



## Course specification

University/Academy: Damanhour

Faculty/Institute: Science

Department :Zoology

1. course Data:			
Course code: <b>Zool 307</b>	Course title: Embryology	Academic year 2009-2010 level: 1 <sup>st</sup> term 3 <sup>rd</sup> year	
Specialization: Special Zoology	No. of instructional units:   lecture	<table border="1"><tr><td>3hrs/ wee</td></tr></table> practical	3hrs/ wee
3hrs/ wee			
		<table border="1"><tr><td>4hrs/ week</td></tr></table>	4hrs/ week
4hrs/ week			

<b>2. course Aim</b>	<ul style="list-style-type: none"><li>• Describing the structure of gonads.</li><li>• Recognizing the formation of gametes.</li><li>• Understanding the mechanisms of developmental process in Amphioxus, toad, Avas and Mammals</li></ul>
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### 3. Intended learning outcome

<b>a) Knowledge and understanding</b>	A1. Mention the main concepts of embryonic development and discussing the possibility of their medical application.. A2. Recognize the mechanism of development with cloning issue, bank of organ and developmental disorders to facilitate the theoretical topics and stimulate students to think in a great depth. A3. Summarize different thinking of evolutionary vertebrate development.
<b>b) Intellectual skills</b>	By the end of the course the student would be able to: B1. Formulate the embryonic development among different classes of vertebrates. B2. Capable of construction of a 3D model embryos.



	B3. Apply different levels of sections from whole embryos.
<b>c) Professional skills</b>	By the end of the course student will have the ability to: C1. Prepare the different developmental stages of animal model systems. C2. Elicit the main developmental structure and ability to refer them to embryonic origin.
<b>d) General skills</b>	At the end of this course students will have: D1: Communicate with each other for covering both written & oral tasks. D2: Exchange ideas, principles, and theories
<b>4. course content</b>	<ul style="list-style-type: none"><li>• Gametogenesis,</li><li>• Fertilization and cortical reaction</li><li>• Embryonic development of <i>Amphioxus</i> as an intermediate link between invertebrates &amp; vertebrates.</li><li>• Developmental descriptions of some vital internal systems of <i>Amphioxus</i>.</li><li>• Embryonic development of Amphibia.</li><li>• Establishment of the vital internal organs.</li><li>• Avian reproductive system, egg and it's accessory membranes</li><li>• Early embryonic development of the chick</li></ul>



	<ul style="list-style-type: none"><li>• Avian Patterning and cell movements</li><li>• Avian Neurulation</li></ul> <ul style="list-style-type: none"><li>• Body Axes formation in the chick embryo</li><li>• Establishment of the internal body systems of the chick embryo</li></ul> <ul style="list-style-type: none"><li>• Development of the mammals "Human Development" Mammalian reproduction cycle Early embryonic development of human "From fertilization up to 12 days of implantation</li><li>• Test-tube baby (in vitro fertilization )</li></ul>
<b>5. Teaching and learning methods</b>	1- Lecture 2 - Practical 3- Problem-Based Learning. 4- Encourage students to use online and library resources



<b>6. teaching and learning methods for students with special needs</b>	
<b>7. Student Assessment</b>	.
<b>a- procedures used</b>	1- <b>Final-Term Examination:</b> to assess student writing and drawing ability expressing his/her understanding of chordate Embryology 2- <b>Class activities</b> (reports, discussions, practical...etc): to assess the student intellectual, professional, practical and general and transferable skills
<b>b- assessment schedule</b>	Assessment 1 <b>Practical Examination</b> Week 14 Assessment 1 <b>Final-Term Examination</b> At the end of the term



### Weighing of Assessments

Mid-Term Examination	15	7.5%
Final-Term Examination	150	75%
Oral Examination	0	0.0%
Practical Examination	25	12.5%
Semester Work	1	5%
<u>Other types of assessment</u>	<u>0</u>	<u>0.0 %</u>
Total	200	100%

### 8. List of Textbooks and References:

#### a) Course Notes

#### b) Required Books (Textbooks)

- - Scott F. Gilbert (2000): **Developmental Biology**, 6<sup>th</sup> edition - Sinauer Associates Inc., MA, USA
- 6.3. Recommended Books

#### c) Recommended Books

9. Lewis Wolpert, Jim Smith, Tom Jessell, Peter Lawrence, Elizabeth Robertson, and Elliot Meyerowitz (2000): **Principles of Development**. 3<sup>rd</sup> edition
10. Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, and Peter Walter (2000): **Molecular Biology of the Cell**, 4<sup>th</sup> Edition
- Harvey Lodish, Arnold Berk, Chris A. Kaiser, Monty Krieger,



	Matthew P. Scott, Anthony Bretscher, Hidde Ploegh, and Paul Matsudaira (2000): <b>Molecular Cell Biology</b> 6 <sup>th</sup> Edition -
a) Periodicals, web sites,....,etc	6.4. Periodicals, Web Sites, etc <ul style="list-style-type: none"><li>• <a href="http://www.zygote.swarthmore.edu">http://www.zygote.swarthmore.edu</a></li><li>• <a href="http://www.ncbi.nlm.nih.gov/sites/entrez">http://www.ncbi.nlm.nih.gov/sites/entrez</a></li><li>• <a href="http://www.devbio.com">http://www.devbio.com</a></li></ul>

**Course Instructor: Dr. Abd El-Fatah El-Beltagy**

**Head of Department: Prof. Karoline Kamel Abdel Aziz**

**Date: -----/-----/2011**