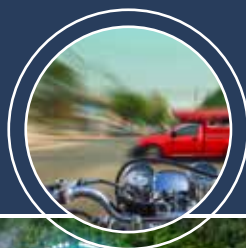


# HIGHWAY SAFETY ANALYTICS AND MODELING

$$\begin{aligned}P(X=k) &= \binom{n}{k} p^k (1-p)^{n-k} \\E(X) &= \sum_{k=0}^n k \binom{n}{k} p^k (1-p)^{n-k} \\&= \sum_{k=0}^n k \frac{n!}{(n-k)!k!} p^k (1-p)^{n-k} \\&= \sum_{k=1}^n \frac{n!}{(n-k)!(k-1)!} p^k (1-p)^{n-k} \\&= \sum_{k=1}^n \binom{n-1}{k-1} p^k (1-p)^{n-k}\end{aligned}$$



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# **Highway Safety Analytics and Modeling**

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The primary purpose of this textbook is to provide information for practitioners, engineers, scientists and researchers who are interested in analyzing safety data in order to make engineering- or policy-based decisions. This book provides the latest tools and methods documented in the literature for analyzing crash data, some of which have in fact been developed or introduced by the authors. The textbook covers all aspects of the decision-making process, from collecting and assembling data to making decisions based on the results of the analyses. Several examples and case studies are provided to help understand models and methods commonly used for analyzing crash data. Where warranted, helpful hints and suggestions are provided by the authors in the text to support the analysis and interpretation of crash data.

(With the exception of Chapter 1, the word counts for all chapters are between 12,000 and 15,000 words)

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