

This is a “quick and dirty” set of instructions on how to get started. We are working on an improved set of instructions.

### **Installing the programs**

There are two different programs: CPRMonitor and CPRSubject. CPRMonitor is for the instructor. It lets you set up a few parameters and observe what’s going on during the experiment. CPRSubject is the program that the students will use.

I’m assuming you have WinZip. If not you’ll need to download it for free from <http://www.winzip.com/>.

Double click on CPR25.zip. Extract all the files to a folder on your computer. (To “extract” either click on the extract button, or press SHIFT + E. When you’re done there should be 3 folders copied to your computer. You can now delete CPR25.zip (although you might want to keep it for a while, just in case...)).

You need to install each of the two programs separately, but the process is the same. Make sure you quit all applications. To install the Monitor, open the “Install CPRMonitor 2.5” folder. Click on Setup.exe and follow the onscreen instructions. An install program should start. Repeat the process for the subject program by opening the “Install CPRSubject 2.5” folder and clicking on Setup.exe. Assuming the computers are on a local area network, when the install of both programs is complete, you should be able to run the experiment.

Once installed, to run the programs, use the “START” button on the lower left corner of your computer screen, go to “PROGRAMS”, then “CPR EXPERIMENT”. There should be two icons: “CPRMonitor 2.5” and “CPRSubject 2.5”. Select the former to run the monitor, and select the latter to run the subjects.

When you are running experiments, you’ll need one computer for each person. But for testing, it is possible to have all 8 subjects + 1 monitor running on a single computer, assuming you have enough memory (I don’t know what “enough” means, it works on my computer which has an Intel Pentium II 300 mhz processor with 128 MB RAM). I’m writing these instructions assuming that there is one group of 8, plus one monitor, so there are 9 computers.

A single monitor can handle multiple groups of 8, and is able to have some of the 8 as robots. Each of the groups connected to the monitor will face identical treatments (i.e. number of rounds of monitoring or communication or whatever). If you want two groups to have different treatments (say one with monitoring and one with communication), then you will need two monitors running on separate computers.

I’ve done some simple testing with 2 groups of 8 and it seems to work ok. I assume that a few more groups would be fine. In theory, the program can handle any number of groups, but I suspect there may be a memory or network constraint at some point.

## **Configure the Monitor**

First, launch the monitor program and set the parameters you want. The Server ID maps the subjects to the monitor. If everyone in the room is going to face the same treatment, then you only need one monitor. For convenience, set ServerID to 1. If there are multiple treatments, the second monitor would be 2. For now, let's assume that there's only one monitor (ServerID=1).

Set the number of groups and number of rounds. There should not be a limit to number of groups or rounds. You can also set an exchange rate if you want to pay people in cash.  
Exchange rate = E\$ / US\$.

Specify which rounds you want for monitoring and for communication. The program will allow these rounds to overlap if you want, so you can have both monitoring and communication simultaneously. If you do not want to use these treatments, set "begin" and "end" to zero. You can have these treatments in any sequence.

Some examples (assuming a total of 20 rounds):

### **A. Traditional CPR with no monitoring or communication**

# Rounds = 20  
Begin Monitoring = 0  
End monitoring = 0  
Begin Communication = 0  
End Communication = 0

### **B. 10 rounds traditional CPR, then 10 rounds with monitoring**

# Rounds = 20  
Begin Monitoring = 1  
End monitoring = 10  
Begin Communication = 0  
End Communication = 0

### **C. 10 rounds traditional CPR, then 10 rounds with communication**

# Rounds = 20  
Begin Monitoring = 0  
End monitoring = 0  
Begin Communication = 1  
End Communication = 10

### **D. 10 rounds traditional CPR, then 5 rounds with monitoring only, then 5 rounds with communication only**

# Rounds = 20  
Begin Monitoring = 11  
End monitoring = 15  
Begin Communication = 16  
End Communication = 20

**E. 5 rounds traditional CPR, then 5 rounds with regulation only, then 5 rounds with both regulation and communication, then 5 rounds communication only**

# Rounds = 20

Begin Monitoring = 6

End monitoring = 15

Begin Communication = 10

End Communication = 20

Once you have the parameters chosen, click on the green “Begin experiment.” Once you click on the button, you cannot change the parameters without restarting the experiment.

