Course Project

### **Purpose:** Applying concepts and tools of business analytics to a real-world scenario.

1. Consider a real-world problem similar to the ones discussed in the text. *Make sure you have access to and can gather all required data as you need to use real-world data for this project*. Explain the problem in your own words. Make sure to include potential requirements (e.g., constraints) and alternatives or solutions.
2. Develop a mathematical model to solve the problem and find the optimal solution. You can use one of the mathematical models discussed in the text (i.e., Linear Programming, Payoff Table, and Regression Analysis), or use another mathematical model. Examples of other mathematical models you can consider are: Game Theory, Inventory Models, Integer Programming, Dynamic Programming, Simulation, Genetic Algorithm.
3. Explain in detail what mathematical model you are using, what are the input data (with references), and what are the expected outputs of the model.
4. Solve the model and find the optimal solution. Make sure to attach any software files you use (e.g., Excel files).
5. Conduct sensitivity analysis on at least five of the most important model parameters. Explain how changes in those parameters impacts the optimal solution.
6. Make recommendations for implementing your findings in the real-world to improve decision-making based on the model results and sensitivity analysis.
7. How do you think using the mathematical model improves the decision-making process (e.g., accuracy, speed, and automation)?

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