**Code: 1657** **Developmental Biology**
**Degree:** 1st cycle - Biology
**Curricular Year: 3rd** **Semester Course: 1st**
**Credits**: **8 ECTS** **Compulsory**
**Language:** Portuguese/English
**Prerequisites:** Genetics and Genomics
**Responsible:** Sara Barros Queiroz Amâncio
**Other lecturer(s):** José Carlos Franco Santos Silva, Jorge Alexandre Matos Pinto de Almeida, Maria Wanda Sarujine Viegas and Elisabete Tavares Lacerda de Figueiredo Oliveira
**Web Site:** http://www.isa.utl.pt/home/node/3962

**1. Contact hours:**
**Lectures** 56 **Practicals/Laboratory** 28 **Others** 28 **Total** 112

**2. Objectives:**

The course aims to provide the students with a basic understanding of the principles of development and morphogenesis;
Common developmental strategies used in building different taxonomic groups;
Common developmental strategies used in building different parts of the body.
Genetic, epigenetic and functional genomics mechanisms underlying development regulation

**3. Programme:**

Gametogenesis and fertilization;
Meiosis and regulation of recombination;
Commitment, determination and morphogenesis;
Cell communication, signaling and migration;
Gene expression and regulation of the development;
Cleavage and gastrulation in Invertebrate and Vertebrate embryos;
Cell specification and patterning of the nematode *Caenorhabditis elegans;*
Embryonic pattern in Insects: The *Drosophila* model; Homeotic genes and regulation of axial and regional specification in *Drosophila;* Insect metamorphosis;
*Drosophila* as a model to study experimental evolution
Observation of *Drosophila* mutants
Vertebrates embryogenesis: fate of the ectoderm, mesoderm e endoderm
Organogenesis of male and female genital apparatus: morphology and molecular regulation; neural crest
Plant Development: Shoot and root meristems; Pattern of leaf development;
Genetic control of flower development

**4. Bibliography:**

**Main Bibliography**

Gilbert, Scott F., Developmental Biology
Sunderland (MA): Sinauer Associates, Inc. ; c2000
http://www.ncbi.nlm.nih.gov/sites/entrez

**Other Bibliography**

Davis G K, H P Nipam, SHORT, LONG, AND BEYOND: Molecular and Embryological Approaches to Insect Segmentation, Annu. Rev. Entomol. 2002. 47:669–99

**5. Assessment:**

1. Tutorial assessment (TA, minimum 40%)
1.1. Queries/Reports/blind tests, 15%, (a);
1.2. Essay + oral presentation, 20%, (b)
1.3. Intermediary queries, 25%, (c)
1.3. Tutorial contribution to final mark
2. Final exam
Minimum mark - 50% (10/20)
Contribution to final mark, 40%, (E)
Final mark (F) = 60%*TA + 40%*E

**6.** Estimated Workload: 224 Hours

**7.** Last Update: 24/1/2011