

# **IEOR 3106: Introduction to Operations Research: Stochastic Models**

**Fall 2013, Professor Whitt**

## **Homework Assignment 10: Tuesday, November 19.**

**Due on Tuesday, November 26.**

### **Chapter 7: More Renewal Theory**

In Ross, read Examples 7.15 and 7.16 in Section 7.4. Read Sections 7.5-7.7, skipping Examples 7.19 and 7.24. (The total required reading is approximately 12 pages.)

#### **Key Concepts in this Part of the Assignment:**

renewal reward process (Section 7.4)  
age of a renewal process (Examples 7.15 and 7.22)  
excess of a renewal process (Examples 7.16 and 7.23)  
regenerative process (Section 7.5)  
alternating renewal process (Section 7.5.1)  
semi-Markov process (Section 7.6)  
the inspection paradox (Section 7.7)

Do the following exercises at the end of Chapter 7. You need not turn in the ones with answers at the back.

26. Hint: Look at Section 7.4.

31.

32.

38.

41. Hint: Look at Example 7.22 and the equilibrium distribution  $F_e$ , defined after Example 7.23 (also see the next exercise).

42. (answer in back)

49. (answer in back)

51. Hint: Look at Section 7.7.