



Articles and Theses

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Lecture 11

Department of Chemistry

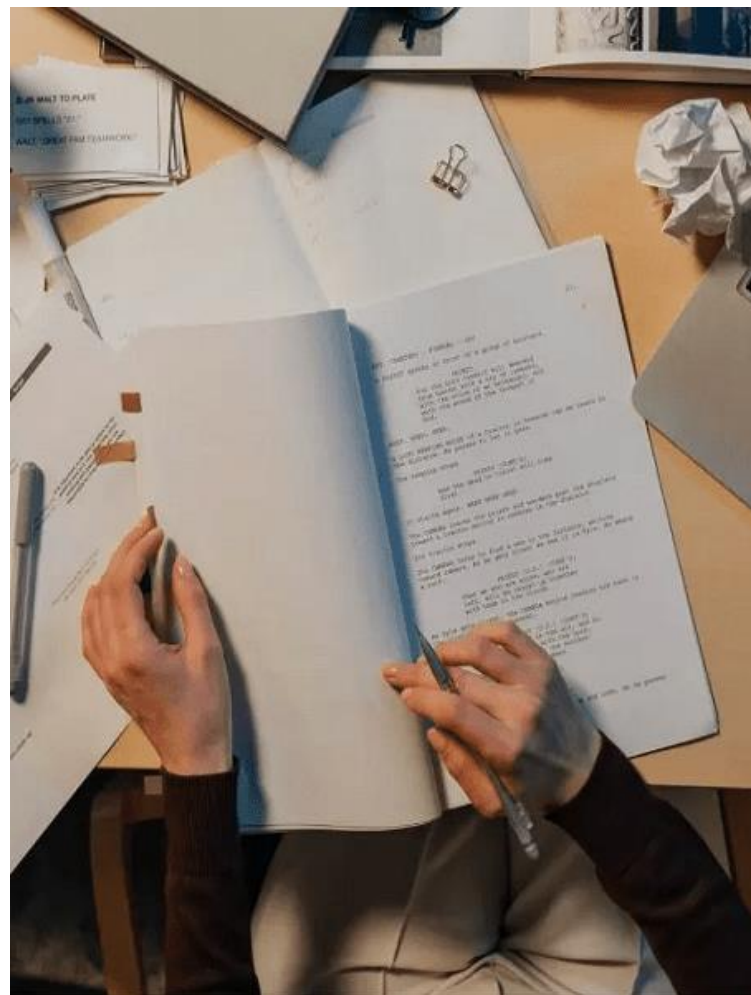
