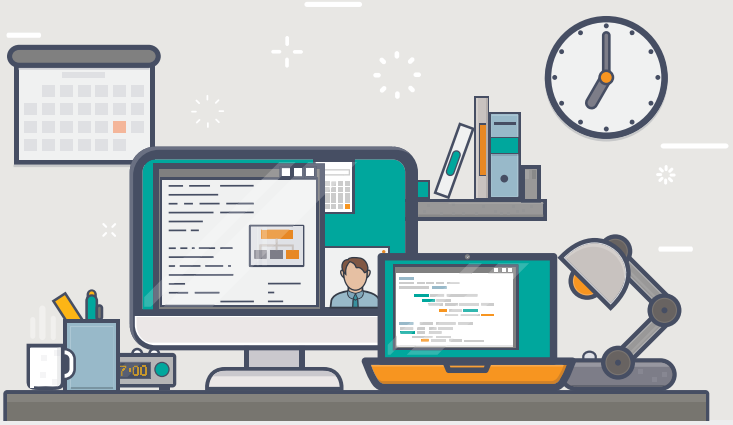

Writing a Journal Article: Cheat Sheet

Before writing your manuscript

Have you identified your research question? Here's how:

- Begin by searching for and reading literature in your field.
- Scan through general interest journals, scientific news, research blogs and narrow down on a a few interesting topics.
- Once you have chosen your topics read the table of contents of journals and the abstracts of articles in that subject area.

IMRaD

IMRaD refers to the standard structure of the body of research manuscripts (after the Title and Abstract).

Introduction
Materials and Methods
Results
Discussion and Conclusions

Follow this order while writing your manuscript:

1. Materials and Methods
2. Results
3. Introduction
4. Discussion
5. Conclusion

Study Design

A good study design is important to your experiment. Ask these questions to set up a good study design:

- What is your hypothesis or research question?
- What are the aim(s) of your study?
- What are the best methods for achieving your aims?
- Do you have the necessary resources to carry out your methods?
- Which positive and negative controls will you use?
- Do you have the required ethics and regulatory permissions?
- Will your experiment have enough statistical power to give useful results?
- Is your sample size large enough to draw valid conclusions?
- Which statistical tests will you use for your analysis? If you are not sure, consult a statistician; they can provide you with expert advice that may save you a lot of time.

Tip

Do not write a literature review in your Introduction, but do cite reviews where readers can find more information if they want it.

Final Check

Review the guidelines set by the target journal and ensure that your manuscript meets them. Have you:

- Obeyed all **word and character limits** (title, running title, abstract, manuscript text)?
- Included all **required** sections?
- Met **language** requirements (US or UK English)?
- Supplied all requested **contact information?**
- Inserted **figures** in the correct location (in text, end of manuscript, separate files)?
- Correctly formatted **references?**
- Used the correct **file format** for your images (jpg, png, pdf, ppt)?
- Stated **any conflicts of interest?**
- Included details of any required ethics and regulatory **permissions?**
- Obtained consent from **all** authors?

Checks for after you have written your manuscript

Title

- Convey the main topics of the study
- Highlight the importance of the research
- Be concise
- Attract readers

Introduction

The Introduction should provide readers with the background information for your study. It should answer the question: what question/problem was studied. While writing the background, make sure your citations are:

- **Well balanced:** If experiments have found conflicting results on a question, have you cited studies with both kinds of results?
- **Current:** You should aim to cite references that are not more than 10 years old if possible. Although be sure to cite the first discovery or mention in the literature even if it older than 10 years.
- **Relevant: T**he studies you cite should be strongly related to your research question.

Materials and Methods

This section provides the reader with all the details of how you conducted your study. You should:

- Use **subheadings** to separate different methodologies
- Describe what you did in the **past tense**
- Describe new methods in enough detail that another researcher can reproduce your experiment
- Describe established methods briefly, and simply cite a reference where readers can find more detail
- State **all** statistical tests and parameters

Results & Discussions and Conclusions

In the Results section, simply state what you found, but do not interpret the results or discuss their implications.

- Use **subheadings** to separate the results of different experiments
- Results should be presented in a **logical order**
- **Do not duplicate data** among figures, tables, and text
- Include **the results of statistical analyses** in the text, usually by providing p values wherever statistically significant differences are described.
- Your Discussion and Conclusions sections should answer the question: What do your results mean?

Abstracts and Keywords

- What was done?
- Why did you do it?
- What did you find?
- Why are these findings useful and important?

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