MATLAB Simulations & Randomness

Week 10

Simulation

- A simulation is a computer program written to mimic a “real-life” situation based on chance.
- Each independent event in a simulation requires one random number

Seeding Random Numbers

- We’ve seen how to generate random numbers
  - rand(n) or rand(n,m)
- rand() defaults to uniformly distributed values
- While an instance is open, rand will provide random numbers
- Restarting MATLAB will allow for the same sequence of numbers
- rand() can be initially *seeded* each time you start MATLAB

Seeding Random Numbers

- The function can be seeded with the following statement
  - rand('state', n)
- Where n is any integer
- n is set to 0 by default upon startup
- Useful if you want to repeat the same random numbers (debugging)

Seeding Random Numbers

- Seeding with the clock is a common way to seed random number generators
- To do so with MATLAB use
  - rand('state', sum(100*clock))

Exercise - Seeding

- Set the rand() seed (state) to zero
- Execute rand(1) (You can try this a few times)
- Now set the rand() seed to zero again
- Execute rand(1) as you did previously

- You should notice you get the same random values after reseeding