

**INTRODUCTION TO THE INTERPOLATION THEORY 2, NMMA534,  
SUMMER TERM 2018–2019 EXAM REQUIREMENTS**

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REQUIRED DEFINITIONS

- $K$ -functional
- Gagliardo completion
- space  $X_{\theta,q}$
- interpolation pair
- singular integral operator

REQUIRED THEOREMS (WITHOUT PROOFS)

- characterization of  $X_0 + \infty X_1$  (Theorem 27)
- basic theorem of real interpolation (Theorem 30)
- $K$ -functional for  $(L^{1,\infty}, L^\infty)$  (Theorem 31)
- reiteration theorem (Theorem 35)
- Calderón–Zygmund decomposition (Theorem 37)

REQUIRED THEOREMS (WITH PROOFS)

- $K$ -functional for  $(L^1, L^\infty)$  (Theorem 26)
- $K$ -functional for the Gagliardo completion (Theorem 28)
- boundedness of interpolation operators (Theorem 32)
- Whitney covering theorem (Theorem 36)
- weak  $(1, 1)$  type of a singular integral operator (Theorem 38)