Institute of Natural Science

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Research Paper Writing

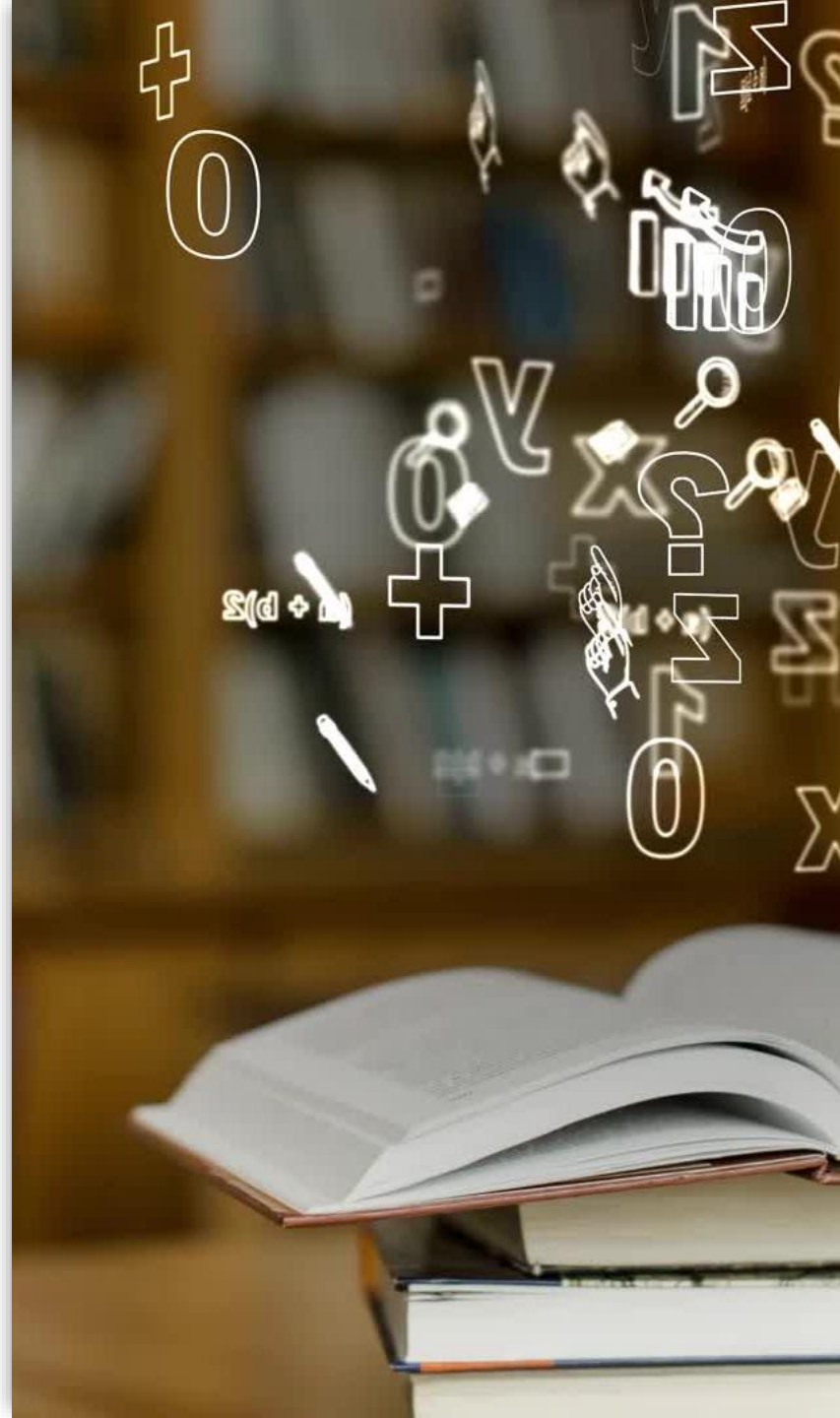
