

Math 447 - Fall 2024 - Homework 14

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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.1 - 6.7

MF447 lecture notes:

Ch.1 - 3, ch.4 (non optional parts), ch.5, ch.6 (strong students), ch.7 - 13.3, Thm.13.8

Other:

Nothing assigned yet

New reading assignments:

Important: Work through the examples of the reading assignments! This is particularly important for the material starting at MF ch.10 and WMS ch.4!

Reading assignment 1 - due Monday, November 18:

- a. Carefully read the remainder of MF ch.13.3. If you intend to take Math 448, you need to know this material!

Reading assignment 2 - due Wednesday, November 20:

- a. Carefully read WMS ch.7.1 and WMS ch.7.2. You already have encountered the material in MF ch.13.3.

Reading assignment 3 - due Friday, November 22:

- a. Carefully read MF ch.13.4. It is lengthy, but a larger part than usual contains examples. Highly relevant for Math 448!

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

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

- random sample, statistic, sampling distribution, sample variance and sample standard deviation, Student's t and the F distribution
- the plain english version of Thm.13.6,
- Z_1, \dots, Z_n iid standard normal $\Rightarrow \sum Z_j^2 \sim \dots$
- Connection between sample variance and the χ^2 distribution (Theorem 13.9),
- Connection between sample mean, sample variance, and the t -distribution (Theorem 13.10)
- Examining two sample variances, with the F -distribution (Theorem 13.11)
- The ordinary CLT (Theorem 13.12) vs the sample variance version of the CLT (Theorem 13.16)
- Convergence of Student's t to standard normal and of S^2 to σ^2

(b) Work through the examples of MF ch.13 and WMS ch.7! In particular, WMS Example 6.13 (good practice for the Jacobian method)

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

- WMS ch.7.2 exercises: #7.9, 7.21,
- WMS ch.7.3 exercises: #7.43, 7.45, 7.55