

Laboratory Work N°5 — Tables

Course

Practical Scientific Writing

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Academic Year

2025–2026

1. Purpose of the Work

The purpose of this laboratory assignment is to learn and practice creating tables in LaTeX. The experiment includes using different column alignments, understanding row item mismatches, and applying the `\multicolumn` command to span multiple columns.

2. Tasks

1. Create a simple table with three columns.
 2. Experiment with the `l`, `c`, and `r` alignment options.
 3. Observe what happens when a row has too few or too many items.
 4. Apply the `\multicolumn` command to merge several columns.
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3. Tools and Environment

- **Operating System:** macOS
 - **Editor:** VS Code / Nano
 - **Compiler:** `pdflatex` (MacTeX 2025 distribution)
 - **Version Control:** Git + GitHub
 - **Conversion Tool:** Pandoc
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4. Procedure

4.1 Simple Table Example

A three-column table was created with the column specification `{l l l}`.
Result: all cells are **left-aligned** as expected.

1. Simple Table Example

Table 1: Basic Table with Left Alignment (l)

Animal	Food	Size
Dog	Meat	Medium
Horse	Hay	Large
Frog	Flies	Small

Here, all columns are left-aligned (l).

4.2 Testing Different Alignments

Two additional tables were built with `{c c c}` and `{r r r}` specifications.

Result:

- The `c` alignment centered each cell's content.
- The `r` alignment right-justified all entries.

2. Different Alignments

Below are examples with center and right alignment:

Table 2: Center and Right Alignment

Animal	Food	Size
Dog	Meat	Medium
Horse	Hay	Large
Frog	Flies	Small

Table 3: Right Alignment (r)

Animal	Food	Size
Dog	Meat	Medium
Horse	Hay	Large
Frog	Flies	Small

Note how the text shifts depending on l/c/r alignment.

4.3 Too Few or Too Many Items

Rows with fewer or extra cells were tested.

Result:

- **Too few items:** missing cells are left empty.
- **Too many items:** LaTeX displayed a warning ("Extra alignment tab has been changed to \cr").

3. Too Few or Too Many Items

Table 4: Rows with Missing or Extra Items

Animal	Food	Size
Dog	Meat	
Horse	Hay	Large
ExtraColumn		
Frog	Flies	Small

If a row has too few items, LaTeX leaves the missing cells empty. If a row has too many, it will cause a “Extra alignment tab has been changed to \cr” warning or error.

4.4 Using \multicolumn

The `\multicolumn{3}{c}{Animals and Food}` command successfully merged three columns into one centered heading.

4. Using \multicolumn

Table 5: Using \multicolumn to Merge Columns

Animals and Food		
Animal	Food	Size
Dog	Meat	Medium
Horse	Hay	Large
Frog	Flies	Small

The header “Animals and Food” spans all three columns using \multicolumn{3}{c}{...}.

All experiments completed as per Lab Work №5 instructions.

5. Results

All required experiments were performed successfully.
Tables compiled without critical errors, and the output verified expected alignment and merging behavior.

Experiment	Description	Result
Alignment	Tested <code>l</code> , <code>c</code> , <code>r</code> columns	Works correctly
Missing / Extra items	Checked behavior with uneven cells	As expected
<code>\multicolumn</code>	Spanned cells across columns	Works correctly

6. Conclusion

The laboratory work confirmed the ability to design professional tables in LaTeX and understand alignment rules, spacing, and column-merging features.

This knowledge forms the foundation for producing clean, publication-ready scientific documents.

7. References

1. *Practical Scientific Writing – Section 5: Tables*
2. LaTeX Documentation: <https://www.latex-project.org/help/documentation/>

8. Repository Information

- **Full Repository:** <https://github.com/nadiaelfe/lab05>
- **Release (to be added after upload):** *TBD*