Topics:

1. Research Paper Writing
2. Thesis Writing & Presentations



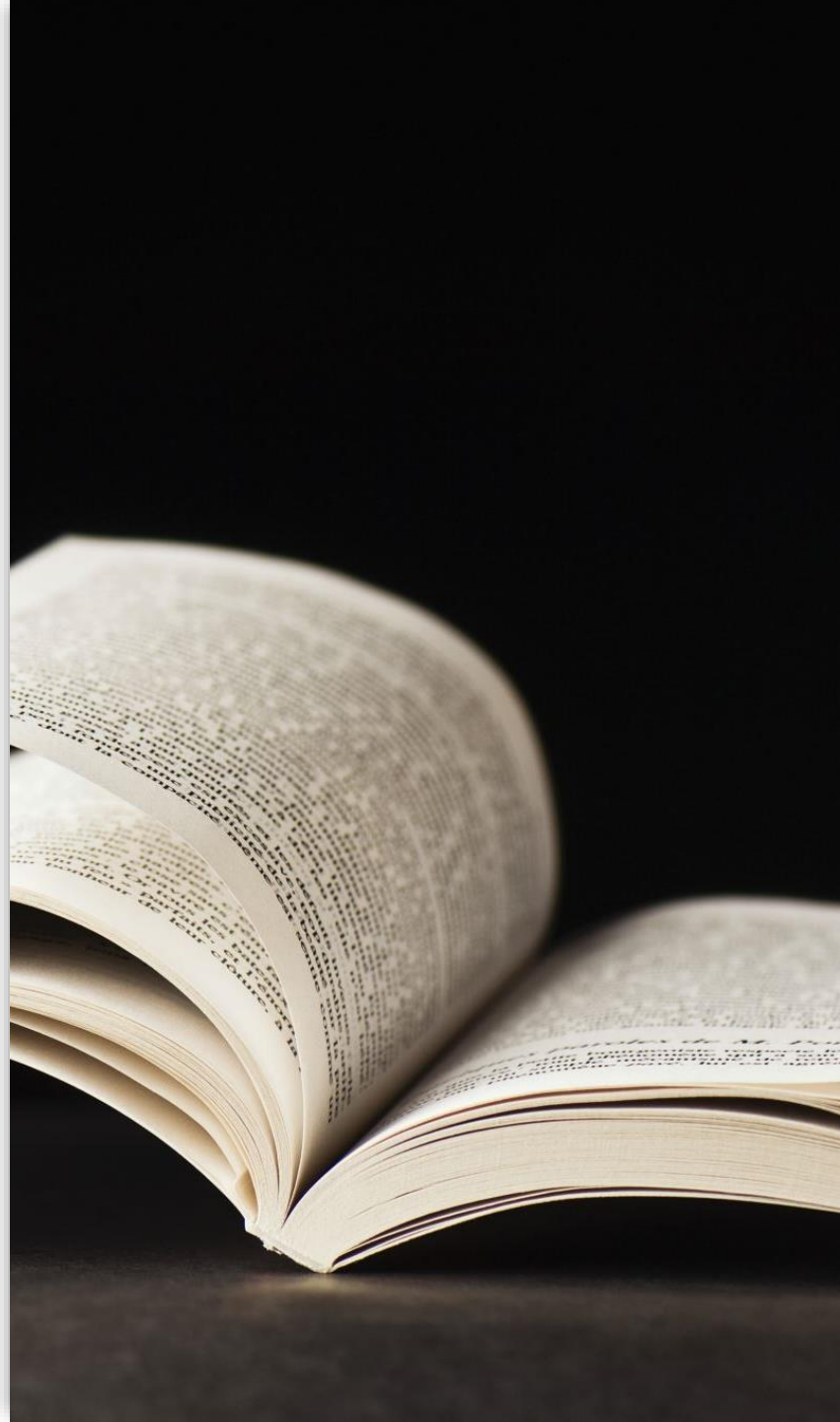
What is Research?

