

Decision Analysis Test 1, Sum 2008

- Students in JMU COB would like to know how to improve their academic performance. Their prior experience shows 75% of students did well. Students would like to analyze whether their study before exams would improve their performance. They collected historical data and show that among those students did well on exams, 85% of them studied for exams, and among those did poorly on exams, 70% went bar hopping.

- (14 pts.) Use the information provided in the problem statement above to complete the tables shown below with 3-decimal points of accuracy. Pay close attention to the labels.

	Did Well	Did Poorly
Prior Probability		
Conditional Probabilities		
P(Study for Exam or Went to Bar) (Did Well or Did Poorly)	Did Well	Did Poorly
Studying for Exam		
Went Bar Hopping		
Joint Probabilities		
P(Study for Exam or Went to Bar) \cap (Did Well or Did Poorly)	Did Well	Did Poorly
Studying for Exam		
Went Bar Hopping		
Posterior Probabilities		
P(Did Well or Did Poorly) (Study for Exam or Went to Bar)	Did Well	Did Poorly
Studying for Exam		
Went Bar Hopping		

(2) (3 pts.) Based on your results above, what is the probability that a student studies for exams? (Use the notation in the equation and provide the answer)

(3) (3 pts.) Based on your results above, what is the probability that a student who studied for exams did well on exams? (Use the notation in the equation and provide the answer)

2. An investor is to purchase one of two types of real estate, apartment building, or warehouse.

(1) Fold back the tree to determine the optimal strategy to maximize expected profit with 3 – decimal points. Show your work on the decision tree with a value at each node. Write the optimal EMV and a statement of the optimal strategy below.

a. (16 pts.) Optimal EMV = _____

b. (4 pts.) State the Optimal Strategy:

(2) (15 pts.) Compute the EVSI. Show your work.

(3) (10 pts.) Compute the EVPI. Show your work.

(4) (5 pts.) Suppose that the market study report was only correct 60% of the time in predicting poor economy with a negative report. If this percentage could be improved, what effects, if any, would it have on the EVPI and EVSI. Support your answer. Be sure that you indicate a clear understanding of these two values.

