Full Manuscript Title Here with Capitalize Each Word

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| ARTICLE INFO | ABSTRACT |
| KeywordsKeyword 1Keyword 2Keyword 3Keyword 4Keyword 5 | An abstract is a concise summary of a research paper, article, or study that highlights the key points, objectives, methods, results, and conclusions. Typically ranging from 150 to 250 words, it provides readers with a quick overview of the content without requiring them to read the entire document. A well-written abstract should be clear, focused, and self-contained, offering enough information to help readers determine whether they want to explore the full paper. It usually includes the problem or purpose of the study, the methodology used, key findings, and the implications of the results. Keep in mind that an abstract should be written after completing the paper, ensuring it accurately reflects the content and essence of the work. |

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# **Introduction**

An academic manuscript introduction structured using the reverse pyramid system begins with a broad context before narrowing down to the specific research question. It starts by outlining the general issue or problem in the field, providing a background that highlights its significance. This sets the stage by discussing the larger context, identifying challenges, and underscoring why the issue is important for the academic community and beyond. The introduction then gradually narrows down to the more specific aspects of the problem, reviewing the current state of research, existing theories, and findings. This section often includes a discussion of key studies, pointing out their strengths and limitations. From there, the introduction should highlight a clear research gap—an area that has not been fully explored or a question that remains unanswered despite the existing body of work. Finally, the introduction concludes with a "killer statement" that succinctly defines the aim of the paper, stating how the study intends to address this gap, contribute to the field, or solve a particular issue. This structure guides the reader through the journey from broad context to the precise contribution of the study. Here are the detailed information and tips about writing a good introduction section.

Begin with a Broad Context. Start by introducing the general issue or topic related to your research. This part should provide a broad overview of the field, highlighting the larger problem or challenge that your study is addressing. The goal here is to establish the importance of the issue for

both the academic community and broader society. You can include historical context, theoretical background, or current trends to show how the issue has evolved over time. By framing the topic in this broad manner, the reader is given a clear understanding of why the subject matter matters and why it warrants investigation. For example, if you’re studying environmental policy, you might begin with a discussion of climate change and its global impact.

Narrow Down to the Specific Issue. Once you've set the stage, you need to gradually narrow the focus to the specific problem your research addresses. This section should shift from the general issue to a more precise aspect that hasn't been fully explored or understood. You can discuss the specific variables, phenomena, or sub-fields your study targets. This is also where you should begin reviewing existing literature, noting key studies, findings, and methodologies used by others. This is a great place to identify trends, debates, or contradictions in the existing research, showing how they highlight the need for further investigation. This step is important for framing your study within the ongoing academic conversation, so readers can understand the relevance of your work within the context of what’s already known.

State-of-the-Art Discussion. Next, provide an in-depth look at the current state-of-the-art in the field. This means summarizing the most recent, groundbreaking research and developments related to your topic. Highlight the leading theories, frameworks, or methodologies being used and any advancements in the field. However, it's also essential to point out the limitations or gaps in these studies. What are the unresolved issues, contradictions, or areas that still need deeper exploration? This is where you can demonstrate your thorough understanding of the subject and critically analyze the state of the field. For example, you might describe how current studies lack longitudinal data or how particular methodologies have not been sufficiently applied in your area of research.

Highlight the Research Gap. At this point, the introduction should focus on identifying a research gap—the missing piece that your study aims to fill. This is a critical part of the reverse pyramid structure because it clarifies what your research will contribute to the academic conversation. It’s important to explain why this gap exists and how it has remained unexplored or underexplored. This could be due to limited previous research, methodological challenges, or changes in the field that make this study timely. By articulating the gap clearly, you show the reader why your research is not just interesting but necessary. For example, you might point out that despite significant research on a particular theory, no one has yet explored its application in a new context or using a new methodology.

End with the Objective Statement. Conclude the introduction with a strong, clear statement of the aim of your paper. This is the "Objective Statement"—the crux of your research question, hypothesis, or objective. It should directly address the research gap you identified and explain what your study aims to achieve. This is where you transition from discussing existing literature to presenting your own contribution. Your aim should be specific, concise, and compelling, laying out the overall goal of your research while underscoring its significance. This final sentence or two should leave the reader with no doubt about the purpose of your study and its potential impact on the field. Objective statement – Focuses on the goal or purpose of your research which you discuss on your paper.

