

The purpose of scientific papers, or lab reports, is to present results of a study, experiment, or literature review. Lab reports generally follow the structure of a scientific paper, which is outlined below.

Title:

Purpose: To give researchers an indication of the content (topic and/or main findings) of the paper

- Concise and representative
- Uses recognizable keywords from the paper
- *Often overlooked, but very important*

Abstract:

Purpose: To allow researchers to determine if they should read the entire report

- 1 paragraph (approximately 200 words)
- Brief and comprehensive summary of important aspects of the paper (research question/purpose of the study and its importance, methodology, main findings/results, conclusions and implications)
- *Usually written last*

Introduction:

Purpose: To define the subject and purpose of the paper

- Background
 - Relevant literature and studies
 - Trace development of ideas
- Specific purpose of the study (Why was the study done?)
- Specific research questions and hypotheses
- Brief overview of experimental design

Overall, it addresses why the study was done

Materials and Methods:

Purpose: To provide enough detail for the reader to be able to understand and replicate the study

- Outline the procedures followed (the student may be allowed to refer the reader to another text for detailed procedures)
- What materials were used? How were the materials used?
- When and where was the study done? (This is particularly important for fieldwork)
- Describe special equipment (provide a sketch, if necessary)
- *Be careful not to overwhelm the reader with unnecessary details*

Results:

Purpose: To summarize the data obtained in the study. Allows readers to see the actual data and form their own opinions.

- Present data using figures and tables
- Describe the general trends and differences (not trivial details) observed in the figures and tables
- *Do not discuss or interpret the data here. Simply describe the main findings.*

Discussion:

Purpose: To interpret the results and critically analyze the study

- Interpret results
 - Clearly state whether you accept or reject your hypothesis/hypotheses
 - Speculation is acceptable, when identified as such
- Relate results to previous research
- Discuss implications of current findings
- Identify flaws in your research and suggest solutions
- Recommend areas for further study

References:

Purpose: To provide information that allows the reader to locate the references that are cited in the text

- List only the references referred to in the text
- Follow a consistent reference format

Some Other Points:

Figures and Tables:

- Should be self-explanatory
- Must be titled and numbered
- Titles should be concise, informative, and representative
- Label all columns, rows, and axes
- Legends: if necessary, include a legend explaining symbols, abbreviations, or special methods
- Do not present the same data in multiple formats (e.g. in both a figure and a table)