PMath 945 - Topics in Algebra - Category Theory and Homological Algebra

Course Description

Categories and functors, natural transformations, the opposite category, adjoints, tensor-Hom adjunction, Yoneda's lemma, initial and terminal objects, limits and colimits, Abelian categories, Mitchell's embedding theorem, Projective modules and vector bundles, injective modules, complexes, long exact sequences, homotopies of complexes, projective resolutions, derived functors, Ext and Tor, Ext via Yoneda equivalence. Additional topics may be added depending on time.