

CS446 Fall 2017 Homework Guidelines

August 29, 2017

General guidelines

Below are some rules for you to keep in mind as you typeset your homework. Some come from [Knuth et al. \(1998\)](#).

General writing

- Read and understand the course policies governing homework, which you can view at <https://relate.cs.illinois.edu/course/cs446-fa17/page/policies/>.
- Make sure you submit the names and NetIDs of everyone you collaborated with, but keep in mind that the write-up must be your own work.
- Please be concise with your solutions.
- Don't omit "that" when it helps the reader to parse the sentence.
 - Bad: Assume A is an $n \times n$ matrix.
 - Good: Assume that A is an $n \times n$ matrix.
- Don't use "which" when "that" sounds better.
- Do not use hyphen for the words beginning with "non". For example, write "nonlinear" and "nonstationary".

Mathematical writing

Symbols

- Symbols in different formulas must be separated by words.
 - Bad: Consider S_q , $q < p$.
 - Good: Consider S_q , where $q < p$.
- Don't start a sentence with a symbol.
 - Bad: $x^n - a$ has n distinct zeros.

- Good: The polynomial $x^n - 1$ has n distinct zeros.
- Don't use symbols to represent logic, use words.
 - Bad: $\exists n$ such that as $p \rightarrow \infty$, $f(n, p) \rightarrow 0$.
 - Good: There exists n such that as $f(n, p) \rightarrow 0$ as $p \rightarrow \infty$.
- Use displayed math when handling big equations. Don't put big equations in a paragraph.
 - Bad: Consider $\sum_{i=1}^n \frac{i^2}{2}$ where $n > 100$.
 - Good: We now consider the following quantity

$$\sum_{i=1}^n \frac{i^2}{2},$$

where $n > 100$.

- Use \mathbb{P} for probability, and \mathbb{E} for expectations. Use \mathbb{R} for the set of real numbers, and similarly for rational and integers.
- Use capitalized letters for random variables, and lower case letters for their realizations.
- Use bold capital letters for random variables, for example \mathbf{X} . Use bold letters for vectors, for example \mathbf{x} . We have pre-defined some macros for you in `scribepkg.sty`; you can use these if you would like.

Placement

- Punctuate displayed math equations if the sentence pauses, or ends.

– Bad: Since $n > 100$,

$$\frac{n}{n+1} > \frac{100}{101}$$

– Good: Since $n > 100$,

$$\frac{n}{n+1} > \frac{100}{101}.$$

- Only number an equation if it is referred to later.
- Match the bracket size to the size of the contents within it.

– Bad: We thus have

$$\mathbb{P}\left(\frac{1}{n} \sum_{i=1}^n X_i > t\right) < \exp(-nt^2).$$

– Good: We thus have

$$\mathbb{P}\left(\frac{1}{n} \sum_{i=1}^n X_i > t\right) < \exp(-nt^2).$$

Citations

- If you used results from other articles, please cite it. Give the exact location in the article if necessary, such as the page number in a book.
- Check the BibTeX entry if you downloaded it from Google. In many cases, the entry is not correct.
- Put all citations into `citations.bib` and they will appear on the last page of your notes. We have provided an example citation, but please follow the correct format for adding more.

References

KNUTH, D. E., LARRABEE, T. and ROBERTS, P. M. (1998). Mathematical writing .