

## Math 447 - Fall 2024 - Homework 13

Published: Tuesday, November 5, 2024

### Status - Reading Assignments:

Here are the reading assignments to be completed before the first one of this HW.

WMS (Wackerly, et al. Textbook):  
Ch.1 - 6.7

MF447 lecture notes:

Ch.1 - 3, ch.4 (non optional parts), ch.5, ch.6 (strong students), ch.7 - 12.4

Other:

Nothing assigned yet

### New reading assignments:

Important: Work through the examples of the reading assignments! This is particularly important for the material starting at MF ch.10 and WMS ch.4!

#### Reading assignment 1 - due Monday, November 11:

- a. Carefully read MF ch.13.1. Work with pencil and paper through Example 13.1! The stronger students are encouraged to also study the optional material. In particular, they should work through Example 13.2.
- a. Carefully read MF ch.13.2 through Theorem 13.5 (Strong Law of Large Numbers).

#### Reading assignment 2 - due Wednesday, November 13:

- a. Study for the midterm!

#### Reading assignment 3 - due Friday, November 15:

- a. Finish up MF ch.13.2 (infinite monkey example).
- b. Carefully read MF ch.13.3 (NOT again ch.13.2) through Theorem 13.8 (WMS Ch.07.2, Theorem 7.2). Take a peak at WMS ch.7.1 and the beginning of WMS ch.7.2. (This will become part of next week's reading assignments, anyway.)

**General note on written assignments:** I will not collect those assignments for grading but doing them might be helpful for your quizzes and exams.

(a) Write from memory the following definitions and compare them with the MF lecture notes:

- Multinomial distribution, not to be confused with the hypergeometric distribution! What is the role of multinomial coefficients and multinomial sequences?
- How is the multinomial distribution used to derive facts about order statistics?
- The convergence modes of ch.13.1 and the laws of large numbers.

(b) Work through the examples of MF ch.12 and WMS ch.6!

(c.1) All WMS exercises below are odd-numbered, so the solutions are in the book.

**REVISED WMS HW ASSIGNMENTS (Nov 8, 2024):**

- WMS ch.5.6 exercises: #5.75, 5.77, 5.79
- WMS ch.5.7 & 5.8 exercises: #5.93, 5.103, 5.113
- WMS ch.5.9 exercises: #5.119, 5.123
- WMS ch.6.3 exercises: #6.1, 6.3, 6.9

(c.2) All WMS exercises below are odd-numbered, so the solutions are in the book.

The following exercises of HW13 (originally published) were meant to be included with HW14 and/or HW15:

- WMS ch.6.4 exercises: #6.23, 6.31, 6.35
- WMS ch.6.5 exercises: #6.37, 6.39
- WMS ch.6.7 exercises: #6.73, 6.83, 6.87