

TMA4230 FUNCTIONAL ANALYSIS, WEEK 1

THIS WEEK: This week is mainly used to give an introduction to the subject and a repetition of some topics from TMA4145 *Linear methods*, roughly corresponding to chapter 1–3 of the book.

- Introduction/repetition (Chapter 1–3).

NEXT WEEK: Next week we begin by taking a look at Zorn's Lemma (Section 4.1) which is a technical tool used in many areas of mathematics. We then use Zorn's Lemma to get to the first main theorem of the course, the Hahn-Banach Theorem. There are actually several versions of the Hahn-Banach Theorem so we will spend the whole week on this.

- Zorn's Lemma (Section 4.1).
- Hahn-Banach Theorem (Section 4.2–4.3).

EXERCISES FOR NEXT WEEK:

- 2.7.2
- 2.8.9
- 2.10.8
- 2.10.13
- 3.10.3
- 3.10.4