

Code: 1768 Simulation Techniques**Degree:** 2nd cycle – Mathematics Applied to Biological Sciences**Curricular Year:** 1st/2nd**Semester Course:** 2nd/1st**Credits:** 3 ECTS**Optional****Language:** Portuguese/English**Responsible:** Maria Manuela Costa Neves Figueiredo**Other lecturer(s):** Maria João Teixeira Martins**Web Site:** <http://www.isa.utl.pt/home/node/3898>**1. Contact hours:****Lecture/Practicals 35 Others 7 Total 42****2. Objectives:**

Introduce the concept of pseudo random number. Present several applications in Statistics.

3. Programme:

Techniques for generating pseudorandom numbers.

Random generation from discrete and continuous non-uniform distributions.

Computational Statistics and Monte Carlo methods.

Resampling methods: the jackknife and the bootstrap.

4. Bibliography:**Main Bibliography**Devroye, L. (1986) Non-Uniform Random Variate Generation. Available at <http://cg.scs.carleton.ca/~luc/rnbookindex.html>

Efron, B. e Tibshirani, R.J. (1993). An Introduction to the Bootstrap, Chapman & Hall.

Kleijnen, J. e van Groenendaal, W. (1988). Simulation. A Statistical Perspective, John Wiley.

Rubinstein, R.Y. (1981). Simulation and the Monte Carlo Method, John Wiley & Sons.

Shao, J. e D. Tu, D. (1996). The Jackknife and Bootstrap, Springer-Verlag, New York.

Other Bibliography

Fishman, G. S. (1996). Monte Carlo. Concepts, Algorithms and Applications, Springer.

Bratley, P., Fox, B.L. e Schrage, L.E. (1987) A Guide to Simulation, Springer-Verlag.

Ripley, B. D. (1987). Stochastic Simulation John Wiley & Sons.

5. Assessment:

Exam

6. Estimated Workload:

84	Hours
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7. Last Update:

15/7/2010
