will need to sign & date a payment receipt form upon being paid. If any details are not clear, please raise your hand and the experimenter will answer your questions.