

## TMA4230 FUNCTIONAL ANALYSIS, WEEK 6

**LAST WEEK:** Last week we manage to look at strong and weak convergence (Section 4.8), convergence of sequences of operators and functionals (Section 4.9), and the open mapping theorem (Section 4.12).

- Strong and weak convergence (Section 4.8).
- Convergence of sequences of operators and functionals (Section 4.9).
- The open mapping theorem (Section 4.12).

**THIS WEEK:** This week we will first look at closed linear operators and the closed graph theorem (section 4.13), and I will then give a short introduction to topology with applications to functional analysis in mind.

- Closed linear operators and the closed graph theorem (Section 4.13).
- Page 32–43 of the notes.

**NEXT WEEK:** Next week I will first finish the introduction of topology (if I haven't already done that), and we will look at the Banach-Alaoglu Theorem and the Stone-Weierstrass Theorem. The later is a generalization of the Weierstrass Theorem.

- Page 32–43 of the notes.
- The Banach-Alaoglu Theorem (page 52–52 of the notes).
- The Stone-Weierstrass Theorem (extra notes which you can get in class or by sending me an email).

**EXERCISES FOR NEXT WEEK:** 4.12.5, 4.12.6, 4.12.8, 4.12.9 4.12.10, 4.13.11 and 4.13.14.