

Steps to writing a manuscript



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**



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Primary sections in the manuscript

- Abstract
- Introduction
- Background (related works)
- Methodology
- Results and analysis
- Conclusion
- References

Abstract

10 to 20 lines

- 2 lines – introduce the topic.
- 2 lines – introduce the problem statement (objective of this study)
- 2 lines – existing solutions to solve the problem
- 2 lines – research gap(s) identified (in concepts, perspectives, theory, methods, analysis, data)
- 2-4 lines – proposed method(s)
- 2 lines – expected outcome (statistical scores if any)
- 2 lines – advantages and benefits of the proposed method(s)

Introduction

25 to 40 lines (expand the abstract)

- 4 lines – introduce the topic (domain)
- 3 lines – introduce the problem statement
- 10 lines – existing solutions to solve the problem (reviewing the past works)
- 4 lines – research gap identified
- 8-10 lines – proposed method(s) – if possible present a figure (draw.io for high quality figures).
- 2 lines – list of technical/research contribution(s) – bullet points
- 2 lines – advantages of the proposed method(s)
- 4 lines – remainder of the sections

Background (related works)

25 to 40 lines (focus on the related works to the problem statement).

- Choose the papers that preferably within last 5 years.
- Start narrating from the oldest one leading to connect the latest solution.
- Do not exceed 3 lines per reference.
- If there are multiple problems addressed, introduce subsections.
- If possible, present the related works in a table to summarize in a nice way.
- Conclude the section by summarizing these literature connecting to the problem statement.
- Use Mendeley software to track references.

Methodology

- 5 – 10 lines to introduce the methodology.
- Formalize the problem statement.
- Present a framework (figure), if needed.
- From data collection to inference generation.
- Subsection if there are multiple methods.
- Present figures as needed in each section.
- Include equations as needed.
- Include tables as needed.

Results and analysis

- Summarizing all the subsections covered in this section.
- Dataset description.
- Candidate methods description.
- Evaluation metrics description.
- Divide the analysis into multiple subsections.
- Draft the table into each subsection.
- Draft the graphs into each subsection.
- Include another section “Discussion section”, if needed.

Conclusion

- 5-10 lines
- Refer to the abstract.
- Skim each point in the abstract.
- 2 lines – Mention the benefits.
- 2 lines – generalizability and limitations.
- 2 lines – Potential future works.

References

- Use Mendeley software.
- Download and install the software (tick “add to the Microsoft office”).
- Now, it is integrated into the Microsoft office.
- Open Mendeley → create a folder → load the papers one by one with careful revision.
- Open the word file → Go to the last page → References → Insert bibliography.
- Go to the body of the paper → place the cursor → References → Insert citation.

thank
you