

EEES 3900 Data presentation exercise  
Due: **02-19-08**

A maple tree has produced a large number of seeds. These fall at varying distances from the parent tree. Most land close to the tree, but some are carried by the wind for considerable distances. Many of the seeds are eaten by a small beetle that lives on the ground. Beetles are much more abundant close to the base of the tree, where the seeds are more likely to fall. In order to have a chance of germinating, a seed must escape detection by the beetle.

You are doing a study to determine where new maple trees are most likely to spring-up. You have followed the fates of a very large number of seeds, recording the distance each seed landed from the parent tree, and whether it was eaten by a beetle before it could germinate. Your raw data are summarized in the table below. Column 1 is the distance from the parent tree in meters (m), column 2 is the probability that a 100 cm<sup>2</sup> area chosen at random at that distance will receive at least one maple seed, and column three is the probability of a seed surviving long enough to germinate (i.e., the probability of not being eaten by a beetle).

1. Using a sheet of **graph paper**, draw a figure (graph) summarizing the data presented in the table.
2. At what distance from the parent tree will you find the largest number of surviving maple seedlings?
3. Add another curve to your graph that shows the expected spatial distribution of maple seedlings.
4. Write a caption for your figure (remember the points about captions that we discussed previously).

<b>Distance (m)</b>	<b>P seed landing</b>	<b>P seed survival</b>
1	1	0
3	1	0.001
5	1	0.003
8	0.9	0.05
10	0.8	0.1
12	0.7	0.2
16	0.6	0.3
20	0.4	0.5
30	0.2	0.75
40	0.01	0.9
50	0.001	0.9

P, probability of the event occurring (1 = 100%)