



In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

3 credits	25.0 h + 15.0 h	Q1
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Teacher(s)	Rezsohazy René ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	The course begins with the analysis of the basic mechanisms of embryonic development (morphogenesis, induction, cellular differentiation, apoptosis, axis determination, gene development, asexual and sexual reproduction, etc..) These mechanisms are illustrated by the knowledge acquired from model animals. This is then followed by a step-by-step and comparative description of the mammalian and avian development (gametogenesis, fertilization, cleavage, gastrulation, neurulation, implantation, placentation, organogenesis, ).
Aims	<p>To understand the unity of the animal kingdom, through the analysis of the basic mechanisms of embryonic development shared by distinct animal phyla. These mechanisms are considered in an evolutionary perspective. To approach the diversity of the animal kingdom, through the description of remarkable and distinctive peculiarities of developmental processes representative of different animal phyla. The link between evolution and development is emphasized. To acquire a more detailed knowledge of the embryonic and fetal development of Vertebrates. A particular focus on Mammals is provided.</p> <p>-----</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods	<p><b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b></p> <p>Oral examination in three parts, with written preparation of one hour for the first two parts which correspond to two questions drawn by lot. A question drawn for the first part of the course, another for the second part, then a discussion on some points repeated here and there in the course, without preparation.</p>
Teaching methods	<p><b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b></p> <p>Ex cataedra</p>
Content	<p>Part 1: Basic processes of embryonic development Original question: what is embryonic development? Fundamental Cellular and Molecular Mechanisms 1) Developmental and Reproductive Cycles 2) Cellular Multiplication 3) Differentiation: Cellular Destiny and Potentiality 4) Differentiation: Specification, Restriction and Determination. 5) Intercellular communication. 6) Apoptosis 7) Morphogenesis and cell movements 8) Genes of development 9) Sexual and asexual reproduction 10) At the beginning of form: The question of the chicken and the egg .... The main stages of the embryonic development of model animals 1) The main stages of early development 2) The early development of a model echinoderm: the sea urchin 3) Caenorhabditis elegans: model for developmental geneticists 4) Insects: the Drosophilian model 5) The ascidian and amphioxus: chorded models 6) The fish 7) Amphibians</p> <p>Part 2: Early embryonic development and organogenesis Early development 1) Gametogenesis 2) Fertilization 3) Segmentation 4) Gastrulation Organogenesis 1) The delineation of the embryo and its appendices 2) Extraembryonic appendages 3) The face, the oral cavity and the pharynx 4) The respiratory system 5) The digestive system 6) The serous cavities and the mesos 7) The musculoskeletal system 8) The circulatory system 9) The urogenital 10) The nervous system 11) Skin and sense organs. Exercises: monitorat</p>
Inline resources	Course notes and images accessible via Moodle
Other infos	<p>Precursory courses: - Biologie animale BIO1111 - Compléments de biologie animale BIO1231 - Introduction à la génétique BIO1221</p> <p>Support - Course notes in two volumes, by Moens, A. and Rezsohazy, R., UCL; slides files.</p>
Faculty or entity in charge	BIOL

**Programmes containing this learning unit (UE)**

Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Biochemistry and Molecular and Cell Biology	<a href="#">BBMC2M</a>	3		
Additional module in Biology	<a href="#">LBIOL100P</a>	3		
Minor in Biology	<a href="#">LBIOL100I</a>	3		