

Download Topological Vector Spaces

A topological space is an ordered pair (X, τ) , where X is a set and τ is a collection of subsets of X , satisfying the following axioms: The empty set and X itself belong to τ . A vector space (also called a linear space) is a collection of objects called vectors, which may be added together and multiplied ("scaled") by numbers, called scalars. Vector Space. A vector space is a set that is closed under finite vector addition and scalar multiplication. The basic example is n -dimensional Euclidean space, where every element is represented by a list of real numbers, scalars are real numbers, addition is componentwise, and scalar multiplication is multiplication on each term separately. Uniform Spaces & Completeness. Uniform spaces are special topological spaces in which the important metric notions of uniform convergence and completeness can be properly generalized (along with many other concepts now known as uniform properties).