- Research is defined as the creation of new knowledge or the use of existing knowledge in a new and creative way to generate new concepts, methodologies, and understandings.



What is a Research Paper?

- A research paper is a piece of academic writing that provides analysis, interpretation, and argument based on in-depth independent research.
- It is typically longer and more detailed than an essay, designed to assess scholarly research skills.



Steps in Writing a Research Paper

1. KNOW the focus of your paper (What? Why? When?).



Reading and Data Collection

- 2. READ related works & COLLECT data.
- How to find papers:
- <https://scholar.google.com/>
- <https://www.researchgate.net/>
- <https://www.academia.edu/>

Drafting Process

3. Drafting:

1st Draft ...

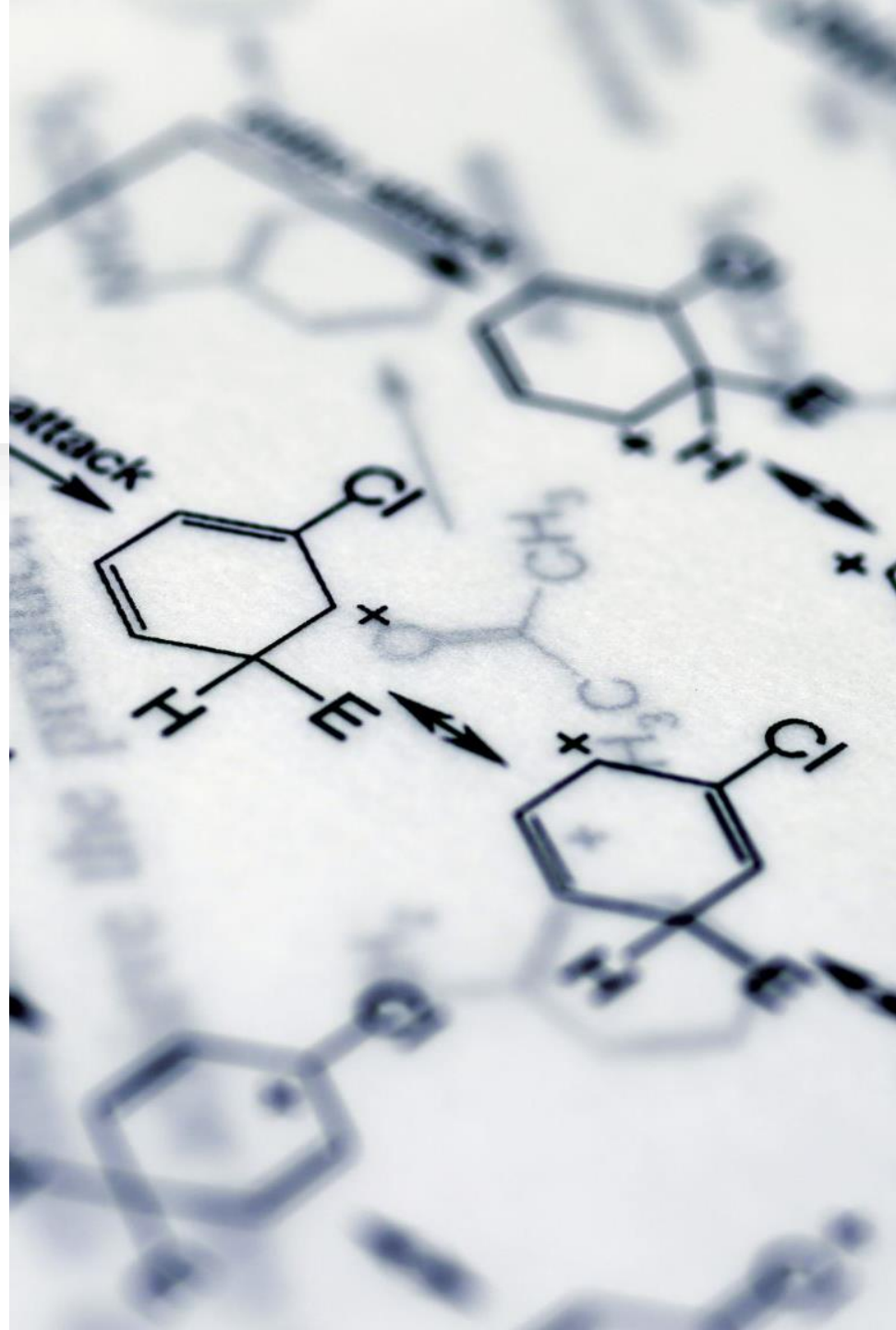
2nd Draft ...

3rd Draft ...

