

MM513 Probability Theory II

Ugeseddel 3

In the lectures in week 17 and 18 we have covered the following material: Martingales, submartingales, stopping times, stopped processes, and Doob's optional sampling theorem for both martingales and submartingales (JP Theorem 24.6). Further we have proved Doob's decomposition theorem. We have covered upcrossings of sequences and their connection to convergence of sequences. Finally we have proved Doob's upcrossing theorem (the notes Theorem 2.13) and used that to prove the martingale convergence theorem and some convergence theorems for L_2 -martingales. This corresponds to JP, pages 209–212, 215–217, 219, and the notes, pages 11–16.

In the lectures in week 19 we shall continue to investigate convergence theorems for martingales.

Exercises for week 19

- Remaining exercises from week 18
- Exercises for MM513: 12, 13, 16, 19 (Note that Problem 27 referred to in Problem 19 is actually one of the problems on Weekly Notice II), and 20.

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