**Other comments about the monitor**

Once you click “begin experiment” a few more things will show up on the monitor screen.

Near the top left, a frame labeled “Experiment Info” appears. The experiment ID is essentially the date and time the monitor was started. It should be unique for each experiment, and it is used for naming the data files.

At the bottom is a table that will let you follow along with the results. It’ll give you the status of each person and what they’ve decided. Click the green “go” button to change between groups.

You can pause the experiment (perhaps you want to make an announcement) by click the pink “pause” button. When you click this, the subject screens will freeze and people cannot do anything until you click “resume”.

At the end of the experiment, click “end subjects” to terminate all the subject programs. “End monitor” will terminate the monitor program. The program automatically saves the data, so you do not have to worry about that.

The message log is not important, it just lets me keep track of all network messages, mostly for debugging. I’ll probably get rid of it for any final version that we distribute.

**Connect the subjects**

Bring up the subject program on each computer. Remember that the monitor requires that there be 8 subjects running for each group, even if some of the subjects are “robots.”

You will see a screen with “Connection Status”=not connected, “Server ID” and “Human or Robot”. Select the Server ID to match the Server ID on the monitor (for one monitor only, just set ServerID=1). Set “human or robot”. For testing, I’ve found it helpful to have maybe 2-3 “humans” and the rest robots. Click on “Connect.”

Assuming that the network connection is working ok, you should come to a new screen. If the connection is not working, you will stay where you are with “Connection Status”=not connected. Usually, I would go around to each computer, and get each computer this far. Then when students come into the room, they see the screen asking for them to input their name.

I still give students the instructions and payoff table on paper – they are not included in the program. For class, I have students read the instructions beforehand to save time. I ask them not to discuss the instructions amongst themselves.

### **For humans**

If the subject will be a human, the new screen will ask for name and social security number. These fields are required (if necessary, for you I can change SSN to ID number or just delete it, let me know). Or you just have people put in anything, like 999999999. Click submit.

### **For robots**

Select the type of robot. The screen explains the different types. I'm open to ideas for other types of robots. Anything is ok, as long as I can convert the decision rule into some sort of an equation or logical statement. Click submit.

You should see a "please wait" message. The experiment will automatically start once everyone has submitted his/her name.

Once the experiment starts, the robots will automatically submit their bids based on the decision rule. Humans will need to enter the number of months (0-8), and click submit. The program should check for valid entries, so people should not be able to enter 9 months. Subjects are told to wait. Once everyone has submitted their decision, the results will be displayed.

Notice that subjects get a summary of the results from last round in the lower left corner. There is also a table in the upper right that keeps track of the results from all previous rounds. Once they've reviewed the results, subjects should click the green "Proceed to next round" button. The next round will automatically start once everyone has clicked on the button. (If nothing is happening, make sure everyone has clicked the button).

Notice that the monitor has a spreadsheet that lets you follow what is happening for each group. Also, to make life easy, rather than track total earnings, I track average earnings. I do this so calibrating an exchange rate is not dependent upon the number of rounds (as it would be if I used total earnings).

Essentially, that's it. The only difference is what happens for the two treatments which are discussed next.

### **Monitoring**

The rules are the same as in your paper, 1/16 chance of monitoring with a E\$100 per month penalty.

Prior to the start of the first round with the regulation/monitoring in effect, the subjects will have the new rules displayed on the screen. When they are finished reading, click on the green "finished reading" button. The program will continue once everyone has clicked on this green button. (The robots automatically click on this button). Note that on the monitor program you can see who is still reading and who is finished. The detailed rules only show the first time, but the rules summary table is displayed for all rounds in which the rules are in effect.

Once everyone has decided, the results from last round are displayed. Notice that there is now an extra box that tells everyone which person was monitored (subject number, not name). If no one was monitored, the box will show “none”. If you are the person monitored, another box pops up telling you that you were monitored and how much of a penalty you incurred. This is also recorded in the monitor. If it shows monitored=0, that means no one was monitored.

