Math 447 - Spring 2025 - Homework 04

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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 - ch.5.3

Other:

   Nothing assigned yet

New reading assignments:

> It is really important for the WMS reading assignments that you work through the examples!

Reading assignment 1 - due: Monday, February 10:

   a. Carefully read MF ch.5.4. Be sure to understand all definitions and facts given there. You will have to answer many questions concerning independence in the upcoming quizzes and exams.
   a. Review WMS ch.2.1 - ch.2.4.
   a. Carefully read WMS ch.2.5 and ch.2.7 - ch.2.8. The theory behind all this material has been covered in the MF notes. WMS ch.2.6 is about combinatorial analysis and will be assigned in a later homework.

Reading assignment 2 - due: Wednesday, February 12:

   a. Skim through MF ch.6. The entire chapter is marked OPTIONAL and you will not be tested about its material. However, be aware that I will refer to it in lecture, usually when giving a proof or establishing a connection between two items.

Reading assignment 3 - due Friday, February 14:

   a. Extra carefully read MF ch.7 through ch.7.3, Example 7.9. (Stop before the proof of Theorem 7.6.) Be aware that many exam and quiz problems need knowledge of the ch.7 material for their solution!

> **General note on written assignments:** I will not collect those assignments for grading but doing them might be helpful for your quizzes and exams. Be sure to work the examples!

Written assignments are on the next page.

(a) Work closed book through the examples given in the assigned reading, both in MF and WMF.

(b) Be sure to understand conditioning and independence. If the MF ch.5.2 and ch.5.4 material gives you trouble, read the corresponding pages in WMF ch.2 and then go back to the MF doc.

(c) The motivated student should reflect on the material in MF ch.6. In particular, $E[Y] = \int Y \, dP$ and $E[g \circ Y] = \int g(y) \, dP_Y$.

(d) 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
- WMS ch.2.7 exercises: #2.71, 2.75, 2.79
- WMS ch.2.8 exercises: #2.95, 2.101, 2.107

Selected answers:

None, since all answers to **(a)** can be found in the lecture notes.