**SLP Background:**

**Decision Making Under Risk**

Recall from Module 1 Background that in decision situations there are three different levels of uncertainty: assumed certainty, risk, and uncertainty. In SLP 1, we covered assumed certainty. In this Module we will discuss RISK. Recall what it means for a decision under risk:

*Risk.* In this situation, the decision maker distinguishes several possible future states, and is able to determine the probabilities of these distinct futures, or estimate the probabilities with a degree of confidence. There may be few or many options to choose from and the outcomes of these options may be different in the possible future states. For example, consider the weather which is always risky. And we usually have some estimates of the future states based on what the weatherman says. Two possible states are Rain and No Rain. The choices to consider here might be: Walk w/no umbrella, Walk w/umbrella, or Drive. The decision maker can determine the probabilities of Rain/No Rain from the forecast, for example, 60% chance of Rain (and 40% No Rain.) There are costs and payoffs involved with each option. And different people may have different decisions to make. The office employee may need to decide to walk or ride to work. The farmer may need to decide to work in the fields or protect the crops.

In all of these decisions there are basic elements that must be determined before the decision can be made. First, determine the possible future states (F) and the probabilities (p) for each. Note that the law of probability requires that the DM identify all a set of mutually exclusive and collectively exhaustive set of future states. And the probabilities must sum to 1.0 (100%). Then the DM must identify the alternatives (A). Note this is a key step as specified in Module 1. The next step is to identify the outcomes (O), payoffs, or consequences of each alternative for each future state. Quite often in business, this will be a monetary value. Then the DM can use the concept of Expected Value to determine the probability payoff for each alternative which allows for choosing the best alternative.

Review the following PowerPoint introducing decision making under risk:

[*Introduction to Decisions Under Risk (PPT)*](https://tlc.trident.edu/content/enforced/88075-BUS520-OCT2016FT-2/Modules/Module2/Fall%202014%20files/Introduction%20to%20Decisions%20Under%20Risk.pptx?_&d2lSessionVal=maBmggpLeyDBWvaLkBPLlfJwk&ou=88075) (Attached)

Now, watch this video that explains decision making under risk:[*http://permalink.fliqz.com/aspx/permalink.aspx?at=878629d1caf94d26b7e30bb857cbf6bf&a=5fae3cf0f1624f39b0341263a6541ea0*](http://permalink.fliqz.com/aspx/permalink.aspx?at=878629d1caf94d26b7e30bb857cbf6bf&a=5fae3cf0f1624f39b0341263a6541ea0)

Download this Excel file that shows the example used in the video: [*SLP 2 Examples-Sample Problem.xlsx*](https://tlc.trident.edu/content/enforced/88075-BUS520-OCT2016FT-2/Modules/Module2/Fall%202014%20files/SLP%202%20Examples-Sample%20Problem.xlsx?_&d2lSessionVal=maBmggpLeyDBWvaLkBPLlfJwk&ou=88075) (Attached)

Try the Sample problem in this Excel file. Check your solution.

You should be ready for SLP 2.