It’s possible that the monitoring rules are only in effect for part of the experiment (see example E above). In that case, the first round after the rules are no longer in effect (round 16 in example E), the instructor needs to announce that the rules are not longer in effect. On the subject screen, the monitoring rules summary will no be longer visible.

### **Communication**

The communication treatment is essentially the same as the “no regulation” treatment. The only difference is that with the “traditional CPR” the experiment proceeds from round to round automatically – you do not have to do anything. With communication, before each round begins, the experiment is paused. I did this so that people could not input a decision before they have a chance to talk. Notice that on the monitor, the “resume experiment” button turns green. When they’ve finished talking, click the green “resume” button and the subject screens will unlock. They can make their decisions they way they normally do.

### **Experiment Over**

After the last round, subjects get an “end of experiment” message thanking them for participating and telling them how much they’ve earned.

On the monitor, a yellow box appears “Randomly select who will get paid.” This is completely optional. I use it because in class I usually choose 2 people at random to be paid. I do not want to pay the highest earners because I want to maintain an incentive for the low earners to still take the experiment seriously. Input the number of people to be paid (the number cannot be greater than the number of humans) and the program will display the “winners” names and amount earned.

Before the students are allowed to get up from their desks, I would click on the “end subjects” button so that the earnings screen for each person is no longer visible. Otherwise people have a tendency to sneak a look at how much the others earned.

### **Data files**

The monitor program creates separate 4 data files. They are saved in the same folder as the Monitor application. The names of the files are:

CPR\*-DATA.xls  
CPR\*-MLOG.txt  
CPR\*-PLOT.xls  
CPR\*-SUBJ.xls

where CPR\* is the Experiment ID that is displayed on the monitor screen (basically the date and time of the experiment).

Ignore MLOG, it contains stuff for debugging.

The DATA file contains all the experiment data that you'd want for analysis. I think the column headings are self-explanatory

The SUBJ file records each participant name, how much they earned, and who gets paid (if you use the random select option). This file is useful to print at the end of the experiment to keep track of paying people. If you really were concerned about confidentiality, you can delete this file and all names of participants will be deleted so there's no way to link names with decisions.

The PLOT file is has a summary of the data in the DATA file. This file is used for creating charts. I've created a spreadsheet "CPR PLOT TEMPLATE.xls" that has a macro which creates some charts. It's handy because you can use this macro to create a few simple charts immediately after the experiment that you can show to the students.

### **Plotting data**

As I mentioned, you should also have an Excel spreadsheet titled CPR PLOT TEMPLATE. This has a macro that will create a few charts for discussing the results at the end of class.

After the experiment is over, open "CPR PLOT TEMPLATE.xls". If you get a warning saying "macros may contain viruses," ignore it and click on "ENABLE MACROS".

You will then be asked if you want to open the file as "read only." Click "YES".

Read the instructions on the screen. It's pretty simple. Just click on the green button and open the "PLOT" file you want. The macro will create the charts. It'll give up a message saying that it's done. Use the "AVG MONTHS" and "COMPARE" tabs on the bottom to view the charts.

I guess that's it...In summary:

### **Getting ready to begin**

1. Open monitor.
2. Set server ID, number of groups, number of rounds, exchange rate
3. Set rounds for monitoring and communication
4. Click green "begin experiment" button.
5. Start subject programs on each computer
  - a. remember, you need 8 subjects per group
6. On the subjects, make sure Server ID matches the Server ID for the monitor.
7. Click connect.
8. Set whether human or robot
9. For robots, set which robot type.

### **Getting ready to begin**

10. Have subjects input name and SSN.
11. Once everyone has logged in, experiment will automatically start.
12. At this point, the instructor does not really have to do anything, except in the periods for which communication is allowed.
  - a. When there is communication, be sure to click the green “resume” button for people to proceed.
  - b. If, at some point, the monitoring rules are no longer in effect, the instructor needs to announce that there is no more monitoring.

### **Experiment ends**

13. Subjects get an experiment over message.
14. *Optional.* Instructor can use the yellow box on the monitor to randomly select a subset of students to be paid their average earnings in cash.
15. Click “End subjects” before people get up from their desks.
16. Click “end monitor.”
17. Data has automatically been saved in 4 files.
18. If you want to display some results during class, use the CPR PLOT TEMPLATE spreadsheet.