

## Math 447 - Spring 2024 - Homework 08

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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 - 4.10

MF447 lecture notes: Ch.1 - 8.8

Other: Nothing assigned yet

### New reading assignments:

**No reading assignments for the spring break** Instead I list the reading assignments for the week following the break. You will see them again in HW9.

- When studying the WMS book, be sure to pay extra attention to the examples!

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

- Carefully read WMS ch.5.1 – 5.3. You already have encountered the material in MF ch.8.

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

- Carefully read WMS ch.5.4 – 5.6. You already have encountered the material in MF ch.8.

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

- Carefully read WMS ch.5.7 – 5.9. You already have encountered the material in MF ch.8.

**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:

- All formulas concerning the expectations of discrete and continuous random variables.
- All formulas for variances, moments and MGFs (after all, they are expectations).
- PDF and expectation of a uniform random variable
- PDF, MGF, expectation and variance of a  $\mathcal{N}(\mu, \sigma^2)$  variable
- PDF, MGF, expectation and variance of a gamma( $\alpha, \beta$ ) variable.
  - ☐ Do the same for the particular case of an exponential( $\beta$ ) variable.
  - ☐ Do the same for the particular case of a  $\chi^2$  variable with  $\nu$  degrees of freedom.
- The Tchebysheff Inequalities. Remember that there are two of those!

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

They are meant to cover TWO weeks: Spring break + the following week.

- WMS ch.3.9 exercises: #3.145, 3.147, 3.153,
- WMS ch.3.11 exercises: #3.167, 3.171, 3.177
- WMS ch.4.2 exercises: #4.1, 4.7, 4.11, 4.17
- WMS ch.4.3 exercises: #4.25, 4.31, 4.11, 4.17
- WMS ch.4.4 exercises: #4.1, 4.51
- WMS ch.4.5 exercises: #4.59, 4.71, 4.77
- WMS ch.4.6 exercises: #4.59, 4.81, 4.91, 109
- WMS ch.4.9 exercises: #4.1, 4.145
- WMS ch.4.10 exercises: #4.1, 4.147