

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. (2007-11-02) Metric Spaces (Maurice Fréchet, 1906) Distance entails a particular topological structure. Many topological notions (continuity, connectedness, etc.) were first introduced in the context of a metric space, where a distance d is defined which is endowed with the following axiomatic properties: 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).