Math 447 - Spring 2025 - Homework 07

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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):

ch.2

MF447 lecture notes:

ch.1 - ch.5, ch.6 (skim), ch.7 - ch.9.2

Other:

Nothing assigned yet

New reading assignments:

Really important for the WMS reading assignments: Work through the examples!

Reading assignment 1 - due: Monday, March 3:

- **a.** Carefully read the remainder of MF ch.9. A Heads up: Moment Generating Functions will be tested extensively!
- **b.** Carefully read WMS ch.3.1 - ch.3.3. Work through all the examples given there!

Reading assignment 2 - due: Wednesday, March 5:

- **a.** Carefully read MF ch.10.1 – 10.3. Many of the general theorems are a repeat of ch.9, because $E[g \circ Y] = \int g \circ Y dP$ for both discrete and continuous random variables! The toughest material might be the one on quantiles $p \mapsto \phi_p$ as a "generalized inverse" of the CDF F_Y.

Reading assignment 3 - due Friday, March 7:

- **a.** Carefully read WMS ch.3.1 – 3.5. Focus on the fully worked examples, since you already have encountered the theory in the MF lecture notes.

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 WMS. The WMS examples become disproportionately more important in the application oriented course material.

(b) You must be able to write from memory the definitions of

- ⊡ CDF, PMF, PDF ⊡ $E[Y], E[g \circ Y], Var[Y], \sigma_Y$, and all important $E[\dots]$ formulas, both for discrete (summation with PMFs) and continuous (integration with PDFs) random variables ⊡ quantiles

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

- WMS ch.3.6 exercises: #3.91, 3.93, 3.95
- WMS ch.3.7 exercises: #3.103, 3.105, 3.117
- WMS ch.3.8 exercises: #3.121, 3.127, 3.135
- WMS ch.3.9 exercises: #3.145, 3.147, 3.153

Selected answers:

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