

CSE 200: Technical Writing and Presentation

Online 1

24 September, 2024

1 Text Formatting

You can format text in multiple ways in LaTeX:

- **Bold text**: For emphasizing important words.
- *Italicized text*: Commonly used for names of books, papers, or emphasis.
- Underlined text: Useful for highlighting.
- **Colored text**: Color can be applied to any text for emphasis or visual interest.
- ~~Strikethrough text~~: Used to indicate deletion or change.

2 Nested Lists with Different Bullets and Numbering

Below is an example of nested lists with different bullet and numbering styles:

1. First level
 - (a) Second level with letters
 - i. Third level with Roman numerals
 - Fourth level with bullet points
 - Fifth level with dashes
 - (b) Another first level item

3 Equations

Equation 1

$$w(a) = \begin{cases} (\prod_{(u,v) \in p_a} w(u,v))^{-1} & \text{if } x_1 \leq x < x_2 \\ 1 & \text{otherwise} \end{cases}$$

Equation 2

$$\vec{q}_x = \frac{2g_x}{k-1}\vec{b}_n, \quad \vec{q}_y = \frac{2g_y}{m-1}\vec{v}_n, \quad \vec{p}_{1m} = \vec{t}_n d - g_x \vec{b}_n - q_y \vec{v}_n$$

Equation 3

$$S(n,k) = \frac{1}{k!} \sum_{i=0}^k (-1)^{k-i} \binom{k}{i} i^n = \sum_{i=0}^k \frac{(-1)^{k-i} i^n}{(k-i)! i!} \quad (3)$$

Equation 4

$$F_c(x,y) = \begin{cases} \frac{\partial^2 x^3 y^x}{\partial x^2} + \frac{\partial^2 \Gamma(x) \log(\tan y)}{\partial x \partial y} & \text{if x,y are real numbers} \\ \lim_{z \rightarrow e^{x^2 y}} \sqrt{Z + \frac{a}{\sqrt{z + \frac{1}{z + \dots}}}} & \text{otherwise} \end{cases}$$

Equation 5

$$e^{i\theta} = \cos \theta + i \sin \theta$$

if we put $\theta = \frac{\pi}{2}$ in equation 5, we get the following:

$$\begin{aligned} e^{i\frac{\pi}{2}} &= \cos \frac{\pi}{2} + i \sin \frac{\pi}{2} \\ &= 0 + i.1 \\ &= i \end{aligned}$$

4 Table

Row Header	Multi column Header		Single Column
	Col 1	Col 2	
Row 1	1.5		Info 1
	1.4	1.9	
Row 2	1.0	1.5	Info 3
		1.4	

5 Subfigures

You can use subfigures to include multiple images within the same figure environment. For example, see figure 1.



(a) Image 1



(b) Image 2



(c) Image 3



(d) Image 4

Figure 1: Four Images

6 Referencing

A very popular method of phylogenetic tree estimation is ASTRAL [1]. Another equally or better-performing method is wQFM [2], developed in our department.

References

- [1] Mirarab, S. et al. (Aug. 2014). “ASTRAL: genome-scale coalescent-based species tree estimation”. In: *Bioinformatics* 30.17, pp. 541–548. issn: 1367-

4803. DOI: 10.1093/bioinformatics/btu462. URL: <https://doi.org/10.1093/bioinformatics/btu462>.

- [2] Mahbub, Mahin et al. (June 2021). “wQFM: highly accurate genome-scale species tree estimation from weighted quartets”. In: *Bioinformatics* 37.21, pp. 3734–3743. ISSN: 1367-4803. DOI: 10.1093/bioinformatics/btab428. URL: <https://doi.org/10.1093/bioinformatics/btab428>.