

# IEOR 3106: Introduction to Operations Research: Stochastic Models

Fall 2012, Professor Whitt

## Homework Assignment 3: Tuesday, September 18

### Introduction to Discrete-Time Markov Chains

**Due on Tuesday, September 25 before class; to be discussed at the recitation on Sunday, September 23.**

Read Sections 4.1-4.5 in the Ross text, up to, but not including Section 4.5.2, i.e., pages 185-221 (pages 191-234 of the 9th edition). However, to keep the work under control, Examples 4.18, 4.19, 4.23, 4.24, 4.25 and 4.26 are optional. These optional examples are Examples 4.15, 4.16, 4.20, 4.21 and 4.22 in the 9th edition. (Example 4.25 does not appear in the 9th edition.) That cuts the reading almost in half.

Do the following exercises at the end of Chapter 4:

2. (Hint: Look at Example 4.4.)

3.

7.

14.

18. In this exercise we keep flipping coins, switching back and forth between the two coins in the manner indicated.

19.

20.

30.

It is always good to get additional practice by doing additional examples. That can be done by choosing problems with answers in the back. I especially recommend problems: 1, 4, 21 and 27. For 27, use symmetry to simplify the equations that need to be solved.

NOTE: Recall that there also is a numerical homework being assigned today, which is due on Thursday, October 7.