# Random Variates

3-7-2011

# Opening Discussion

- What did we talk about last class?

- Do you have any questions about the assignment?

- Minute essay comments:

  - Disney simulation and pay.

  - Complexity of Disney simulations and qualifications.

# Pulling Random Variates

- Now we turn our attention to the task of actually pulling random values from the distributions that we have talked about.

- There are many ways of doing this, and some are better than others.

- Not all methods are available for all distributions.

- All methods are based on U(0,1).

# Inverse Method

- If $F(x)$ is invertible, you can find $F^{-1}(y)$, then we can get a random variable by taking $F^{-1}(U(0,1))$.

- This method can also be used for discrete distributions, but we have to find the i value that matches the generated U value.

# Composition

- When a distribution is the weighted sum of two other distributions you first pick one of the distributions based on weights then return a value from that distribution.

# Cloth Simulation

- Two years ago there was a student presentation at SGICSE on simulating cloth using a particle-mesh approach.

- This is a fairly simple method that can use a standard numerical integrator.

- The student's research was actually comparing integrators for this system.

# Minute Essay

- Have you been thinking much about your project?