

# Assignment 3: Bayesian Decision Theory (II)

Submission: Tuesday September 28th  
Maximum 2 students per group

Prof. Fabio A. González  
Machine Learning - 2010-I  
Maestría en Ing. de Sistemas y Computación

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1. [Alp04] Exercise 5 & 6 (chap. 3, page 58)
2. [Alp04] Exercise 6 (chap. 4, page 82)
3. [DHS00] Problem 13 & 14 (sect. 2.4, page 68)
4. [DHS00] Computer exercise 9 (sect 2.11, page 81). *Note: do not write a program, instead look for a program that solves Bayesian Networks. Provide a detailed explanation for each answer.*
5. [Bis06] Exercise 9.6 (chap. 9, page 456)
6. Apply a mixture-of-Gaussian-components model to the data set from assignment 2. Use expectation maximization (you may use an available package) to find the parameters. Present and analyse the results.

## References

- [Alp04] Alpaydin, E. 2004 Introduction to Machine Learning (Adaptive Computation and Machine Learning). The MIT Press.
- [DHS00] Duda, R. O., Hart, P. E., and Stork, D. G. 2000 Pattern Classification (2nd Edition). Wiley-Interscience.
- [Bis06] Bishop, C. 2006 Pattern Recognition and Machine Learning. Springer-Verlag.