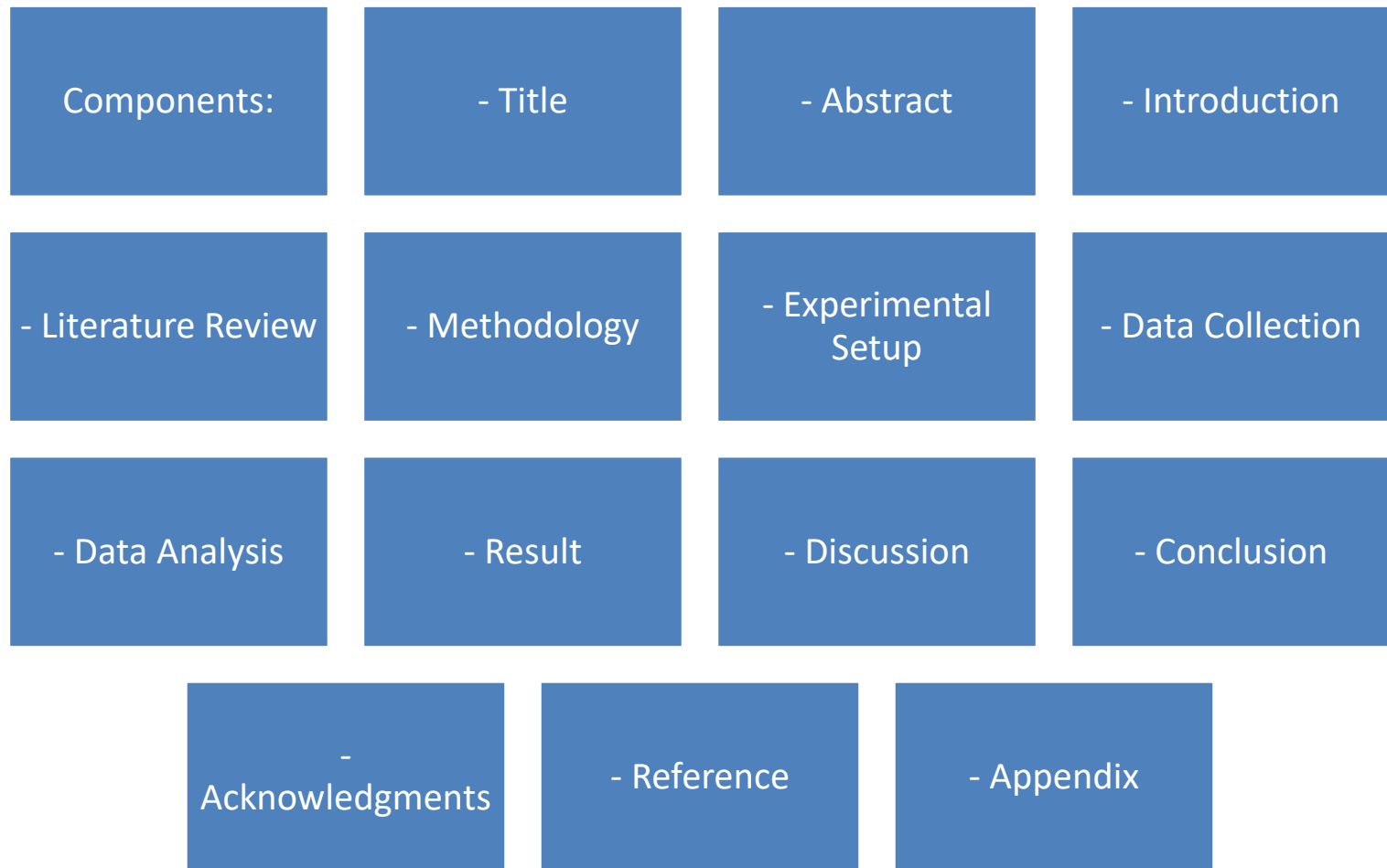
Nth Draft

Research Paper Structure

- Main Parts:
- - Introduction
- - Body
- - Conclusion



Detailed Structure of a Research Paper



Title

- A good title summarizes the main idea(s) of your study in the fewest words possible.
- It adequately describes the content and purpose of your research paper.



Abstract

- The abstract introduces the reader to the aims, methodology, and findings of the study.
- It typically contains a 150- to 250-word paragraph.



Introduction

- States the overall purpose and defines the research question(s).
- Provides a brief background of relevant theory and practice.

Literature Review

- Summarizes conclusions from past research and highlights main issues and controversies around the topic.



Methodology

- Explains research methods and justifies data collection and analysis procedures.

Experimental Setup

- Describes how the experiment was conducted, including instruments used and procedures followed.



