Code: 1660 **Molecular Biology**
Degree: 1st cycle - Biology **Curricular Year: 1st**
Semester Course: 1st
Credits: 6 ECTS **Compulsory**
Language: Portuguese/English
Responsible: Jorge Alexandre Matos Pinto de Almeida
Other lecturer(s): -
Web Site: http://www.isa.utl.pt/home/node/3944

1. Contact hours:
Lectures 42 **Praticals/Laboratory** 28 **Others** 14 **Total** 84

2. Objectives:

The core material focuses on function at a molecular level: the structure and regulation of genes, and the structure and synthesis of proteins; how these molecules are integrated into cells; and how cells are integrated into multicellular systems and organisms.

3. Programme:

Basic genetic mechanisms – flow of information
Chemical and physical structure of the DNA /chromatin. The cell genome.
Gene expression – transcription and transcriptome; protein synthesis and folding.
Processes of transmission and maintenance of genetic information: DNA replication and genetic mechanisms of DNA repairing.
Mechanisms of genome innovation: origin and types of mutations; molecular mechanism of homologous recombination; transposable elements.
Technology of recombinant DNA
Mechanisms of regulation of gene expression

4. Bibliography:

Main Bibliography

Alberts, B. Bray, D. Lewis, J Raff, M. Roberts, K. Watson, J., 2002. *Molecular biology of the cell*. Garland Publishing, Inc., New York

Other Bibliography

Molecular Cell Biology, 5th ed. Lodish, H. F., A. Berk, P. Matsudaira, C. Kaiser, M. Krieger, M. Scott, L. Zipursky, and J. E. Darnell, *Scientific American Press,* N.Y. 2003

5. Assessment:

- Global examinations
- Direct evaluation each two weeks
- Written and oral presentation of a paper

6. Estimated Workload: 168 Hours

7. Last Update: 7/7/2010