Scientific writing

INFO 4940

The final paper

Final paper guidelines

- About 8 pages, single spaced, including figures, tables, bibliography, etc. Do not go much shorter or longer.
- Submit as a single PDF; create via any software you like
- Follow the standard structure of scientific writing (more below) unless you have a **very** good reason to deviate
- Content matters more than form or elegance, but **everything** matters at some level
- When in doubt, consult existing papers you like for ideas on presentation, structure, style, and so on

Due 5/16 @ 4:30p

Upload a single PDF for the group to Gradescope.

The University Registrar set this due date. It cannot be changed.

Overview of advice

Main points

- Default structure
- Presentation vs. process
- Simplicity is a virtue
- Motivation!

Anatomy of an article

Default structure

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

Introduction

All the domain, problem, motivation, and hypothesis work from the start of the term

Motivation is the key! Why is this an important question? Why should your audience care? Who wants to know the answer? What has prevented them from knowing it until now?

Usually the place for brief lit review, though some CS venues want that at the end.

Methods (and data)

Describe your corpus and the methods you will use to analyze it. Are they novel? Adapted from others? Appropriateness for the problem? Limitations?

Use as much math as necessary, but no more. You do not need an equation for arithmetic mean or linear regressor, for example.

Results

What you found, incl. *explanations* of the data you present

Most figures and tables belong here

Almost no analysis of what the results mean or why they're important (which belongs in the next section, "discussion")

Yes, it can be hard to separate results from discussion. You still need to do it.

Discussion

This is the place for your analysis, the most important substance of the paper

What do your results indicate? What's the answer to your initial question? Is your hypothesis supported by your results?

Refer to figures and tables from the results section, but do not repeat them

Conclusions

Generally brief. Do not repeat your discussion, but do state clearly and succinctly your overall takeaways.

Identify limitations of the current work. What **can't** you say on the basis of your results.

Can you identify next steps for future work?

Other advice

Presentation vs. process

Your write-up **should not** be structured according to your research process. **You do not need to include everything you did, in the order you did it.**

Think about your argument; let that dictate the structure of your article or presentation

Simplify

In general, simpler writing is better than complex writing.

Shorten your sentences and drop adjectives, intensifiers, and qualifiers (within reason).

The same applies to the structure of your article. If you often refer to earlier explanations, your structure is probably weak.

Use headings, formatting, and figure placement to help readers navigate your argument.

Motivation!

Motivation! Motivation! Motivation!

Giving a talk

Like a paper, but shorter

Shorter means *different*

Talk as entertaining advertisement

- Motivation! Motivation! Motivation!
- More figures, less text
  - The details are in the paper
  - No one should read your slides. Including you.
- Structure
  - Tell ’em what you’re gonna tell ’em
  - Tell ’em
  - Tell ’em what you told ’em

Slow down!

Practice.
So much practice.

A good talk is ...

- Motivated
- Focused
- Visual
- Engaging and smooth
- Punctual