

Math 447 - Spring 2024 - Homework 06

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Status - Reading Assignments:

Here are the reading assignments you were asked to complete before the first one of this HW.

WMS (Wackerly, et al. Textbook): ch.1 - 3

MF447 lecture notes: Ch.1 - 7.2

Other: Nothing assigned yet

New reading assignments:

- MF ch.7 comes with very few examples. You should look for those in WMS ch.4!

Reading assignment 1 - due Monday, February 19:

- Carefully read MF ch.7.3 – 7.5. Be sure to recognize that some of the formulas for expectations and variances are identical for discrete random variables
- Carefully read WMS ch.4.1 – 4.3.

Reading assignment 2 - due Wednesday, February 21:

- Carefully read MF ch.7.6 and take a look at ch.7.7 (all its material is optional).
- Carefully read WMS ch.4.4 – 4.6. Focus on the examples, in particular those dealing with the normal and exponential distributions.

Reading assignment 3 - due Friday, February 23:

- Carefully read the remainder of MF ch.7. (Ch.7.8.)
- Read WMS ch.4.7 – 4.8.
- Carefully read WMS ch.4.9. It covers MGFs of continuous random variables, a very important topic!

Written assignments - Not collected for grading:

Remember that **some of those assignments will be relevant for the quizzes and exams.**

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

- Difference between random variable and random element
- Distribution P_X of a random element $X : (S, P) \rightarrow \Omega$ • Distribution P_X of a random variable $Y : (\Omega, P) \rightarrow \mathbb{R}$
- PMF of a discrete random variable $Y : (S, P) \rightarrow \mathbb{R}$
- Expectation of a discrete random variable Y with PMF $p_Y(y)$ • variance and standard deviation of Y

(b) Do the simple exercises of MF ch.6. (New in MF ver.2024-02-13.)

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

- WMS ch.3.2 exercises: #2.7
- WMS ch.3.3 exercises: #3.15, 3.21, 3.25, 3.31, 3.37
- WMS ch.3.4 exercises: #3.37, 3.43, 3.53, 3.59