Course specification

University/Academy: Damnhour
Faculty/Institute: Science
Department: Zoology

1. course Data:

<table>
<thead>
<tr>
<th>Course code:</th>
<th>Course title:</th>
<th>Academic year:</th>
<th>level:</th>
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Specialization: Zoology and chemistry

<table>
<thead>
<tr>
<th>No. of instructional units:</th>
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<tbody>
<tr>
<td>lecture 2hr</td>
<td>practical 3hr</td>
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2. course Aim

- Describing the structure of gonads.
- Recognizing the formation of gametes.
- Understanding the mechanisms of developmental process in Amphioxus, toad, Avas and Mammals

3. Intended learning outcome

a) Knowledge and understanding

A1. Mention the main concepts of embryonic development and discussing the possibility of their medical application.
A2. Explain and draw 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. Recognize different thinking of evolutionary vertebrate development.

| **b) Intellectual skills** | By the end of the course the student would be able to:
| | B1. Conclude the embryonic development among different classes of vertebrates.
| | B3. Apply different levels of sections from whole embryos. |

| **c) Professional skills** | By the end of the course student will have the ability to:
| | C1. Manage the different developmental stages of animal model systems.
| | C2. elicit the main developmental structure and ability to refer them to embryonic origin. |

| **d) General skills** | 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 |

| **4. course content** | Gametogenesis, Fertilization and cortical reaction
| Embryonic development of *Amphioxus* as an intermediate link between invertebrates & vertebrates.
| Developmental descriptions of some vital internal systems of *Amphioxus*. Embryonic development of Amphibia. |
Establishment of the vital internal organs. Avian reproductive system, egg and it’s accessory membranes
Early embryonic development of the chick
Avian Patterning and cell movements
Avian Neurulation
Body Axes formation in the chick embryo
Establishment of the internal body systems of the chick embryo
Development of the mammals "Human Development" Mammalian reproduction cycle
Early embryonic development of human “From fertilization up to 12 days of implantation

5. Teaching and learning methods

- Lecture
  2 - Practical
  3- Problem-Based Learning.
  4- Encourage students to use online and library resources

6. teaching and learning methods for students with special needs

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7. Student Assessment

.1- **Final-Term Examination:** to assess student writing and drawing ability expressing his/her understanding of chordate Embryology

5.2- **Class activities** (reports, discussions, practical…etc): to assess the student intellectual, professional, practical and general and transferable skills

a) Procedures used:

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b) Schedule:

Assessment 1 **Practical Examination** Week 14
### Assessment 1 Final-Term Examination

At the end of the term

c) Weighing of Assessment:

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<tr>
<th>Assessment Type</th>
<th>Weight</th>
<th>Percentage</th>
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<tr>
<td>Final-Term Examination</td>
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<tr>
<td>Oral Examination</td>
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<td>Practical Examination</td>
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<tr>
<td>Semester Work</td>
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<tr>
<td>Other types of assessment</td>
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<td><strong>Total</strong></td>
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<td><strong>100%</strong></td>
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### 8. List of Textbooks and References:


**a) Course Notes**

**b) Required Books (Textbooks)**

- Harvey Lodish, Arnold Berk, Chris A. Kaiser, Monty Krieger, Matthew P. Scott, Anthony Bretscher, Hidde Ploegh, and Paul

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<tr>
<th>c) Recommended Books</th>
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<tr>
<th>d) Periodicals, web sites, etc</th>
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<tr>
<td><a href="http://www.zygote.swarthmore.edu">http://www.zygote.swarthmore.edu</a></td>
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**Course Instructor:** Dr. Abdel Fatah El-Beltagy

**Head of Department:** ---------

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