This short course will introduce basic overview pathway analysis. Along the approximate 2 hours lecture, we will cover (1) two basic strategies for pathway: parametric vs. non-parametric; (2) then, we will discuss the advantages that pathway analysis may provide when compared to individual gene-based analysis in these instances; (3) we will next define the data required to perform a pathway analysis and explore the two most commonly used statistical methods for determining pathway enrichment; (4) we will also briefly discuss some tools and databases available for performing pathway analysis; (5) finally, we will have a hand-on session with gene set enrichment analysis (GSEA).