# First year psychology lab classes: lecturer’s notes

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## About this class

Using one of the most heavily cited studies in the history of psychology (replicated over 700 times!) this class simply introduces students to the idea of running an experiment on a computer.

Little attention is paid here to exactly how the experiment is constructed in PsychoPy. More important for this class is that student see how the different pieces of software connect (where to find the data file after running the experiment) and a little about using Excel.

## Learning objectives for this class

1. How to use the lab computers (info about where to fetch and store data)
2. Why are we running experiments at all?
3. Basic components of PsychoPy; views and data files
4. Basic data handling in Excel (cells, formulae, relative v absolute references)
5. Finding relevant reading materials

## Structure

* Talk pt 1:
  + The lab computers
  + The point of experiments
  + The Stroop effect
  + The basic aspects of PsychoPy
* Run the basic Stroop effect in PsychoPy
* Talk pt 2:
  + Opening your data file
  + Using Excel to manipulate data
* Students drag their files to the shared directory
* Break (while lab assistant performs analysis on group data)
* Talk pt 3:
  + 2 theories about the Stroop effect
  + distinguishing them with the Reverse Stroop
* Run the Reverse Stroop and drag files over
* Second group analysis
* Conclusions

## Slides pt 1

* Objectives of this class
* Practicalities - course materials

Explain how to log on to WebCT/Moodle and where to find the materials once there?

* Practicalities - lab computers

What else do we need to tell the students about these machines?

* Science and experiments

Self-explanatory. Why do we need to do experiments rather than just creating theories?

* Stroop (1935)

The Stroop effect is everywhere – even in Nintendo DS Brain Trainer(TM). It’s also used in clinical psychology as a measure of executive function (some disorders result in exaggerated Stroop effects).

[NB In Exp 1 Stroop measured the reverse effect and found no sign of one. We’ll come onto this later]

* A variant of the task

Stroop never actually presented the words written in congruous inks – only incongruous words or squares. But this seems a convenient control.

* Try it for yourself
* Conducting the task on a computer

Explain that the results might be different with greater precision. Turns out later to be true in the case of the reverse stroop task, so handy if it’s mentioned here.

* Experimental design

Explain why this is an ‘experiment’ (not necessary?)

* PsychoPy

Explain that we need to use specialised software. Explain the basics – can create experiments by writing scripts or by the Builder (unnecessary detail?)

* Measure the Stroop effect

[Get students to run the study. Wait until everyone is finished, before doing analysis with them]

## Slides pt 2

* Where is the data?

After running there will be a data folder next to the PsychoPy experiment file

PsychoPy saves several file formats in this folder for each run; a .psydat file (native python format), a log file (text, chronological info) and Excel 2007 (.xlsx). We need the Excel file.

Could either teach students to go to the folder and find the file with the Excel icon to double-click, or teach them to open Excel and find the data using File>Open (the 2nd approach prevents them trying to open the wrong file extension).

* Now…

Show students how to copy their data file to a central shared location for group analysis. The slides for this are fairly complete and self-explanatory.

[Students go for a break here – 10-15mins?]

## Slides pt 3

* What causes the Stroop effect?

Explain the concept of the brain gathering evidence in time to make a decision

* Theory 1

Could be that two parallel processes with conflicting evidence

* Reverse Stroop

If theory 1 is true then there should also be conflict the other way (a reverse Stroop affect), but Stroop says this didn’t occur

* Theory 2

Different timing of arrival at a choice mechanism that can only process one stimulus attribute at a time. Suggests no reverse stroop effect (if text is processed faster than colour).

* Run the reverse Stroop

To test the above theories.

When they’ve done this, get the students to upload their data files and **carry on with next slides** while the Teaching Assistants run a quick batch analysis.

* Theory 3

We generally do find a reverse stroop effect when measured carefully on computer, so lean towards Theory 1. But often it’s less pronounced than the normal Stroop effect, so modify the model a little.