# **Article Title**

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#### **Abstract**

The text of your abstract. The cmc-article format is designed for scholarly articles, especially preprints. Its goal is to be lightweight yet customizable, with thoughtful typography and layout.

Keywords • can go here

#### 1 Introduction

Body of paper. Citations are easy to use (Metropolis et al., 1953). See Section 2 for a math demonstration.

## 2 Additional section headings here

cmc-article includes helpful math packages: mathtools, amssymb, amsthm, and physics by default. It also includes a default header.tex file with useful macros for math and statistics. Some of these are demonstrated in Eq. 1.

$$\begin{split} \mathbf{X} \sim \mathrm{N} \Big( \mu, \Sigma^2 \Big); \quad p(\mathbf{x}) &= \frac{1}{\sqrt{(2\pi)^k \det(\Sigma)}} \exp \Big( -\frac{1}{2} (\mathbf{x} - \mu)^\top \Sigma^{-1} (\mathbf{x} - \mu) \Big) \\ \mathbb{E}(Y) &= \sum_{y \in \mathcal{Y}} y \, \mathbb{P}(Y = y) = \sum_{y \in \mathcal{Y}} y \, \mathbb{E} (\mathbb{1} \{Y = y\}) \end{split} \tag{1}$$

The package also includes an assump environment for typesetting assumptions which can be referenced by easy-to-remember abbreviations.

**Assumption IID.** The observations  $X_1, X_2, \dots, X_n$  are independent and identically distributed.

**Assumption FE** (Finite expectation). For each  $1 \le i \le n$ , we have  $E[X_i] = \mu < \infty$ .

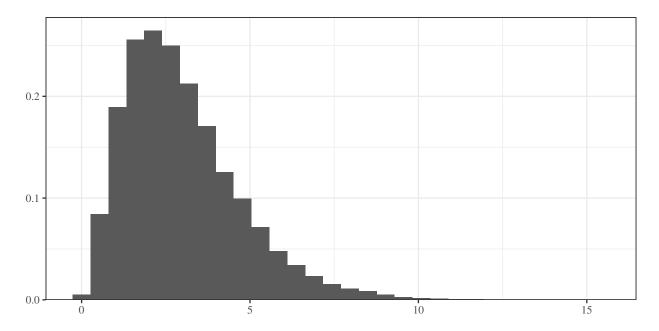
**Theorem 2.1** (Weak Law of Large Numbers). Let  $\bar{X}_n := n^{-1} \sum_{i=1}^n X_i$ . Then under IID and FE, we have  $\bar{X}_n \stackrel{p}{\longrightarrow} \mu$  as  $n \to \infty$ .

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### 2.1 An example subsection heading

See Figure 1 for an example figure.



**Figure 1:** Histogram of samples from a gamma distribution.

### 2.1.1 Level 3 heading

Text here.

### 2.1.1.1 Level 4 (numbered paragraph) heading Text here.

Level 5 (paragraph) heading Text here.

### 3 Conclusion

The final section of the main text.

## References

Metropolis, N., Rosenbluth, A. W., Rosenbluth, M. N., Teller, A. H., and Teller, E. (1953). Equation of state calculations by fast computing machines. *The Journal of Chemical Physics*, 21(6):1087–1092.

## A Appendix section

This section will be numbered like an appendix