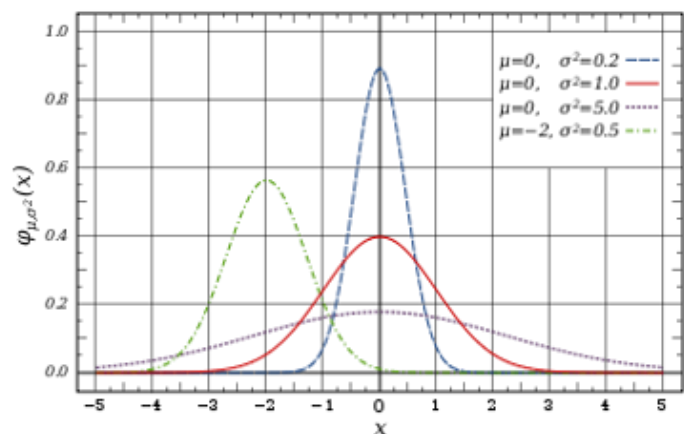# CSCI 4210 OPERATING SYSTEMS

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NORMAL DISTRIBUTION

Also known as a Gaussian distribution, more frequently occurring events are clustered together to form a "bell curve"

Often a good representation or approximation of naturally occurring data (e.g., height, weight, exam grades, etc.)
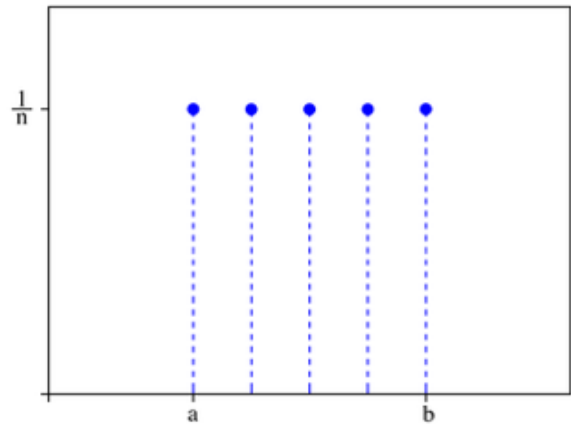
UNIFORM DISTRIBUTION

Each event is equally likely

Pseudo-random number generators typically provide a sequence of values that fit a uniform distribution

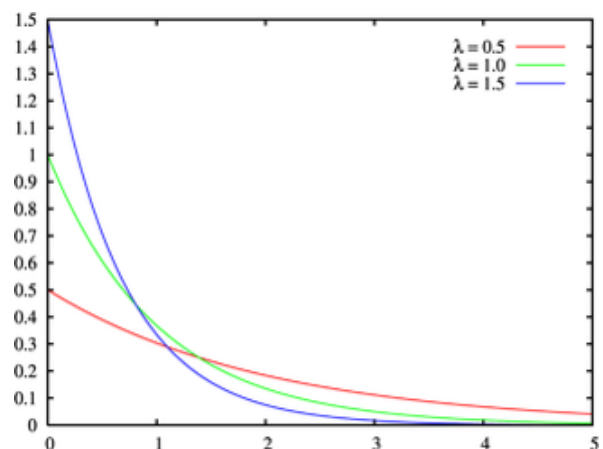Can be used to generate other distributions...

EXPONENTIAL DISTRIBUTION

An exponential distribution describes the time between discrete events (e.g., inter-arrival times)

Events occur independently and continuously

We can model inter-arrival times with a constant average rate

This model is a "memoryless" system

QUEUEING SYSTEMS

A *queueing system* is completely described using three attributes:

* INPUT: how do "customers" (e.g., processes) arrive or join the system?
* QUEUE DISCIPLINE: how is the queue ordered (e.g., FCFS, SJF, etc.)?
* SERVICE MECHANISM: how many service points or servers (e.g., CPUs) are there?

M/M/1 queue

Arrival process

Service process

# of independent servers
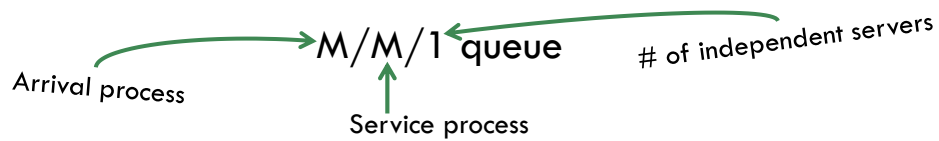
* M: Memoryless (i.e., a Poisson arrival process with rate lambda)
* D: Deterministic (i.e., inter-arrival interval is fixed and non-random)
* G: General