

Code: 1437 Numerical Methods**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 João Teixeira Martins**Other lecturer(s):** Fernanda Maria dos Reis Torroaes Valente**Web Site:** <http://www.isa.utl.pt/home/node/3895>**1. Contact hours:****Lecture/Practicals 35 Others 7 Total 42****2. Objectives:**

Study and analysis of algorithms for obtaining numerical solutions to various mathematical problems.
Discussion of errors, convergence and efficiency associated with the methods.

3. Programme:

Introduction to the R software
Error analysis and propagation
Solving nonlinear equations
Solving systems of linear equations
Solving systems of nonlinear equations
Approximation of functions
Integration
Solving ordinary differential equations: initial value problems

4. Bibliography:**Main Bibliography**

Burden, R.L. & Faires, J.D. (2005) Numerical Analysis. 8a ed. Thomson Brooks/Cole
Diogo, T. & Tomé, M. (2009) Matemática Computacional, Notas de Aulas. AEIST

Other Bibliography

Cheney, W. & Kincaid, D. (1999) Numerical Mathematics and Computing. 4a ed. Brooks/Cole
Pina, H.(1995) Métodos Numéricos. McGraw-Hill
Valença, M.R.(1990) Métodos Numéricos. INIC.

5. Assessment:

Exam

6. Estimated Workload:

84	Hours
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7. Last Update:

15/7/2010
