

The purpose of this talk is to show how some classical linear algebra results are capable of broad generalization in the context of lattices. In our development a vector space V is replaced by the lattice $\text{Sub}(V)$ of subspaces in V and a linear map $\varphi : V \longrightarrow V$ is replaced by the natural map on $\text{Sub}(V)$ induced by φ . In general, we consider a lattice L and a map $\lambda : L \longrightarrow L$. The conditions we impose on L and on λ are extracted from the properties of the subspace lattice of a vector space and from the properties of the map on the subspace lattice induced by a linear transformation. We assume, in most of the cases, that $(L, \vee, \wedge, 0, 1)$ is an algebraic atomistic lattice with the atomic cover property and that λ is a complete $\vee$ -homomorphism satisfying the so called J1 and J2 conditions. First we obtain an analogue of the well known result about the dimension of the image and the kernel of a linear transformation. Then we formulate a Fitting lemma for λ . The main result is a Jordan normal form theorem for a nilpotent λ .