

How to Write and Publish a Scientific Paper

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Main Source



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Barbara Gastel
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Overview

- Introductory comments
- Preparing to write a paper
- Writing the paper
- Publishing the paper
- Some resources
- Open discussion

Introductory Comments



Scientific Paper

- First publication of original research results
- Contains information for others to repeat the experiments and test the conclusions
- In a journal or other entity readily available in the scientific community

Some Other Types of Journal Content

- Review articles (summarize the literature on a topic)
- Case reports
- Editorials
- Book reviews
- Essays
- Letters to the editor

Comments

- Writing a scientific paper: largely a matter of organization, not a literary task
- Write to communicate, not to impress

Preparing to Write a Paper



Deciding When to Publish

- Some factors to consider: quality of the work, extent of the work, interest to others
- Suggestions:
 - Seek guidance from those who are more experienced.
 - Present your work orally first. It can help you
 - gauge whether the work is publishable
 - decide on content

Identifying a Target Journal

- If feasible, decide early (before drafting the paper).
- Look for journals that have published work similar to yours.
- Consider journals that have published work you will cite.

Some Factors to Consider

- Audience
- Prestige
- Access
- Impact
- Publication time
- Quality of reproduction
- Likelihood of acceptance

Language of Publication

- Papers published in English tend to be most visible.
- If a paper is clearly written and presents good science, editors often are willing to spend time improving the English.

Journals' Instructions to Authors

- Usual locations:
 - in the journal
 - on the journal's Web site
- Links to instructions from many biomedical journals: <http://mulford.meduohio.edu/instr/>
- Note: Following the instructions will simplify your work and aid interaction with the journal.

Using the Journal's Instructions

- Read the instructions to authors before starting to prepare your paper.
- Consult the instructions while preparing your paper.
- Check the instructions again before submitting your paper.

Beyond the Instructions

- Look at some recent issues of the journal. Doing so can help you gear your paper to the journal.

Writing the Paper



The IMRAD Format for Scientific Papers

- **I**ntroduction: What was the question?
- **M**ethods: How did you try to answer it?
- **R**esults What did you find?
And
- **D**iscussion What does it mean?
- A format used in some journals: IRDAM
- People read sections in various orders.

The Front Matter

- Title
- Authors
- Abstract

Title

- The fewest possible words that adequately indicate the contents of the paper
- Important in literature searching
- Should not include extra words, such as “a study of”
- Should be specific enough but not too narrow

Authors

- Those with important intellectual contributions to the work
- Often listed largely from greatest contributions to least
- Head of research group often is listed last
- Important to list one's name the same way from paper to paper

Abstract

- Summarizes the paper
- Widely read and therefore important
- Commonly organized in IMRAD format (may be structured abstract, with headings corresponding to the various sections)
- Content must be consistent with that in the paper
- Normally should not include figures, tables, references

The Core of the Paper

- Introduction
- Methods
- Results
- Discussion

Introduction

- Provides background needed to understand the paper and know its importance
- Identifies the question the research addressed
- In general, should be fairly short
- Typically should be funnel-shaped, moving from general to specific

Methods

- Purposes: to allow others to replicate and to evaluate what you did
- Should describe the study design
- Should identify (if applicable)
 - Equipment, organisms, reagents, etc used (and sources thereof)
 - Approval of human or animal research by an appropriate committee
 - Statistical methods

Methods (cont)

- May include tables and figures
- An issue: level of detail in which to describe
 - Well-known methods
 - Methods previously described but not well known
 - Methods that you yourself devised
- Helpful to use papers published in the same journal as models

Results

- The core of the paper
- Often includes tables, figures, or both
- An issue: how much the information in the text should overlap that in tables and figures
- Should present results but not comment on them

Discussion

- Often should begin with a brief summary of the main findings
- Should answer the question stated in the introduction
- Some other items commonly addressed:
 - Limitations of the study
 - Relationship to findings of other research
 - Other research needed

Discussion (cont)

- Typically should move from specific to general (opposite of introduction)

Tables: A Few Suggestions

- Use tables only if text will not suffice.
- Design tables to be understandable without the text.
- If a paper includes a series of tables, use the same format for each.
- Be sure to follow the instructions to authors.

Figures: A Few Suggestions

- Use figures (graphs, diagrams, maps, photographs, etc) only if they will help convey your information.
- Avoid including too much information in one figure.
- Make sure any lettering will be large enough once published.
- Follow the journal's instructions.

End Matter

- Acknowledgments
- References

Acknowledgments

- A place to thank people who helped with the work but did not make contributions deserving authorship
- Permission should be obtained from people you wish to list
- Sometimes the place where sources of financial support are stated

References

- Functions:
 - To give credit
 - To add credibility
 - To help readers find further information
- Importance of accuracy
- Existence of various reference formats
- Availability of citation management software (examples: EndNote, Reference Manager)

A Suggestion

Start by drafting whatever part of the paper you find easiest to prepare. (Many people find it easiest to start with the methods section.)

Publishing the Paper



Submitting the Paper

- Traditional submission (by mail)
- Electronic submission
- Inclusion of a cover letter (conventional or electronic)
- Completion of required forms

Initial Screening by the Journal

- For appropriateness of subject matter
- For compliance with instructions
- For overall quality (sometimes)

Peer Review

- Evaluation by experts in the field
- Purposes:
 - To help the editor decide whether to publish the paper
 - To help the authors improve the paper, whether or not the journal accepts it

The Editor's Decision

- Based on the peer reviewers' advice, the editor's own evaluation, the amount of space in the journal, other factors
- Options:
 - Accept as is (rare)
 - Accept if suitably revised
 - Reconsider if revised
 - Reject

Revising a Paper

- Revise and resubmit promptly.
- Include a letter saying what revisions were made. If you received a list of requested revisions, address each in the letter.
- If you disagree with a requested revision, explain why in your letter. Try to find a different way to solve the problem the editor or reviewer identified.

Answering Queries

- Queries: questions from the manuscript editor
- Some topics of queries:
 - Inconsistencies
 - Missing information
 - Ambiguities
 - Other
- Advice: Respond promptly, politely, and completely yet concisely.

Reviewing Proofs

- Proof: copy of typeset material to check
- Some things to check:
 - Completeness (presence of all components)
 - Absence of typographical errors in text and references
 - Placement of figures and tables
 - Quality of reproduction of figures
- Note: This is not the time to rewrite the paper.

A Final Step:
Celebrate Publication of Your Paper!



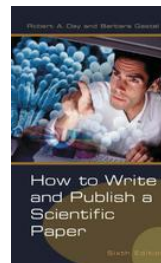
Some Resources



AuthorAID Web site

- <http://www.authoraid.info/>
- Designed to help researchers worldwide write about and publish their work
- A new site; much more content will be added
- In resources section, includes PowerPoint presentations
- Includes a blog

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- By Robert A. Day and Barbara Gastel
- Available through
 - www.amazon.com
 - www.barnesandnoble.com
 - Other

Discussion



Wishing you much success!

