

Template and Guidelines for Writing a Scientific Paper

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Abstract — *The abstract should concisely summarize the contents of a paper. Since potential readers should be able to make their decision on the personal relevance based on the abstract, the abstract should clearly tell the reader what information he can expect to find in the paper. The most essential issue is the problem statement and the actual contribution of described work. The authors should always keep in mind, that the abstract is the most frequently read part of a paper. It should contain at least 70 and at most 120 words.*

1 INTRODUCTION

This document serves two purposes. First it is a template and example for a scientific paper. Second, the text in the sections contains useful information on structuring and writing your first paper. We recommend to read the following sections carefully in order to avoid common mistakes.

The introduction should consist of three parts (as paragraphs, not to be structured into multiple headings):

The first part deals with the *background* of the work and describes the field of research. It should also elaborate on the *general problem statement* and the *relevance*?

The second part should describe the focus of the paper, typically the paragraph starts with a phrase like “*The objective of this paper is ...*”.

The last part should describe the structure of the paper, for example: The paper is structured as follows: Section 2 explains the overall structure for different types of scientific papers. Section 3 gives some hints on writing and covers also acronyms, figures and tables. Section 4 gives a recommendation on L^AT_EX and explains how to get the necessary tools. Section 5 presents a checklist of common mistakes to avoid. Section 6 concludes the paper.

2 STRUCTURE OF YOUR PAPER

2.1 RESEARCH PAPERS

The structuring of your sections heavily depends on the type of your paper. For example if you have done some research encompassing an experimental setup and measurements, your paper could be possibly structured as follows:

- Abstract; Kurzfassung, Abstract
- Introduction; Einleitung
- Related Work; Verwandte Arbeiten
- Basic concepts, Concepts and Terms; Grundbegriffe, Grundkonzepte und Definitionen
- Experimental setup, Applied Method; Versuchsaufbau, Vorgangsweise
- Results; (Experimentielle) Ergebnisse
- Discussion, Proof; Diskussion, Beweis
- Conclusion (and Outlook), Summary; Schlussfolgerungen, Fazit; Zusammenfassung (und Ausblick)
- References; Literaturverzeichnis

The colons separate possible variants in naming the sections. The variants after the semicolon give the German counterparts. If some text is in brackets, this text could be optionally added to the given variant (but used without brackets).

The section on related work might also appear right before the concluding section.

The section on basic concepts should introduce the basic terms and concepts that are needed to understand the following sections of the paper. Sometimes, it is not necessary to have a separate section on basic concepts, if the basic concepts are well-known or can be covered in the introduction.

The experimental setup typically describes the used hardware, software, and the implementation. If your implementation has a fancy name, you could also name that section that way (for example *KHUFU System Description*).

Most papers you will read for your first paper will likely be such *research papers*.

2.2 SURVEY PAPERS

If you do a literature research comparing some approaches, your paper could be possibly structured as follows:

- Abstract; Kurzfassung, Abstract
- Introduction; Einleitung

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the last couple of years and ethic committees and offices have become an integral part at universities hospitals research institutions government agencies and major private organizations all over the world Thus this book provides an indispensable comprehensive overview across disciplines and for everybody working in research and affiliated institutions Chapter 37 is available open access under a Creative Commons Attribution 4.0 International License via link springer.com The Essentials of Political Analysis Philip H. Pollock III, Barry C. Edwards, 2024-12-20 Equip students with the skills and confidence they need to conduct political analyses and critically assess statistical research In the Seventh Edition of The Essentials of Political Science bestselling authors Philip H Pollock III and Barry C Edwards build students analytic abilities and develop their statistical reasoning with new data fresh exercises and clear examples This brief and reader friendly guide walks students through the essentials defining measurement formulating and testing hypotheses measuring variables while using key terms chapter opening objectives over 80 tables and figures and practical exercises to get them using and applying their new skills Using Excel R SPSS or STATA Companion workbooks featuring statistical software instructions and exercises help your students apply their knowledge *Abstracts of Papers* American Association for the Advancement of Science. National Meeting, 1989 *Advanced Materials Researches, Engineering and Manufacturing Technologies in Industry* Hong Hua Tan, 2013-09-04 Selected peer reviewed papers from the 2013 2nd International Symposium on Materials Science and Engineering Technology ISMSET 2013 July 27-29 2013 Singapore Advance Papers of the Conference, 1975 **Scientific American**, 1883 *Advance Papers*, 1975 *Current Awareness Abstracts*, 2000 Journal of Nanoscience and Nanotechnology, 2007 *Eloquent Science* David M. Schultz, 2009 Eloquent Science A Practical Guide to Becoming a Better Writer Speaker Atmospheric Scientist was conceived from a workshop taught over six years to undergraduate students at a summer research experience The volume is divided into three parts writing reviewing and speaking and offers tips on poster presentations media communication and advice for non native speakers of English as well as appendices on proper punctuation usage and meteorological concepts Sidebars written by experts in the field offer diverse viewpoints on reference topics important to the reader and a recommended reading section at the end of the book guides the reader to the best additional resources *Proceedings of the Seventh International Joint Conference on Artificial Intelligence* Ann Drinan, 1981 **Library & Information Science Abstracts**, 2008 **Nanoscience, Engineering Materials and Construction** Spiridon (Spiros) Koutsonas, Gulshan Kumar, Syahida Suhaimi, 2025-04-07 Special topic volume with invited peer reviewed papers only **Proceedings of the 1975 Conference on Information Sciences and Systems**, 1975 *Yale Scientific*, 2001 *Principles and Practices for Using Scientific Advice in Government Decision Making* William Smith, 1999 This report characterizes the international responses to the changing demands on the science policy process Chapter 1 discusses the role of science advice in government decision making with regard to such issues as the science policy interface the decision making environment internal procedures outside advice quality control risk assessment

science communications and science in a social context Chapters 2 3 review the key elements of different systems of science advising best practices and approaches to risk assessment public communications in the European Union New Zealand the Nordic Union the United Kingdom the United States Australia the World Bank and national science academies Chapter 4 contains case studies that examine the effective use of different principles for the incorporation of science into decision making The final chapter reviews the main points lessons learned

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