Quadratic Programming

Mathematical programming is technique within the operations research discipline concerned with optimization. It is very useful in managerial decision making. It is an optimization model whose primary objective is to search for the optimal solution to a decision problem given certain constraints. More specifically, a mathematical programing problem usually consists of an objective function to be optimized and a set of constraints which must be met.

Linear programming is a specific type of mathematical programming that deals with allocating scarce resources among competing activities in an optimal manner. Linear programming is arguably the easiest type of mathematical programming.

Quadratic programing is a special class of mathematical programming that has a quadratic objective function and linear constraints. Quadratic programming problems are relatively simple compared to other nonlinear programming problems because of their similarity to linear programming problems.

Perhaps the most famous example of quadratic programming is the portfolio selection model as describe by Harry Markowitz (see CAPM) in his work on portfolio optimization.