

IEOR 3106: Introduction to Operations Research: Stochastic Models

Fall 2012, Professor Whitt

Homework Assignment 4: Tuesday, September 25.

Due on Tuesday, October 2. To be discussed at the recitation on Sunday, September 30.

Note that the first midterm exam is scheduled for Thursday, October 4.

Even More Markov Chains

Read Sections 4.5.1, 4.5.2, 4.6 and part of 4.8. In Section 4.8 read pages 249-255, up to Example 4.37. (In the 9th edition, the covered material in Section 4.8 is on pages 236-242, up to Example 4.33.

Do the following exercises at the end of Chapter 4. Turn in all except for ones with answers in back:

- 41. (Answer in back)
- 42.
- 46.
- 47. (Answer in back)
- 49.
- 56. (Hint: Apply Section 4.5.1.)
- 57. (Hint: Apply Section 4.5.1 again.)
- 76.

We consider a graph in which the nodes are the 64 squares of the chess board. Let an arc join nodes i and j if a knight can move from i to j in one move. Recall that a knight moves two squares in one direction (horizontally or vertically) and one square in another direction (horizontally or vertically), not allowing both horizontal or both vertical.

We also use Remark (ii) in Section 4.4 on p. 215 (p. 205 in the 9th edition) about the relation between the expected time to return to a state and the steady-state probability of being in that state, plus the formula for the steady-state limiting probability π_i toward the end of Example 4.36

on p. 254 (Example 4.32 on p. 241 of the 9th edition).