

EMBRYOLOGY AND DEVELOPMENTAL BIOLOGY

Study Programme: MIMV **Curricular Year:** 1st **Semester:** 1st **Compulsory** **ECTS:** 4,5

Lecturer(s): Mário Pinho (CCP) Ana Amaral (R), José Ferreira da Silva, Rute Noiva

1. Contact hours: Lectures – 28; Practicals - 28

2. Objectives:

Learning of morphological and molecular aspects concerning fertilization, cleavage, gastrulation, neurulation and organogenesis. Learning of cellular and molecular mechanisms of embryonic and fetal development. Introductory notions to the mechanism of some congenital malformations.

3. Programme:

Fertilization – morphological and molecular aspects.

Embryogenesis – morphological and molecular aspects of cleavage, gastrulation and neurulation; fate of the ectoderm, mesoderm and endoderm.

Mechanisms of development - differentiation (genome inalterability; restriction, determination and differentiation; regulation of cell diversity and differentiation); patterning; cellular migration; apoptosis; growth.

Organogenesis – serous membranes (body cavities), respiratory system, digestive system, urinary system, genital systems (male and female), pharyngeal arches, endocrine glands, skin and appendages, musculoskeletal system.

4. Bibliography:

Sadler TW (2021) – Langman – Embriologia Médica. 14^a ed. Editora Guanabara Koogan S.A.

Carlson BM (2004) – Human Embryology and Developmental Biology. 3^a edição. Mosby.

Hyttel, P.; Sinowatz, F.; Vejlsted, M. (2010) – Embriologia Veterinária. Elsevier Editora Ltda.

McGeady, T.A.; Quinn, P.J.; Fitzpatrick, E.S.; Ryan, M.T.; Kilroy, D.; Lonergan, P. (2017).

Veterinary Embryology. 2^a edição. Wiley-Blackwell.

Carlson, B.M. (2014) – Embriologia Humana e Biologia do Desenvolvimento. 5^a edição. Elsevier Editora Ltda.

Climent, S.; Sarasa, M.; Domínguez, L.; Muniesa, P.; Terrado, J. (1998) - Manual de Anatomía y Embriología de los Animales Domésticos: Editorial Acribia S.A.

4. Assessment:

Theoretical and practical knowledge are assessed in a single final written exam.