

Paper Writing/Manuscript Preparation

Components of a scientific paper (materials from Schultz Book)

Table 4.1 Parts of a generic scientific paper, including reference to other tables with more specifics. The * represents sections that are unnumbered.

Cover page* (Table 4.2)

Abstract* (Table 4.3)

Keywords*

Introduction (Table 4.4)

Literature synthesis/background/previous literature (Table 4.5)

Data and methods

Results

Discussion (Table 4.6)

Conclusion/conclusions/summary

Acknowledgments* (Table 4.7)

Appendices

References*

Tables and figures*

See AMS Manuscript Preparation Guide

<https://www.ametsoc.org/index.cfm/ams/publications/author-information/formatting-and-manuscript-components/>

Cover Page of Manuscript

Table 4.2 Parts of the cover page

Title of the manuscript

List of authors and affiliations

Type of document, target journal, and status of the manuscript

Date of last revisions

Corresponding author name, mailing address, phone, fax, and e-mail address

Go to AMS journal site (<https://journals.ametsoc.org>) to check out early online release manuscripts.

Abstract

- The first section of the manuscript is the abstract (or summary).
- Abstract is a synopsis of the manuscript, the abstract is often the last part of the manuscript written.
- Some authors draft the abstract early in the writing process, for many of the same reasons that they may write the title first. By the time the manuscript nears completion, check the content of the abstract against the rest of the manuscript for consistency.
- Effective abstracts describe the contents of the manuscript and help potential readers know whether the manuscript is of interest to them or not.
- Abstract is the first part of the text that most readers read, and sometimes the only part of the text that gets read beyond the title. An abstract should contain the basic information in Table 4.3.

Table 4.3 Information contained within the abstract (Day and Gastel 2006, p. 53)

1. Principal objectives and scope of the investigation
 2. Methods employed
 3. Summary of the results
 4. Principal conclusions
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Introduction

- After the title and abstract, the introduction is one of the most frequently read parts of a paper.
- Introduction tells the reader why the content of the paper is important?
- An introduction usually has three components: **contextualizing background information, the problem statement, and a response to the problem**
- The contextualizing background information helps ground the reader in familiar material. No one wants to pick up a paper and immediately have unfamiliar information thrown at them.
- Once common ground is established, the problem statement is the hook to gain the reader's attention and draw them into your paper.
- Just as movies engage the audience by conflict, so, too, should a scientific paper focus around a conflict. This conflict may entail some kind of paradox, error, or inconsistency in the previous literature; the lack of knowledge on the subject; or a general misunderstanding of the problem.
- If your paper does not have a hook, then ask what is unique about the research and why does it need to be communicated to others. Why do they need to pay attention?

Table 4.4 Three components of the introduction (Booth et al. 2003, pp. 222–234)

1. Contextualizing background information
 2. Problem statement
 3. Response to the problem
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Literature Synthesis/Review

The literature synthesis is potentially one of the most important sections of the manuscript as it can motivate the manuscript by showing the historical and scholarly context of the problem and can justify the manuscript by showing that good research is needed to solve existing problems.

Thus, the literature synthesis can demonstrate that an author's manuscript is a meaningful contribution to a meaningful problem.

Will discuss literature review more in later sessions.

Table 4.5 Rubric for determining the quality of a literature synthesis (excerpted from Table 1 in Boote and Beile 2005)

Category	Criterion
Coverage	Justified criteria for inclusion and exclusion from review
Synthesis	Distinguished what has been done in the field from what needs to be done Placed the topic or problem in the broader scholarly literature Placed the research in the historical context of the field Acquired and enhanced the subject vocabulary Articulated important variables and phenomena relevant to the topic Synthesized and gained a new perspective on the literature
Methodology	Identified the main methodologies and research techniques that have been used in the field, and their advantages and disadvantages Related ideas and theories in the field to research methodologies
Significance	Rationalized the practical significance of the research problem Rationalized the scholarly significance of the research problem
Rhetoric	Was written with a coherent, clear structure that supported the review

Reading assignment: Reading Chapters 3 and 4 of Schultz Book.