Chapter 3: Art of Optimization

# Concepts of Optimization

## Corresponding reading: Chapter 3, Page 1

### Purpose: Understanding the main concepts of optimization with a real-world example.

1. Defining the objective function might not be straight forward in many real-world applications of optimization. For example, consider the following problem: The university has some extra budget to spend on improving the quality of education. How can you define an objective function for this example (Hint: what should be maximized or minimized)? Give at least three different ways the objective function can be defined.
2. What are some alternatives for investing the extra budget?
3. Do you think the whole budget should be spent on one of the alternatives, or divided between different alternatives? Why?
4. Considering your answer to parts (b) and (c), and assuming the whole budget is $1,000,000, give three examples of feasible solutions (Hint: three ways to spend the budget).
5. Give an example of an *infeasible* solution.

***Note:*** *Understanding the case and what you need to do is PART OF THE CASE. If you do not understand a specific part, or are not sure what you should do, you need to review the corresponding reading section in the text before asking for help. You might also need to do some search on the internet. That is all part of the case and your learning process.*