Code: 1692 **Genetics and Genomics**
Degree: 1st cycle - Biology
Curricular Year: 2nd **Semester Course: 2nd**
Credits: **8 ECTS** **Compulsory**
Language: Portuguese/English
Responsible: Jorge Alexandre Matos Pinto de Almeida
Other lecturer(s): Maria Leonor Mota Morais Cecílio, Maria Wanda Sarujine Viegas and Antero Lopes Martins
Web Site: http://www.isa.utl.pt/home/node/3957

1. Contact hours:
Lectures 42 **Lecture/Praticals** 42 **Others** 28 **Total** 112

2. Objectives:

With this course students should become familiar with basic concepts of classical genetics. Such concepts are conveyed through problem-solving sessions in which formal and molecular genetic analysis are combined.

3. Programme:

Mitosis, meiosis and sexual reproduction. Genes in molecular and formal genetic analysis. Origin of allelic diversity and mutant types. Monohybrid cross. Test-cross. Allelic interactions. Allelic series. Lethal alleles. Pedigree analysis. Sex-linked inheritance. Dihybrid and polihybrid crosses and independent segregation. Gene interactions. Complementation and epistasis. Linkage and recombination. Gene mapping in plants, animals and fungi. Cytogenetics. Population and quantitative genetics. Immunogenetics. Genomics. Use of transposons, transgenesis and RNA interference in forward and reverse genetics.

4. Bibliography:

Main Bibliography

Griffiths, A. J. F. *et al.* An Introduction to Genetic Analysis. W.H. Freeman and Company/New York

Other Bibliography

Watson *et al.* Molecullar Biology of the gene. CSHL Press.
Alberts *et al.* Molecular Biology of the Cell. Garland Pub.

5. Assessment:

Bi-weekly tests and final exam.

6. Estimated Workload:	224	Hours
7. Last Update:	8/7/2010	