

## A NEW GENERALIZATION OF THE EXPONENTIAL-POISSON DISTRIBUTION USING ORDER STATISTICS

MOHIEDDINE RAHMOUNI<sup>1,2</sup> & AYMAN ORABI<sup>2</sup>

<sup>1</sup>University of Tunis, ESSECT, Tunisia

<sup>2</sup>King Faisal University, Community College in Abqaiq, Saudi Arabia

### ABSTRACT

This paper introduces a new family of lifetime distributions, using the ascendant order statistics. The proposed distribution is called the exponential-generalized truncated Poisson (EGTP) distribution. Our approach follows the same procedure as Adamidis and Loukas (1998) and generalizes the exponential Poisson distribution, introduced by Kus (2007). We give general forms of the probability density function (pdf), the cumulative distribution (cdf), the reliability and failure rate functions of any other statistics. The parameters' estimation is attained by the maximum likelihood (ML) and the expectation maximization (EM) algorithms. The applied study is illustrated, based on real datasets.

**KEYWORDS:** Order Statistics, Exponential Distribution, Failure Rate, Survivor Function, Truncated Poisson Distribution, Lifetime Distributions, EM Algorithm

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