Learning objectives

After reading this chapter and doing the exercises, you should be able to:

1 Describe a problem situation in terms of decisions to be made, chance events and consequences.

2 Understand how the decision alternatives and chance outcomes are combined to generate the consequence.

3 Analyze a simple decision analysis problem from both a payoff table and decision tree point of view.

4 Determine the potential value of additional information.

5 Use new information and revised probability values in the decision analysis approach to problem solving.

6 Understand what a decision strategy is.

7 Evaluate the contribution and efficiency of additional decision-making information.

8 Use a Bayesian approach to computing revised probabilities.

9 Know the definition of the following terms:

decision alternatives
consequence
chance event
states of nature
payoff table
decision tree
expected value approach
expected value of perfect information (EVPI)
decision strategy
expected value of sample information (EVSI)
Bayesian revision
prior probabilities
posterior probabilities