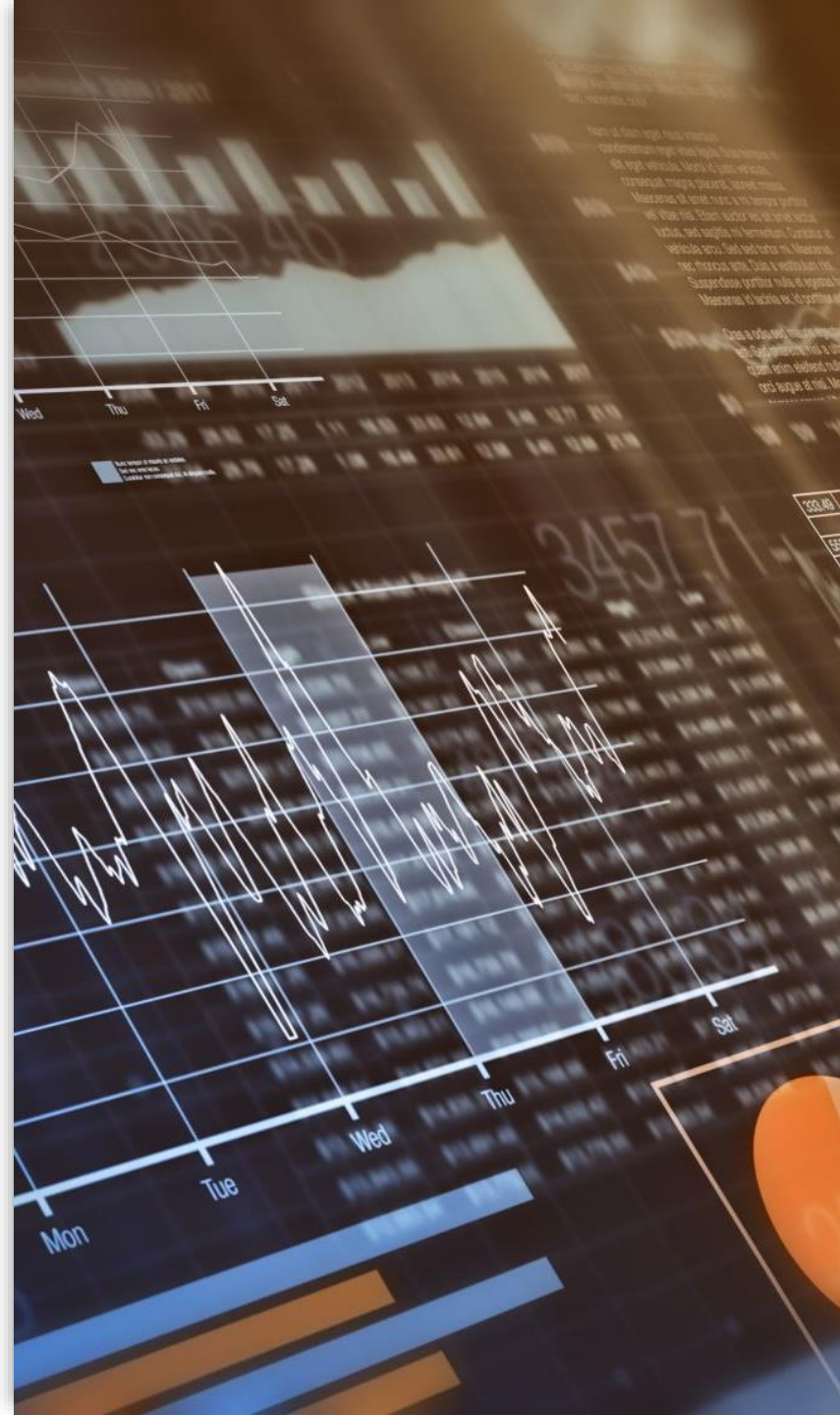
Data Collection

- Includes the dates of data collection, often in tabular form.
- Can be combined with the Experimental Setup for shorter papers.



Data Analysis

- Analyzes the data based on theories developed in the introduction.



Results

Presents findings in an organized manner, using headers that align with patterns identified in research.

Discussion

Comments on trends/findings and discusses any unexpected results.

Conclusion



Summarizes findings and discusses the significance and limitations of the study.



Suggests areas for future research.

Acknowledgments

- Expresses gratitude to those who contributed to the research.

References

- Lists all reference materials cited in the report, organized alphabetically.

Appendix

- Provides supporting information not included in the main text, such as additional data, diagrams, or tables.



Originality and Avoiding Plagiarism

- 5. Be ORIGINAL and avoid PLAGIARISM.

Plagiarism

- Plagiarism is presenting someone else's language, thoughts, or ideas as one's own.
- Avoid by quoting, summarizing, and paraphrasing with proper citations.

Formatting a Research Paper

- 6. Choose a formatting style:
 - - MLA (Modern Language Association)
 - - ACM (Association of Computing Machinery)
 - - APA (American Psychological Association)

Using Templates for Conferences & Journals

- Use templates for your target conference or journal:
- IEEE Template:
<https://www.ieee.org/conferences/publishing/templates.html>

What is a Thesis?

- A thesis is a research paper based on original research, typically submitted at the end of a master's program or as a bachelor's capstone project.

Thesis Writing Process

- Title, Author, Abstract, Keywords, Introduction, Literature Review, Methodology, Experimental Setup, Result, Discussion, Conclusion & Future Work, Reference List, and List of Figures.

Difference Between Research Paper and Thesis



- Research Paper:
 - - Provides analysis, interpretation, and argument.
- Thesis:
 - - Longer and usually the final project for a degree.
 - - Often requires academic supervision.



Thank you for your attention!