

EE 706: Communication Networks

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Assignment 4 : **30 points**

Due date: March 25, 2011

1. Using a MATLAB simulation, generate a plot of the throughput of ALOHA as a function of the offered load, G frames per frame duration. Consider a range from 0 to 4 for G . The throughput should be maximum at $G = \frac{1}{2}$. [15 points]
2. Using a MATLAB simulation, generate a plot of the throughput of slotted ALOHA as a function of the offered load, G frames per frame duration. Consider a range from 0 to 4 for G . The throughput should be maximum at $G = 1$. [15 points]

For a Poisson process with mean arrival rate G , the interarrival times have an exponential distribution with mean $\frac{1}{G}$. Exponential random variables can be generated in MATLAB using the **exprnd** function.