

POSITIVITY PRESERVERS: THEORY AND APPLICATIONS

LIST OF PREREQUISITES

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The mini-course will be mostly self-contained. Still, the students will be assumed to be familiar with the following elementary concepts.

- Linear algebra (vectors, matrices, eigenvalues, eigenvectors, determinants, orthogonal matrices, unitary matrices, change of basis, similar matrices, diagonalization of symmetric matrices)
- Basic real and complex analysis (limits, continuity, fundamental theorem of calculus, polynomial approximation, basic properties of analytic functions)
- Basic theory of metric spaces (distance, the triangle inequality, neighborhood, continuity, compactness, etc.)
- Basic measure and integration theory (sigma algebras, measures, measurable functions, the Lebesgue integral, etc.)
- Elementary graph theory (vertices and edges, paths, trees, cycles, degree of a vertex)
- Elementary probability theory (random variables, probability densities, expected value, variance, etc.)

Familiarity with the following concepts would be useful, but is not necessary: the Schur complement of a matrix, the Cauchy–Binet formula, the basic theory of Schur polynomials.