Lab 1
EE115, Introduction to Communication Systems, Fall 2025

Problem 1: Examining a random signal and AM power efficiency

In this problem, we will examine the average power of a random signal that has its minimum value larger than or equal to -1, and also examine its impact on the power efficiency of conventional amplitude modulation (AM) signals.

a) We begin by using the Gaussian-random-number generator to generate a random sequence

$$m[1], m[2], \ldots, m[N] \tag{1}$$

where we will set N as 200 [a large integer]. We can do so in MATLAB by employing the

b)