# **Experimental**

The experimental section of the manuscript should provide a comprehensive description of the materials, methods, and procedures used to collect and analyze data, ensuring clarity and reproducibility. Begin by detailing all materials, including equipment, instruments, software tools, and other resources, along with their specifications. If any standards were followed during the experimental process, such as ISO, ASTM, or other relevant industry-specific guidelines, they should be explicitly mentioned. For instance, if the study involved environmental testing, standards like ISO 14001 or ASTM E2877 might apply. Next, describe the experimental design, specifying key variables, controls, and the conditions under which the experiment was conducted. The methodology should be outlined step-by-step, covering data collection procedures, sampling techniques, and preprocessing or preparation steps for raw data. Analytical or statistical methods used to interpret the data should be specified, such as machine learning models or statistical analysis techniques, along with any industry standards adhered to during analysis. Include a schematic diagram or flowchart that visually represents the steps of your study, from data collection through analysis and evaluation, to help readers better understand the experimental process. Additionally, ensure that the evaluation or validation process is described, highlighting the metrics used to assess the accuracy and reliability of your results. Finally, provide sufficient detail to allow for replication of the study, and address any ethical considerations, if applicable.

## **Materials**

The "Materials" section of the manuscript should provide a clear and concise description of all materials used in the study, including both physical and digital resources. Authors should specify the type of materials, such as equipment, instruments, chemicals, software tools, and datasets, providing detailed specifications for each. For physical materials, the source should be mentioned, whether it is from a commercial supplier, a laboratory, or field samples, and relevant product codes or catalog numbers should be included when applicable. If specific software tools or algorithms were used, the version, licensing details, and source of the software (e.g., proprietary software or open-source repositories) should be clearly stated. For datasets, authors should indicate where they were sourced, whether from publicly available repositories, collaborations with other researchers, or proprietary databases. If applicable, any standards followed during material selection or preparation (e.g., ISO, ASTM) should also be mentioned to enhance transparency and ensure reproducibility. By providing these details, authors will ensure that readers can replicate the study with the same materials and conditions.

## **2.2 Method**

The "Method" section of the manuscript should provide a clear and systematic description of the procedures followed during the study to ensure transparency and reproducibility. Authors should outline the step-by-step processes used to conduct the experiment, from preparation to data collection, analysis, and evaluation. This section should be written in a way that allows other researchers to replicate the study. When describing the methodology, be specific about any tools, techniques, or equipment used, and provide details about their settings or parameters. For example, if a machine learning algorithm was applied, describe the model, its hyperparameters, and the training procedure. If statistical methods were used, specify the tests or analyses, including any software or programming languages employed. Additionally, authors should explain how data was collected, such as the sampling methods, sample sizes, and criteria for inclusion or exclusion of data points. Any standards or guidelines followed during the experimental process (e.g., ISO, ASTM) should be referenced. Where applicable, ethical considerations, such as consent procedures or animal care standards, should also be addressed. The section should be precise and thorough, leaving no ambiguity about the experimental design and methods used.

Formulas or equations should be displayed using the Microsoft Equation editor with the Cambria Math font, size 11, and aligned in a justified format..

|  |  |
| --- | --- |
| $$X\_{best}\left(t\right)=\min\_{i\in 1,….,n}fit\_{i}(X\left(t\right))$$ | (1) |

# **Results and Discussion**

The "Results and Discussion" section of the manuscript should present and interpret the findings of the study in a clear, organized, and coherent manner. In the Results portion, authors should systematically report the outcomes of the experiments, including quantitative data, statistical analyses, or qualitative observations, without offering interpretations. Use appropriate figures, tables, and charts to present the data clearly and concisely, ensuring each visual element is accompanied by a detailed caption. Data should be reported in relation to research questions or hypotheses, and authors should highlight significant trends, differences, or patterns. When presenting results, including relevant metrics or statistical tests (e.g., p-values, confidence intervals) to support the findings.

In the Discussion section, authors should interpret the results in the context of the research objectives. Discuss how the findings align with or differ from previous studies, offering explanations for any unexpected results. Authors should critically analyze the significance of their findings, highlighting their contribution to the field and their implications for theory, practice, or future research. Any limitations of the study should be addressed transparently, and potential avenues for future research can be suggested. The discussion should also compare the results with existing literature, pointing out similarities, discrepancies, and how the findings fill the research gap. Avoid repeating the results in this section, and focus on offering insights, explanations, and potential applications of the findings. Where relevant, consider the broader implications of the results in terms of practical or societal impact.

## **Visual Analysis**

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**Fig.1** Histogram of random data

## **Micrographic Analysis**

## **Stastitical Analysis**

The "Table" section should include clear, concise tables that summarize and organize data in an easily accessible format. Each table should be numbered consecutively (e.g., Table 1, Table 2) and accompanied by a descriptive title that explains the content. Ensure that all columns and rows are clearly labeled and include units of measurement where applicable. Any abbreviations or symbols used should be defined in a table legend or footnote. Tables should be referenced in the main text, and their content should complement the narrative by providing detailed numerical data, comparisons, or categorizations that support the research findings. Avoid overloading tables with excessive data—keep them focused and relevant. The Unit of International System (SI) is adopted in our journal, which is the standard measurement system used worldwide for science, industry, and daily life. It includes units like meters for length, kilograms for mass, and seconds for time.

