

PLANNING (DESIGN) LABORATORY Instructions and Guidance

In a planning lab (design lab), it is up to you to figure out exactly what you want to do. The only limitations are your imagination and the apparatus you have access to. Be creative!

Full planning labs have a total of 21 possible marks. See the 'Lab Report Rubric' for the full breakdown. Points are awarded as follows:

✓ Design	[6]	– (3 aspects, 2 marks each)	
✓ Data Collection and Processing	[6]	– (3 aspects, 2 marks each)	
✓ Conclusion/Evaluation	[6]	– (3 aspects, 2 marks each)	
✓ Purpose/Question	[1]		
✓ Hypothesis and Background	[1]		
✓ Further research questions	[1]		TOTAL: 21 marks

Refer to the 'Laboratory Report Guide' for full details on what is expected of you. But here is a summary of the main 3 criteria:

Design (D)

- 1) Come up with a clearly stated research question.
- 2) Define your dependent, independent, and controlled variables.
- 3) Provide appropriate background information in your lab report.
- 4) Provide your hypothesis, and justify your hypothesis based on your background research and other experience with the topic as appropriate.
- 5) Devise a methodology - completely unique to your research question, and up to you. It should be numbered and should allow for variables to be controlled as appropriate. Make sure that it describes exactly what readings you are taking, and how many.
- 6) Prepare a detailed list of apparatus well beforehand in order for the lab assistant to procure them for you. You may use any equipment in the lab stores.

After this you can carry on as normal with Data Collection/Processing and Conclusion/Evaluation.

Data processing and Collection (DCP)

- 1) Collect appropriate raw data with uncertainties considered.
- 2) Process your raw data correctly, taking into account all uncertainties and a full error analysis.
- 3) Present your data in graphical format, and analyze your data through line of best fit analysis, max-min slope lines, etc.

Conclusion and Evaluation (CE)

- 1) Give a conclusion and a full explanation of your results.
- 2) Evaluate the above procedure (methodology) and apparatus used, including limitations and errors.
- 3) Identify any weaknesses and suggest ways of improving the investigation.
- 4) Propose questions for further research and discussion.
- 5) You must include a list of works cited (at least 3, in MLA format).

Don't forget a descriptive but **concise and appropriate title**, and **research sources** cited according to MLA format.

Also don't forget to **have fun** while doing a planning lab. If you are not really interested in what you are doing, then you have chosen the wrong research question to investigate! ☺