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# Preface

These are notes for the lecture course “*Functional Analysis I*” held by the second author at ETH Zürich in the fall semester 2015. Prerequisites are the first year courses on *Analysis* and *Linear Algebra*, and the second year courses on *Complex Analysis*, *Topology*, and *Measure and Integration*.

The material of Section 1.4 on elementary Hilbert space theory, Subsection 5.4.2 on the Stone–Weierstraß Theorem, and the appendix on the Lemma of Zorn and Tychonoff’s Theorem was not covered in the lectures. These topics were assumed to have been covered in previous lecture courses. They are included here for completeness of the exposition.

The material of Subsection 2.4.4 on the James space, Section 5.5 on the functional calculus for bounded normal operators, and Chapter 6 on unbounded operators was not part of the lecture course (with the exception of some of the basic definitions in Chapter 6 that are relevant for infinitesimal generators of strongly continuous semigroups). From Chapter 7 only the basic material on strongly continuous semigroups in Section 7.1, on their infinitesimal generators in Section 7.2, and on the dual semigroup in Section 7.3 were included in the lecture course.

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