

## Math 447 - Fall 2024 - Homework 05

Published: Tuesday, September 10, 2024

### Status - Reading Assignments:

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

WMS (Wackerly, et al. Textbook):

Nothing assigned yet

MF447 lecture notes:

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

Other:

Nothing assigned yet

### New reading assignments:

Important: Work through the examples of the WMS reading assignments!

#### Reading assignment 1 - due Monday, September 16:

- a. Read WMS ch.1. It gives you a good background on the kind of issues that probabilistic and statistical models try to address.
- b. Carefully read WMS ch.2.1 - 2.5.
  - The sample point method is IN SCOPE for midterm 1! So do the written assignments below for WMS Ch.2.4 - 2.5!

#### Reading assignment 2 - due: Wednesday, September 18:

- a. Carefully read MF ch.7. and WMS ch.2.6. Since both are on combinatorial analysis, you can read them in sequence or in parallel.
  - Combinatorial analysis is NOT in scope for midterm 1

#### Reading assignment 3 - due Friday, September 20:

- a. Study for the midterm!

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

**Written assignments** Updated on Sep 14:

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

- multiplication rule for 2-stage selections and for  $k$ -stage selections
- number of permutations  $P_k^n = \dots$ ; number of combinations  $\binom{n}{k}$ ; formulas for  $P_k^n$ ,  $\binom{n}{k}$ ,  $\binom{n}{n_1, \dots, n_k}$
- “permutations of size  $k$  relate to elements  $(\omega_1, \omega_2, \dots, \omega_k)$  of  $\Omega^r$  with distinct  $\omega_j$ , whereas combinations relate to subsets  $\{\omega_1, \omega_2, \dots, \omega_k\}$  of  $\Omega$ .” What does that mean?

**(b)** Combinatorics will play a big role not only in the first midterm, but also later in the course, when we are finished with MF ch.4:

- Try to solve closed book as many of the fully worked examples in MF ch.4 and WMS ch.2.6 as possible. Do not skip the complicated ones. They are indicative of what to expect in the major exams and even some quizzes! Do REPEATEDLY closed book Examples 2.5 - 2.13 in WMS Ch.2.6!

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

- WMS ch.2.5 exercises: #2.25, #2.27, #2.29, #2.31
- WMS ch.2.6 exercises: #2.35, 2.37, 2.43, 2.45, 2.55, 2.61, 2.68