"Taking a course in experimental economics is a little like going to dinner at a cannibal's house. Sometimes you will be the diner, sometimes you will be part of the dinner, sometimes both." (Bergstrom and Miller)

Important “rules” for an economic experiment:

1. No Deception:
   Anything you tell subjects in an experiment is true. In psychology, many experiments use deception (think of the famous Milgram experiment). In Economics, experiments that use deception have a very tough time to get published nowadays. The main argument, is that we want to retain control about what participants in an experiment think is going on. So, not lying to subjects in an experiment is like a public good.

2. Monetary Incentives
   Almost all experiments provide monetary incentives for participants.
   - This is how you get people to participate in the experiment
   - To provide incentives to take the rules of the experiment seriously.
   - Often, we want to make sure that different behavior results in reasonable enough monetary differences in payments.
Market Rules—double auction

1. Buyer period profit = Value - Price.  
   Seller period profit = Price - Cost.

2. All buyers and sellers will be paid for one randomly chosen trading period.

3. Each trading period will last for 3 minutes (initially; auctioneer can make adjustments as required).

4. Sellers can make asks or accept bids after being recognized by the auctioneer. Sellers must state their seller number and price asked or accepted.

5. Buyers can make bids or accept offers after being recognized by the auctioneer. Buyers must state their buyer number and price offered or accepted.

6. Only the lowest offer and highest bid will be active. New offers and bids must be improvements on active offers and bids.

7. No losses are allowed (you can’t sell at below cost or buy at above your value).

8. When an offer or bid is accepted, active offers and bids are erased and any new offers or bids are accepted.
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<th>buyer #</th>
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The following figure was made for those values, in class, we had to truncate the values a bit..:-)
Supply and Demand Schedule for the Double Auction

Equilibrium price: [30,35], Equilibrium Quantity: 8

“Zero intelligence” traders randomly generate bids or asks, with a transaction resulting if their bids cross (at the mean price in that case). Transactions cancel all previous bids, and traders leave the market after transacting for one unit.

ZI traders “with a budget constraint” are not allowed to generate bids or asks that would cause them to take a loss; i.e. buyers must bid below their value, and sellers must ask above their cost.
Fig. 1.—Demand and supply functions and transaction price time series (market 1)
This shows that the market rules can be very powerful in terms of guiding behavior, and reducing the effects of mistakes by zero-intelligence traders…

Such issues are important, when we think of designing markets, where maybe not all participants are as sophisticated as they are in our models.

Experiments can provide test beds for designs, and have done so, recently for example in the design of the Spectrum Auctions.

An even older experiment, that shows the importance of institution in determining market outcomes
This long and important line of research was initiated by

Chamberlin, Edward H. [1948], An experimental imperfect market,” Journal of Political Economy, 56, 95-108,
which introduced the design of laboratory markets with controlled supply and demand.

He investigated a decentralized market in which subjects walk around the room and bargain in pairs or groups. Once a pair reaches an agreement, they leave the market.
Chamberlin introduced the idea of inducing supply and demand: here, equilibrium price = 56-58, quantity=15
Chamberlin found “No tendency for prices to move toward equilibrium during the course of the market.”

Of course, after each trade, the remaining supply and demand curves shift as traders leave the market, so he graphed the “moving equilibrium.”
The most influential substream of this work began with Smith’s demonstration of competitive equilibrium outcomes in repeated double auctions:


“The design of my experiments differs from that of Chamberlin in several ways. In Chamberlin's experiment the buyers and sellers simply circulate and engage in bilateral haggling and bargaining until they make a contract or the trading period ends. As contracts are made the transaction price is recorded on the blackboard... Each trader's attention is directed to the one person with whom he is bargaining, whereas in my experiments each trader's quotation is addressed to the entire trading group one quotation at a time. Also Chamberlin's experiment constitutes a pure exchange market operated for a single trading period. There is, therefore, less opportunity for traders to gain experience and to modify their subsequent behavior in the light of such experience. It is only through some learning mechanism of this kind that I can imagine the possibility of equilibrium being approached in any real market."
About this latter difference Smith further notes (p115):

"One important condition operating in our experimental markets is not likely to prevail in real markets. The experimental conditions of supply and demand are held constant over several successive trading periods in order to give any equilibrating mechanisms an opportunity to establish an equilibrium over time. Real markets are likely to be continually subjected to changing conditions of supply and demand."

Smith and his colleagues showed that for a wide range of supply and demand schedules, the double auction tended to quickly converge in repeated markets to the competitive equilibrium price and quantity.