

University of California, Los Angeles
Department of Statistics

Statistics 100A

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Occupancy problem

Consider $n = 7$ cells and $r = 7$ marbles. In how many ways can the 7 marbles be distributed in the 7 cells? Please complete the table below.

Occupancy numbers	Number of arrangements	Probability
1,1,1,1,1,1,1		
2,1,1,1,1,1,0		
2,2,1,1,1,0,0		
⋮		
⋮		
⋮		
7,0,0,0,0,0,0		

Notes:

There are 15 configurations.

1,1,1,1,1,1,1 means that each cell will receive 1 marble, 2,1,1,1,1,1,0 means that one cell will receive 2 marbles, five cells will receive 1 marble, and one cell will receive no marbles, etc.