

Homework 4

10/5/22

Homework 4 is due 10/14/2022 at 11:59 PM. Submit your homework on Canvas as one PDF document.

The PDF version of this assignment can be found [here](#).

1. Let X_1, X_2, \dots, X_n be iid with the following density function

$$f(x) = \begin{cases} \frac{\alpha x^{\alpha-1}}{3^\alpha} & 0 \leq x \leq 3 \\ 0 & \text{elsewhere} \end{cases}$$

Find the method of moment estimator for α .

2. Let X_1, X_2, \dots, X_n be iid with the following density function

$$f(x) = \begin{cases} \frac{1}{\theta} 2x e^{-x^2/\theta} & 0 < x < \theta \\ 0 & \text{elsewhere} \end{cases}$$

Find the MLE for θ .

3. Is the MLE estimator from Problem 2 unbiased?