

Course Announcement

In winter term 2022/23 I am reading

Functional Analysis

Lecture: (on site)

Monday, 13.00 – 14.30h, Rudower Chaussee 26 (Schrödinger-Zentrum), Room 0'311
Friday, 9.15 – 10.45h, Rudower Chaussee 26 (Schrödinger-Zentrum), Room 1'304

Class: (on site)

Monday, 15.15 – 16.45h, Rudower Chaussee 25 (JvNeumann-Haus), Room 3.007

Language/Sprache: English oder Deutsch (fixed on / festgelegt am Fr. 21.10.)

Content:

Banach and Hilbert spaces, linear operators, dual spaces, strong, weak and weak*-convergence, Hahn-Banach Theorems, Fundamental theorems for operators on Banach spaces (e.g., uniform boundedness principle), Fourier transform, Sobolev spaces, spektral theory, continuous functional calculus for selfadjoint operators, Fredholm alternative, singular value decomposition of compact operators

Prerequisites: Analysis I-III, Linear Algebra I-II

Literature (* online available):

Alt, H.-W., *Lineare Funktionalanalysis**, Springer
Bühler, T., Salamon, D., *Functional Analysis**, AMS
Conway, J., *A Course in Functional Analysis**, Springer
Kreyszig, E., *Introductory Functional Analysis with Applications*, Wiley
Reed, M., Simon, B., *Methods of Modern Mathematical Physics I: Functional Analysis**, AP
Rudin, W., *Functional Analysis*, McGraw-Hill
Werner, D., *Funktionalanalysis**, Springer