



RESEARCH METHODOLOGY

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Other parts of the paper

Introduction


 Should introduce the paper/problem, not the field

 Why should people read your paper

 Motivation: why is the problem interesting?

 Context: where did the problem come from?

 Related works: what have others done before?

 Goal: what are you trying to achieve in the paper?

Main body

 Methods: Setup for experiments, Calculations for theory, etc

 Results and discussion

Writing a paper

- ✍ Style depends on field and journal
- ✍ Length restriction by journals
- ✍ But there are some universal principles
 - ✍ Not significantly different from good writing in other fields
 - ✍ Rules of good grammar and punctuation apply to papers!
 - ✍ “Let us eat, grandma!” vs “Let us eat grandma!”
 - ✍ Check internet on common comma mistakes
 - ✍ Always write complete sentences
 - ✍ Correct spelling (esp. scientific terms and names) is a must
 - ✍ Use a software like Grammarly for spelling and grammar mistakes
 - ✍ Try to use the style of the field and of the journal

Start writing

- ✎ Write first draft (at least outline) using pen and paper
- ✎ Makes the brain work harder
- ✎ Write down a title first (working title)
- ✎ Write an introduction (for yourself)
- ✎ Introduction is usually the hardest part (to write well)
- ✎ Collect references for the introduction
- ✎ Write up the work (which you have done)
- ✎ Do not write the conclusions

CHOOSE A SOFTWARE

TEX/LATEX

- Document preparation system
 - Separate editor needed
- Free
- Typesetting instructions required
- Good for Mathematical formulas
- References easy to include in text
- Control over every aspect
 - In principle, not so much in practice
- Grammar and spellchecking not easy

MS WORD

- Word processing software
 - Includes own editor
- Licensed
- What you see is what you get
- Not easy to write equations
- Not easy, but possible
- Almost fully predetermined structure
- Grammar and spelling software
- Good for collaborative writing

PRACTICE MAKES PERFECT

- Start thinking
- Start writing
- Writing assignment
- Not scientific articles but will require some research
 - Not Wikipedia
- Will be graded on effort
- Measured by content, presentation, and grammar
- Writing must be your own

SUBMISSION

- Arxiv
 - Register as an author arxiv.org/user
 - Submission process long
 - A paper once submitted, cannot be removed
 - Useful for claims of priority
 - Not considered a publication
 - Most journals allow pre-publication submission
 - Some journals also allow post-publication update/submission
 - A few journals do not; check journal website carefully