STAT 575
Homework 8 Problems
due Wednesday April 5

10 Multiple Choice Problems to be graded. Please see Course Documents Folder on Blackboard for Selecting Multiple Choice Answers

Consider the critical illness model with 3 States: State 1 is healthy (H), State 2 is critically ill (C), and State 3 is dead (D). Suppose you have a homogeneous Markov Chain with transition probability matrix

$$P = \begin{bmatrix} 0.92 & 0.05 & 0.03 \\ 0.00 & 0.76 & 0.24 \\ 0.00 & 0.00 & 1.00 \end{bmatrix}$$

Find the following probabilities of being in each state at the given times.

1. $P(X_1 = D|X_0 = C)$
2. $P(X_2 = H|X_0 = C)$
3. $P(X_2 = C|X_0 = C)$
4. $P(X_3 = D|X_0 = C)$
5. $P(X_1 = C|X_0 = C)$
6. $P(X_2 = H|X_0 = H)$
7. $P(X_2 = D|X_0 = C)$
8. $P(X_3 = C|X_0 = C)$

Fill in the blank.

9. State 3 (D) is a/an ___ state.
10. State 1 (H) and State 2 (C) are ___ states.