Table 1. Table caption (no period at the end of the caption)

|  |  |  |
| --- | --- | --- |
| Column number 1 | Column number 2 | Column number 3 |
| Parameter 1 (N) | 12.3 | 1.5 |
| Parameter 2 (kg) | 34.50 | 12.00 |
| Parameter 3 (mm) | 25 | 9 |

(please adjust these sub-sections according to the authors’ results and discussion)

# **Conclusions**

The "Conclusions" section should provide both qualitative and quantitative summaries of the study's key findings, emphasizing their significance and contribution to the field. Authors should begin by restating the main research objective or question and provide a brief synthesis of the most important results, focusing on how both the qualitative and quantitative data answer the research question. For the quantitative conclusion, authors should summarize key numerical findings, such as statistical measures, metrics (e.g., accuracy, precision), or any significant trends observed in the data. These should be presented clearly, emphasizing their practical or theoretical implications.

For the qualitative conclusion, authors should focus on the broader, interpretive insights drawn from the study, such as patterns, themes, or relationships observed in the data. This can include a discussion on how the findings contribute to understanding the underlying mechanisms or broader context of the research. Authors should also highlight the significance of these insights in relation to existing literature, theory, or practice.

For a review paper, please suggest areas for future research. The section should end by reinforcing the broader implications of the research, combining both qualitative and quantitative perspectives, and demonstrating the potential impact of the findings on the field or highlighting the research potential that can be explored further.

# **Authorship Contribution Declaration**

The "Authorship Contribution Declaration" section should clearly specify the individual contributions of each author involved in the study, ensuring transparency and proper attribution. Authors should explicitly describe their roles in different aspects of the research process, such as conceptualization, methodology, data collection, analysis, writing, and revision. This section should include the following points:

**Conceptualization:** Who contributed to the design of the study and the formulation of the research questions or hypotheses? Authors’ full name.

**Methodology:** Who was responsible for the research methods, experimental setup, or algorithmic development? Authors’ full name.

**Data Collection:** Who collected the data, conducted experiments, or gathered materials for the study? Authors’ full name.

**Data Analysis:** Who performed the data analysis, statistical evaluations, or interpreted the results? Authors’ full name.

**Writing and Drafting:** Who contributed to the drafting of the manuscript, including writing the initial draft or sections of the paper? Authors’ full name.

**Revisions:** Who participated in the revision and editing of the manuscript, including responding to reviewer comments? Authors’ full name.

For example: **Conceptualization:** B. Smith, M. V. Domelan; **Methodology:** B. Lee, etc.

Each author’s specific role should be listed, and if there are any additional contributors (such as technical assistance or advisory roles), they should also be acknowledged. This section is important to avoid disputes over authorship and to clarify each person’s input into the work. Authors should ensure that the contributions align with the guidelines of the journal or publisher, and that all relevant individuals are appropriately credited.

# **Competing Interests Declaration**

The "Competing Interests Declaration" section should clearly disclose any financial, personal, or professional interests that could influence the objectivity or integrity of the research. Authors must declare any potential conflicts of interest, including financial support from organizations, institutions, or individuals, affiliations with companies or commercial entities, or any personal relationships that might be perceived as influencing the research. If there are no conflicts of interest, a statement such as "The authors declare no competing interests" should be included. This section is important for maintaining transparency and ensuring that the research is free from undue influence or bias. Authors should carefully review any relevant policies or guidelines from the journal or publisher to ensure compliance.

# **Acknowledgements**

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# **Data Availibility**

The "Data Availability" section should clearly state how the data supporting the results of the study can be accessed by other researchers. Authors must specify whether the data is publicly available, where it can be accessed (e.g., a public repository or data archive), and any specific conditions for access (such as restrictions or licensing agreements). If the data is not available, authors should explain why, such as if it is proprietary, confidential, or unavailable due to privacy concerns. In cases where the data is included as supplementary material or appendices, this should be clearly noted. Transparency in data availability is essential for ensuring the reproducibility of research and allowing others to validate or build upon the study's findings.

# **References**

The "References" section should follow a consistent and accurate format to properly attribute sources used throughout the manuscript. Using a referencing manager, such as EndNote, is highly recommended for managing and incorporating references into the manuscript, as it helps ensure consistency and accuracy. In this section, only references from the last five years should be included, and sources should be presented in the **Numbered citation style** with square brackets, as shown below:

[1] Smith J., et al., "Advances in plant disease detection," \*J. Agric. Sci.\*, vol. 34, no. 5, pp. 123-134, 2020.

If the source is a book, conference paper, or another type of publication, the format should be adjusted accordingly. For instance, a book reference might look like this:

[2] Brown A., \*Plant Pathology Handbook\*, 2nd ed., Oxford University Press, 2022.

Authors should ensure that all materials cited in the manuscript appear in the reference list and that the formatting is consistent. Any discrepancies between the in-text citations and the reference list should be avoided, as they can create confusion for readers. This section is crucial for readers to locate the sources referenced throughout the paper and to demonstrate the breadth and depth of the literature reviewed in the research.